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Arler, Finn

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Chapter 9: The global community and distributions of rights and responsibilities

Finn Arler

Both aims and means of Danish energy policy changed significantly in the late 1980s, culminating in the *Energi 2000* plan in 1990 (Chapter 8). Two global factors were decisive: the publication of the Brundtland report with its demand for sustainable development, and the growing political awareness of the impacts of greenhouse gas emissions. Both factors gave rise to more fundamental debates about rights and responsibilities on a global level than previously; debates that were intensified before and after the adoption of the Climate Convention (UNFCCC) at the Rio Summit 1992. This debate was – and still is – fundamental for energy policy in Denmark and elsewhere, and it is worth examining in detail.

Only few global agreements similar to the Climate Convention have been made. The September 1987 *Montreal Protocol on Substances that Deplete the Ozone Layer* from is one example, the agreement about the *Law of the Sea* another. Both played a role in the climate change debate, but neither of them had the same extensive scope and comprehensive character as the UNFCCC. Everyone will be affected by climatic change, and efforts to avoid the changes may have pervasive influences on all sectors of society, not least the energy sector. What is at stake is our conception of the global community and our obligations to each other and to future generations.

Another unique element is that everybody needs to contribute in order to solve the problem. This puts extra pressure on negotiators. No country, nor organization, nor company, nor individual can be expected to participate fully unless they consider the set-up – the distribution of rights and responsibilities in particular – to be just, fair, and equitable. It is crucial to try to make an equitable agreement through fair procedures that everybody can support. In this chapter, we shall take a closer look at what this may entail.

Implementing the Framework Convention and the circumstances of justice

In the negotiations before and after the Climate Convention, questions of justice and equity were of key importance. The toughest questions were postponed, though, to the third Conference of the Parties (COP3) held in Kyoto, Japan, on December 1-11, 1997. Whereas the first two conferences had focused on establishing the institutions, standards for counting and measuring, and procedures for negotiating, etc., the Kyoto conference was the first summit where the general principles and intentions were translated into specific rights and demands. This led to high expectations before the summit, and engaged citizens worldwide were hoping for an ambitious clear-cut agreement based on just and transparent criteria, comparable to the Montreal agreement.

The Kyoto conference was universally acknowledged, at least in principle, as the legitimate body for deciding the global rules on greenhouse gas emissions (and sinks). Governments were recognized as negotiators on behalf of their countries as political communities and as political authorities responsible for the greenhouse gases emitted within their territories. Despite conflicts of interests, the parties entered the negotiations with arguments expressed in an impartial style that ought to make them acceptable to all parties (see Chapter 2).

Countries did not ignore their specific interests. On the contrary, in papers delivered before the conference, many representatives called attention to their special situations which they argued justified special treatment. A few examples will suffice. Representatives from India argued that industrialized countries had already used their share of emissions and should have to buy allowances from developing countries (see also Agarwal and Narain 1991). Representatives from Canada argued that the key parameter was not a country's *gross* emissions, but its *net* emissions, i.e. whether it contained sinks (like forests) enough within its territory to absorb the gases emitted. Olav Benestad from Norway proposed an 'equal burden formula' for CO₂ emissions, where emission rights would be differentiated according to needs for special services that had to be provided through CO₂-emitting processes (Benestad 1994). Cold countries like Norway should be allowed to emit more, in order to produce the heating necessary to sustain tolerable living conditions.

The USA's negotiators proposed 'a comprehensive approach' according to which it would be wrong only to focus on per capita emissions, where US citizens were positioned significantly higher than others. Firstly, countries like the USA had the substantial potential to absorb greenhouse gases into trees and crops. This should be taken into account. Secondly, some countries might not have high emissions per capita but had allowed large populations to grow instead. Their total emission level was therefore as high as countries with fewer people emitting larger amounts of gas per capita.

What these examples show is, firstly, that, even though participants expressed claims in impartial modes, they were primarily preoccupied with their own special interests. Everybody was alert to the danger of being steamrolled by other parties. Secondly, it indicates that a variety of reasonable criteria could be brought into play, making it difficult to reach a consensus. Thirdly, by focusing on narrow interests, negotiators signified conceptions of global society as a fragile conglomerate of self-seeking nation states, despite the discourse of a common concern of humankind that should be handled jointly on the basis of shared principles of equity.

There are exceptions to this pattern, though. We have already seen how Danish energy policy changed due to moral considerations combined with an awareness of new opportunities. Similarly, prior to the Kyoto conference, the EU had adopted a 15 % emissions reduction target by the year 2010 from the 1990 level (EC 1997a; EC 1997b; EC 1997c, 4). Devastating climate change should be avoided, regardless of the result in Kyoto. It was also emphasized, though, that an accelerated transition would have advantages. Apart from job creation, it would reduce the EU's problematic (and growing) 50 % dependency on energy imports (ibid.). Despite their significant potential, renewables contributed less than 6 % to the Union's energy consumption, and an increased share might have favourable long-term economic effects.

Criteria of distributive justice

The question of climate justice and equity, the distribution of rights and "common but differentiated responsibilities", concerns everybody and has become the subject

of an extensive debate. In this section, we shall look closely at, first, the relevant distributive criteria and, second, the criteria used in major political decisions globally and in the EU. The conception of the global community is of key importance: what kind of relationship is it, and what do we owe each other as world citizens? Different understandings of the global relationship imply different kinds of obligations based on different criteria of justice. In close relationships, people tend to be generous, whereas in distant relationships they care more about narrow concerns and are cautious about being cheated.

The following list of potential distributive criteria is intended to be as exhaustive as possible. All of them could be, or have been, used in global warming agreements. The discussion of the criteria's relevance, justification, and usefulness is mainly based on arguments already presented in the 1990s but is supplemented with arguments from – or references to – later publications. Afterwards, the use of the various criteria in global and international agreements will be presented. In Denmark, the Ministry of Environment and Energy and the Research Council co-sponsored a separate study which has been used in the following presentation (Arler 1995, 1997, 2001 and 2002).

Simple equality

'Simple equality' (or 'parity') is the most straightforward distributive criterion: everybody receives or is guaranteed the same amount of a good. In a political context, simple equality is often connected to human rights: every human being is guaranteed basic rights and goods necessary for a decent standard of living, political rights, etc. (see also Chapter 2). In relation to global climate agreements, this criterion may be used in various ways.

The most obvious way is to distribute the same emissions rights to every world citizen, or to distribute allowances to countries in accordance with the size of their population (e.g., Agarwal & Narain 1991; Grubb 1992; Meyer 1999). Equal shares in the global commons are allotted to all humans within commonly-decided limits. The redistribution of quotas through trade may be allowed. This was the main criterion used in the Danish energy policy debate in the 1990s (Chapter 8), and as it has been a recurring argument elsewhere.

The simple equality model is not without problems, though. Firstly, differences in population growth must be considered. Should population growth – whether now, in the past, or in the future – result in a larger share of quotas, or should each nation receive a fixed number of quotas for a growing or declining number of people? An often-proposed solution is to index populations with reference to a specific year. The reference year could be either 1990 – the reference year for emissions reductions (e.g., Arler 1995) – or 2050 – to give young people in countries with a large number of people under the age of 25 a chance to develop family lives (Singer 2002, 36, 42). Others have argued that distribution should change continuously with population size; per capita entitlements will, thus, be reduced when global population increases (e.g., Benestad 1992).

Secondly, equal emissions rights may refer to either gross or net emissions. In the first case, greenhouse gas sinks are not included, whereas they are accounted for in the second case. If sinks are not included, there is no direct incentive to increase the absorption of gases by, for example, planting trees or changing crops. On the other hand, if sinks (or protected carbon reservoirs) are included, as was suggested early on by the US and Canadian representatives (and later supported by, for example, Caney 2009 and 2010), this would favour countries with large areas per capita, and particularly countries with major potential for sinks due to unfortunate land use in the past, such as deforestation. It does not seem fair, though, to reward countries for their history of deforestation. On the other hand, neither reforestation nor protection of carbon reservoirs may occur without encouragement.

A third problem is that some developing countries emit considerable amounts of greenhouse gases. Energy is often used very inefficiently in these countries, partly because they lack the economic means to invest in efficient technologies. Should these nations be treated differently from wealthy nations with better opportunities to use efficient technology? Should they be allowed to emit larger amounts of greenhouse gases or be supported in using more efficient technology?

This is related to a fourth objection. If people in some countries have difficulty leading a life with a decent standard of living without emissions above a globally-accepted level, it may not be fair to demand emissions reduction (e.g., Caney 2009 and 2010). On the other hand, only countries with major social

inequalities seem to be facing this problem. This may change in the future as emissions limits are tightened, but it clearly illustrates that inequality not only exists between nations, but just as much within national borders. In general, however, it does not seem fair to reward countries that ignore the common need to avoid using fossil fuels.

A fifth challenge is to decide whether equal emissions rights apply to net consumers or net producers. Countries like China produce more goods than they consume, whereas other countries – many European countries for instance – import large amounts of industrial goods. Denmark comes out on both sides, because its imports of industrial commodities is significant, whereas a major emitter of greenhouse gases, agriculture, exports some 80-90 % of its products.

On the one hand, it seems equitable to make consumers responsible, even though it may be complicated to pursue the ‘sunk’ emissions through all the trading steps on the way to the consumer. On the other hand, producers – who profit from CO₂-emitting production – cannot be considered to be innocent either. Moreover, if producers are forced to buy emissions quotas, consumers must either pay extra prices or reduce consumption.

The presence of multinational companies and the globalization of trade and finance make the situation even more complex. Production sites in one country may be owned by shareholders in other countries. In Denmark, for instance, global companies like Apple, Google, and Facebook are establishing large servers that are estimated will account for 16 % of power consumption in 2030 and 22 % in 2040 (Energistyrelsen 2018). As emissions are included on the Danish account, it will be difficult to reach official reduction goals, even though the majority of owners and consumers are located elsewhere. Fortunately, the companies have agreed to invest in wind (or solar) energy to cover their consumption. They may not erect the necessary turbines on Danish territory, however, and their contributions may therefore still not appear on the Danish CO₂ account.

International transportation poses another problem which has been exceptionally serious for Denmark, due to Danish-registered international transportation companies, with Maersk as the largest global player (see Figure 9.1). If energy consumption from international transportation is included on the Danish

account, it increases it by more than 50 %. Is this fair when people all over the world use these transport opportunities, and shipping is the most energy-efficient way to transport goods? The answer is far from obvious, even though it is evident that international transport should not be exempted from reduction demands.

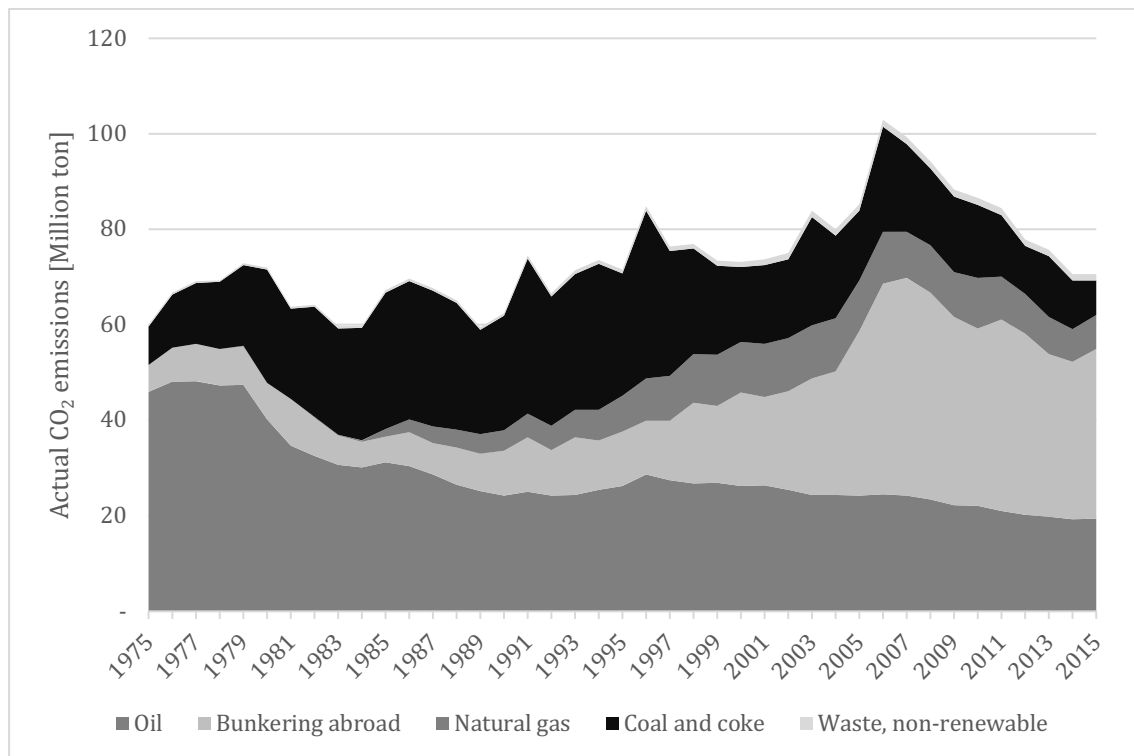


Figure 9.1. Danish CO₂ emissions 1975-2015, including bunkering abroad (based on data from ens.dk/; statistikbanken.dk/). CO₂ emissions from bunkering 1975-89 is calculated with CO₂ emissions for Jet Fuel of 74 kg CO₂ per GJ, and Crude Oil of 78 kg CO₂ per GJ (energi-og-miljodata.dgc.dk).

Human equality is not necessarily a question of an equal right to emit – nor of equal access to other kinds of resources (Sen 1997). It may be more reasonable to focus on equal access to decent and empowering living conditions. This does not exclude global agreements using equal emissions per world citizen as a guiding standard, though, and quota trading could even be a useful device for countries with low emissions. Neither does such agreements exclude separate arrangements to support vulnerable people.

Still, an equal emissions rights solution may be considered too insensitive to the differences of human needs in different places, some of which may require higher emissions (e.g., Caney 2009 and 2010). In particular, it may put unfair restraints on developing countries. This could speak in favour of a complex

solution where dispensations are allowed, and a combination of criteria is applied. It would be appropriate, though, to avoid extensive dispensation arrangements where countries may disregard cheap technological possibilities that do not involve fossil fuels.

Simple equality may also be used as criterion for distributing human rights for protection from the impacts of human-induced climate change. If this demand were taken literally, without exceptions, it would set very strict limits on emissions as some areas are extremely vulnerable to climate change impacts. An alternative solution would be to establish a commitment between emissions benefits and mitigation costs, e.g., through a global facility funded by emissions taxes and a comprehensive compensation scheme. In the Copenhagen Accord, for instance, an assertion was made that developed states should provide \$100 billion in 2020 to a climate change adaptation fund. This Green Climate Fund was later established at COP16 in Cancun 2010, together with an Adaptation Framework for the provision of technical support and information sharing.

Another comparable simple equality approach is to allocate equal rights to the emissions needed for the sustainable development of all the inhabitants of the globe, as is claimed in the UNFCCC. It is unclear what this entails, though. A humbler claim would be to ensure that neither climate change itself, nor global agreements, should ruin the worst-off individuals' rights to development. In all these cases, however, the main distributive criterion is needs, rather than simple equality.

Needs

When 'needs' are used as criteria in public policies, they are often related to guarantees. Welfare regulations, for instance, are based on a combination of needs and basic rights. International aid also uses need as a main criterion, but this does not have to be related to equal rights. A radical interpretation of the needs criterion is always to give priority to the worst off individuals, in line with John Rawls' difference principle, according to which inequalities only are equitable if they benefit the least advantaged (Rawls 1972). Rawls reserved this rule for political communities like nation states, but it could potentially be extended to the global community (Beitz 1999; see also Chapter 2). In that case, poor people should at

least be relieved of the extra costs due to global warming and be offered assistance by world society at large, rather than by their nation states.

Needs may also be used as a criterion for the distribution of emissions rights. In this case, the worst-off countries are relieved of the costs of cutting down emissions, or they are allotted a major part of transferable emissions rights which richer countries have to buy in order to emit greenhouse gases. Needs are also used as a criterion if a basic right to 'subsistence emissions' has priority before 'luxury emissions' (e.g. Shue 1993). This requires a clear definition of what counts as a minimal quality of life, but also a justification for using fossil fuels rather than cheap available alternatives.

Needs may also be a criterion for aid given to countries that are particularly vulnerable to climate change, or – as stated both in the *Montreal Protocol* and in the UNFCCC (Article 4.3-4.9) – by giving financial and technological assistance for energy savings and renewable energy technologies or support for adaptation. If compensation for damage due to climate change is included, too, it would be necessary to separate local, national, and global responsibilities. Such assessments are bound to be controversial, and compensation mechanisms have only been established very slowly.

Highly unequal countries, where wealthy and powerful groups try to avoid the burden of responsibility for poor countrymen, pose another problem. It can be difficult for potential donor countries – and for their least-advantaged citizens in particular – to accept financial and technological aid to countries with massive internal inequalities.

Means and abilities

'Means' and 'abilities' are criteria like needs but work in the opposite direction. They are used as criteria, for instance, in relation to graduated taxation. The strongest is expected to carry the heaviest burdens. In Marx's famous maxim of true communism, everyone contributes in accordance with their abilities, and receives in proportion to needs. The wealthiest parties contribute with the largest financial share, whereas the worst-off parties are relieved of any burden and receive aid if needed. Needs, means, and abilities are combined in solutions where

all nations contribute in proportion to their GNP (or GDP) per capita or a similar measure of wealth and ability. The rationale is, as stated in the UNFCCC, that climate change is a common problem where parties are responsible in proportion to their financial means and technological abilities.

It may turn out to be quite complicated, though, to calculate equitable transfers if this is done top-down from a global point of view. Trade of a declining number of emissions quotas – where poor countries sell quotas to richer countries which are still reliant on fossil fuels – may be a simpler solution that could end up with similar results. This could be combined with other kinds of mechanisms where wealthy nations sponsor adaptations for climate change.

Like the needs criterion, the use of means and abilities as a criterion has to be based on a strong conception of the global community, as a political community with the mechanisms to redistribute goods in accordance with needs and abilities – and not only in accordance with ‘deserts’ (discussed later) and responsibilities, like a taxation system. The main weakness of proposals along these lines is, therefore, whether all wealthy countries would be willing to accept their extended obligations. Some countries are still marked by “realist” conceptions (Chapter 2).

Deserts and merits

‘Deserts’ and ‘merits’ – or in the negative mode: blame, guilt, and fault – are criteria which depend on common goals. In international regulation, they are best known from the Polluter Pays Principle, where polluters pay for clean-up operations or compensate victims. It is also used in environmental taxation and quota systems. Deserts and merits can be applied in various ways, once a consensus has emerged on global goals. The most obvious solutions are global emissions taxes or an emission-allowance trading system. The more damage you do, the more you pay. Tax revenues could be used to develop cleaner technologies, to help vulnerable countries adapt to climate change, or to compensate victims.

A problem with this model is that, unless a progressive scale is used or at least some minimum level is set up, affluent parties will not feel the penalty as severely as less-prosperous parties. It is also worth remembering that countries with efficient technology get more value per energy unit than less developed

countries do. Still, efficiency ought to be awarded somehow – whether through a CO₂ tax or a quota trading system – even if this favours countries with advanced technologies. This indicates that a deserts and merits system have to be part of a broader scheme where less developed parties' needs are considered elsewhere.

'Historical contributions' constitute a specific challenge, because some emissions emerged before (the majority) of the people currently involved could influence decisions. Should previous emissions influence current and future distributions? It has been claimed that the industrialized countries used up their emissions rights long before 1990, and that future quotas should be allocated exclusively to developing countries (Agarwal & Narain 1991). There are two general responses to this claim.

On the one hand, one may argue that current generations should not be considered responsible for past emissions. They cannot be blamed, the argument goes, because they were not involved in the decisions. If everybody is considered an individual rather than a citizen of a political community with a common history, current individuals cannot be blamed for past decisions made by deceased individuals – even if some of them may accidentally be their relatives.

On the other hand, it can be argued that current generations should be considered responsible for national sins of the past because they are co-members of the same national community – or, at least, they benefit from previous emissions as inheritors of the wealth they created. The last part of the argument suffers from the weakness that, even if past activities have given the greatest benefits to some descendants in an emitting country, other descendants from the same country may not have gained anything, whereas a number of benefits may have spread beyond national borders.

If some responsibility is bestowed to current members of political communities with a history of greenhouse gas emissions, the next question is to what extent this ought to be included in a global agreement. In law, a distinction is usually made between:

- 'Intentional' actions with strong legal consequences;
- 'Negligent' actions with weaker legal consequences;
- 'Unintentional' (accidental) actions without legal consequences: and

- ‘Unintentional’ actions with ‘objective responsibility’ or ‘strict liability’ followed by legal consequences.

Nobody emitted greenhouse gases in order to hurt people, so the first case is not relevant. One may talk about negligent actions after the 1980s, however, when the greenhouse effect theory became widely-known and accepted due to the UN conferences and the IPCC’s 1990 report. Emissions before 1980s can be categorized as unintentional actions in the legal sense, but it could still be claimed that objective responsibility was relevant due to the potentially-serious impacts of the actions. This possibility is seldom used in a legal context, but it is obvious that profitable actions which lead to serious negative impacts give reason to claim some kind of responsibility for the damage.

It is worth putting things in proportion. Figure 9.2 shows that surplus emissions are mainly a post-war phenomenon, and that current emission levels are much higher than a few decades ago. The level recommended by the IPCC was exceeded around 1960. The pre-1980s levels were already too high and, on average, CO₂ remains in the atmosphere for a century, but the trouble with greenhouse gases is – for the most part – caused by the actions of current generations. Pre-1980s emissions may be disregarded in negotiations, without serious injustices being done. In general, it has been accepted that 1990 should be used as starting year, but that industrialized countries have an obligation to take the lead in combating climate change (see UNFCCC 1992).

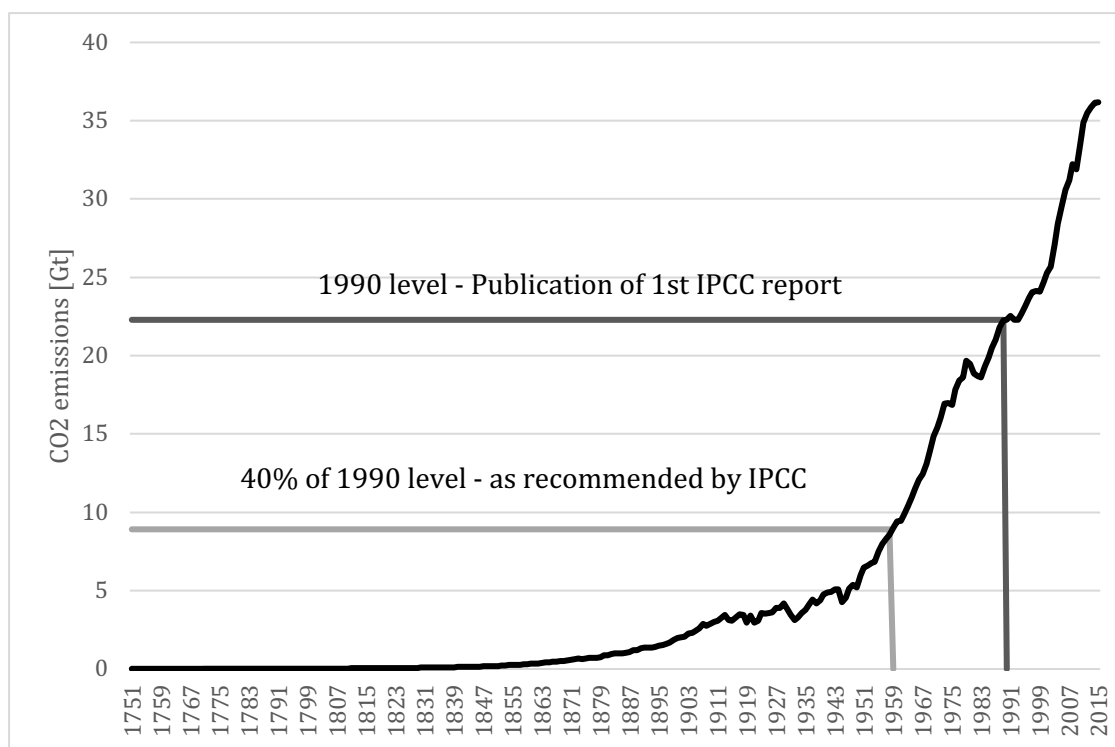


Figure 9.2. CO₂ emissions from fossil fuels burning, 1751-2009 (ourworldindata.org). Two years are marked: the publication of the 1st IPCC report and the year when the emission, which IPCC recommended as maximum level, was exceeded.

Supply and demand

‘Supply’ and ‘demand’ are the criteria used in trading, and they could be used for auctions of tradable quota. In this auction scheme, the supply side depends on political decisions about the ‘cap’, i.e. the maximum emissions level, whereas the allocation of available quotas is left to market mechanism. The lower the cap, the fewer quotas will be available, and the higher the price is likely to be. More reductions will be profitable – until clean, affordable technologies make quotas superfluous.

From the societal point of view, a cap-and-trade system is superior to a tax system, as it fixes (and regularly diminishes) the quantity of greenhouse gas emissions but lets prices on quotas fluctuate. If taxes fix prices, emissions will be more unpredictable. The cap can be reduced over time to a level that makes it possible to stabilize gas concentrations below the recommended level of 450 ppm of CO₂. The price of permits is likely to go up when the cap is reduced, but price fluctuations will be unpredictable. This makes it less attractive than fixed taxes for investors who prefer stable economic conditions for long-term investments.

The auction model is compatible with the use of deserts as criterion, and subsequently with the Polluter Pays Principle. Emitters pay for emissions, although not necessarily in proportion to the damage. The price is both dependent on political decisions – which are not only determined by the impact of emissions – and on other actors' behaviour; this is what makes it unfavourable to long-term investors in the energy sector.

There are also other disadvantages with this scheme – apart from practical problems with auditing, speculation, etc. If allocation is left to a market, emissions depend on purchasing power. Wealthy emitters need not be much concerned about reductions until quota prices are high, whereas less-prosperous emitters find it difficult to finance quotas or, alternatively, emissions reductions. The cap-and-trade system may be combined with schemes that make it more equitable, though. For instance, auction revenues could support the worst-off parties or be invested in developing affordable renewables and energy savings.

One interesting suggestion is to deposit revenues in a non-governmental Earth Atmospheric Trust (Barnes 2006; Barnes et al. 2008) administered by trustees with a mandate to protect the climate system. A fraction of the revenue could be distributed annually to all world citizens. The dividend would be insignificant for wealthy people, but of real benefit to the worst-off individuals. Other parts of the revenues could be used for restorations and adaptations, or to support technological innovations.

This proposal involves several challenges, though. Firstly, the Trust could end up as an extremely powerful global organization with an undemocratically elected board, managing large sums for controversial purposes. Revenues would be handed out through procedures beyond political control by a trust acting with global state authority when companies' compliance is audited and violations penalized. The promise that trustees should be appointed (by whom?) on the basis of 'their understanding of the purposes and details of the Trust' and dedication to its goals sounds reassuring in theory, but leads to a number of questions. The organization would have to be settled by some political body, probably the UN, so the system would never become independent of politics.

Entitlement and luck

‘Entitlement’ and ‘luck’ are criteria used in gambling and lotteries. Those who happen to have the right numbers are entitled to the winnings. It does not matter whether they need it, nor do they have to do anything to deserve it. In international affairs, entitlement and luck have always been important criteria. Some are born in wealthy countries; others are less fortunate. Some nations are rich in resources; others are not.

Redistributions have taken place through conquest throughout history, but no grand-scale redistributions have ever been established. Demands for global reallocation have been viewed with scepticism – probably due to nightmarish scenarios of recurring redistributions without global consensus. Some theorists have advocated a reallocation scheme, though, or at least a global dividend on resource use as a lever to support people born into difficult circumstances (Pogge 2008, 202ff).

Similar to the traditional allocation of resources, quotas could be allocated in proportion to sink potentials. The basic ethical idea would be that all nations ‘put their own houses in order’ and maintain a balance between emissions and absorption. Either population size or use of fossil fuels per capita should be adjusted accordingly. However, absorption potential is arbitrarily and very unevenly distributed, and populations are similarly apportioned. Until recently, nobody would even think of adjusting population size to available CO₂ sinks. Consequently, the distribution of gains and losses would have no relationship to other broadly-accepted criteria like deserts, needs, and abilities.

Even though this solution is based on plain luck, it still plays a role in the negotiations of agreements when absorption – due to so-called LULUCF: land use, land-use change, and forestry – is deducted from a country’s gross emissions. The UN Climate Conventions underlined the commitment to promote sustainable management, conservation, and enhancement of sinks and reservoirs of all greenhouse gases not controlled by the Montreal Protocol (UNFCCC 1992, Article 4.1(d)), and the later Kyoto Protocol (see below) stated that net changes in emissions “resulting from direct human-induced land-use change and forestry activities” can be used to meet the commitments. The Protocol confined this to

“afforestation, reforestation, and deforestation since 1990” (Kyoto Protocol 1997, Article 3.3), but other changes may be included.

Some connection to criteria like deserts and merits is established when the focus is on ‘changes’ of land use away from a settled baseline. It is vital to increase the absorption capacity of sinks – and to avoid land changes that heighten greenhouse gas levels – and this should be rewarded somehow. On the other hand, the potentials for LULUCF credits are so unevenly and arbitrarily distributed across countries that an accentuated role of this factor gives luck a substantial role. Moreover, countries with a long history of deforestation would be awarded for reforestation, unlike forest preservers. Finally, if the mechanism awards countries which abstain from already planned land-use changes, countries with deforestation plans will be advantaged.

A final area where luck is dominant as criterion is adaptation to climate change. Even among well off countries, potential damage and benefits are unevenly distributed. Instead of using luck as criterion, all parties might share the risks through an insurance system (e.g., Banuri et al. 1995). So far, however, this is a challenge that each country is expected to deal with individually. The largest emitters could be held responsible – after all, it is a recognized principle that activities within one country should not cause harm in other countries. International law is not geared to the complexity of climate change, though, where direct causal links are impossible to prove. The only exception to the rule of luck is the proclaimed support for adaptation in the poorest and typically most vulnerable countries or areas (UNFCCC, Article 4.4), but even this kind of support – e.g., through the global Green Climate insurance fund – has had a very slow start.

Grandfathering or status quo

‘Historical rights’ or ‘grandfathering rights’ are rights which emerge from previous legitimacy. The legitimization need not be luck or custom but is often related to ‘usage’ or ‘acquisitive prescription’, as is stated in the famous private property argument in John Locke’s *Second Treatise of Government* (Locke 1690/1966, 15). By using something which is not the property of anybody, one becomes entitled to the fruits of its use. This principle is also referred to as ‘squatter’s rights’ after the

allocation of land in the American Wild West, and is related to the old ‘first come, first served’ principle.

Similarly, those who were first in altering the atmosphere from its natural state may be entitled to continue using the atmosphere’s capacities. Prior emissions increase entitlements to future emissions. A main argument is that the status quo constitutes a ‘natural focal point’ for negotiations (Grubb et al. 1992). If reductions are needed, status quo is baseline for further regulations. The use right may also be interpreted as a right to proceed in the same scale for some time. This would be the case if emissions were reduced by all nations by an equal percentage, as in similar international agreements about chlorofluorocarbons (CFCs) (the Montreal Protocol) and SO₂. In these cases, grandfathering rights were temporary, and diminishing.

A major problem with grandfathering rights is that polluters are favoured, rather than punished. Polluters are not required to pay, as is implied by the Polluter Pays Principle, but actually receive privileges. The main argument for using the criterion temporarily is that polluters need time to adjust their previous illegitimate practices. As we shall see later, the temporary grandfathering criterion has played a significant part in allocation schemes, including the Kyoto Protocol and the EU Emissions Trading Scheme.

Power

Finally, ‘power’ always plays a role. Sometimes it is explicitly used, when powerful countries refuse to accept agreements that a majority finds fair and equitable. This has been a consistent approach of US governments. US emissions have continually been twice as high as European or Japanese emissions – and with 4 % of the global population, the USA has accounted for 25 % of all greenhouse gas emissions – but the US congress has avoided international commitments, and even cancelled commitments that were accepted at global negotiations.

Stephen Gardiner has described the role of the US government, represented by Vice President Al Gore, at the Kyoto negotiations in this way: “From the early stages, and on the most important issues, the United States effectively moulded the agreement to its will, persistently objecting when other countries tried to make it

stronger. But then it abandoned the treaty, seemingly repudiating even those parts on which it had previously agreed” (Gardiner 2004, 594). Other rogue nations like Arab oil-producing countries – and sometimes Australia, Canada, and Russia – have also been powerful enough to put short-sighted national interests first, indicating a shared conception of international politics in line with the ‘realist’ paradigm of mutual distrust and cynical calculation (Chapter 2).

If power were accepted as main criterion in intra-generational affairs, it may as well be applied in the intergenerational dimension. Current generations are always more powerful than future generations and can avoid taking them into consideration. It is particularly tempting to ignore future peoples’ unspoken claims if the majority of those affected by climate change live elsewhere, have different values, and odd ways of life. If power becomes main criterion for strong parties who are willing to act without reference to universalizable reasons, other parties have to take stock of actors beyond the reach of arguments.

Categorical imperative

A separate kind of criterion – or rather: meta-criterion – is the ‘categorical imperative’ – or similar universalization schemes (Barrett 1992; Arler 1995). In this case, each country decides on their maximum emissions, equal to or less than what the country considers acceptable as a universal standard for nations that are similar in all relevant ways. No nations should make exceptions for themselves but should act on the basis of arguments that they would accept as legitimate for similar nations to use in similar situations.

As we saw in Chapter 2, this can be interpreted in various ways. One way is to go straight to the ideal solution and act as if everybody else (counterfactually) acts in accordance with the same reasons. Another is to be content with conditional justice, where everybody else’s actual actions are taken into account. One could then act at least a little better than people similar to yourself.

A major advantage with universalization is that it does not depend on a globally-accepted treaty. Different nations can act in accordance with their own standards. They may happen to act quite similarly but can do so based on different arguments. The absence of a common treaty does not prevent nations from

interchanging views and arguments, and the discussion may even be more open and sober if it is not expected to end up in a unified approach based on a shared set of principles.

An obvious problem is that some nations are content with unambitious standards. The problem is aggravated if these countries are powerful and account for major shares of emissions, like the USA and oil-producing Middle East countries. This has not stopped the process from proceeding in other countries, however, and free-riding nations slowly lose moral authority – and, with it, power – in other areas as well. It is also worth noting that, in democratic nations, outspoken oppositions will inevitably emerge and scold the Government. Authorities on lower levels – in the USA: the state and city levels, for instance – may also take action when the federal level underperforms.

The strength of arguments can be traced in behavioural changes in other countries with major emissions. China, first of all, has changed their previous negative approach to one of constructive co-operation, at least within their own borders. Unfortunately, beyond the borders, China is still by far the heaviest financier of coal-fired power plants, with investments of more than four times as high as the other major investors: South Korea and Japan (Peng et al. 2017; End Coal Org. 2018).

Simplicity, complexity, procedures, and responsibilities

It has been a recurring hope that negotiations on climate change would end up with a global treaty based on simple, broadly-accepted principles and with transparent demands and expectations (e.g. Barrett 1992). However, the more complex the issue is, the less obvious it becomes how to choose the rules. Combinations of principles and proposals may also be attractive, however, concurrently, successively, or with changing relative significance over time (see, for example, Cline 1992). For instance, in a fair warning period, the grandfathering principle may be used as a regulatory principle with diminishing influence as in cap-and-trade schemes, where the cap is lowered regularly until, for example, auctioning becomes the main instrument, combined with needs and abilities-based regulations.

In ethical discourses, complexity and reasonable disagreement about the relative weight of different principles and considerations will often alter questions of equity and fairness into questions of procedure (Arler 1995 and 2013). If several outcomes are possible, reasonable, and supported by at least some parties, it becomes important how the decisions are made (see also Banuri et al. 1995). If decisions were made in ideal circumstances comparable to those recommended in Jürgen Habermas' discourse theory of ethics (Habermas 1983; cf. also Ott et al. 2004; Krebs 2007) – good faith, mutual respect, a shared aim for impartiality, respect for and access to arguments, equal participatory rights, attention to relevant differences, transparency, equal availability of information, skilled human resources etc. – it could be claimed that the final results of common deliberations would not only be legitimate, but even better than theoretically sought answers because everybody would have a sense of ownership of the decision.

On EU scale, discussions about climate commitments have been refined significantly with stakeholder consultations, involvement of experts, and a remarkable willingness to seek common solutions (see EC 2016, 5f). On a global scale, circumstances are much further from Habermasian ideals. Not only are the parties unequal in terms of economic, political, and military power – which some nations have been willing to use. Even worse, many governmental representatives participate without a legitimate mandate from fellow citizens. This makes it hard to consider the results as fair, reasonable, and exhaustive. Still, one should not underestimate the fact that representatives from 181 countries participate in an ongoing, relatively transparent, debate about rights and responsibilities in relation to humanity's common concerns about climate change.

The influence of power from strong nations make results of climate summits vague, indeterminate, and insufficient. If no common ground can be found through dialogue, the categorical imperative offers an alternative pathway for nations – as well as for states, regions, cities, and companies, etc. – with no intention of absconding from commitments. This allows the parties to rely on a broad and dissimilarly-weighted spectrum of principles and considerations, and a variety of solutions may be implemented in a complex pattern (see Chapter 11).

The Kyoto Protocol

Let us now turn to outcomes of actual negotiations. The first global conference after Rio, where rights and responsibilities were to be distributed, was the conference in the Japanese city of Kyoto in December 1997. With more than 160 countries participating, hopes for an ambitious agreement were high. The final Kyoto Protocol was far from impressive, however, and the common goal was only to reduce greenhouse gas emissions 5 % by 2012. The most remarkable thing was that it was possible to reach an agreement at all.

The Kyoto Protocol established reduction targets for participating countries. A substantial element was the separation of industrialized countries, listed in Annex I, and developing countries, referred to as Non-Annex I countries. Each Annex I country was committed to reducing greenhouse gas emissions by a specified percentage (Table 9.1), whereas Non-Annex I countries with low per capita emissions in 1997 were allowed to increase their emissions as part of their economic development.

Countries 'in transition'	EU 'bubble'	Other Annex I countries
Romania -8 %	Denmark -8 %	Switzerland -8 %
Slovakia -8 %	Finland -8 %	Liechtenstein -8 %
Czech Republic -8 %	Germany -8 %	USA -7 %
Latvia -8 %	Italy -8 %	Canada -6 %
Bulgaria -8 %	Netherlands -8 %	Japan -6 %
Estonia -8 %	Spain -8 %	New Zealand 0 %
Slovenia -8 %	Luxembourg -8 %	Norway +1 %
Lithuania -8 %	Belgium -8 %	Australia +8 %
Poland -6 %	Ireland -8 %	Iceland +10 %
Hungary -6 %	France -8 %	
Croatia -5 %	Greece -8 %	
Russian Federation 0 %	UK -8 %	
Ukraine 0 %	Sweden -8 %	
	Austria -8 %	
	Portugal -8 %	

Table 9.1. Kyoto Protocol percentages of Annex I countries' emissions reduction targets before 2012 (compared to the 1990 level). Non-Annex I countries were exempt from specific obligations.

If we ask for the criteria in the agreement, it is obvious that the temporary grandfathering principle played a major role. All countries were allowed to continue with at least 92 % of previous emissions and, apart from a few countries

with special needs, powerful performances, or insistent negotiation skills, all industrialized countries were committed to reducing emissions by the same percentage regardless, of their previous performance.

Criteria like needs, means, and capabilities did play a role, though, in combination with deserts and historical responsibility. First of all, developing countries were exempt from binding commitments, and Eastern European countries ‘in a state of transition’ away from the communist order were offered more favourable terms than other industrialized countries. Moreover, a special ‘flexible mechanism’ was established for East-European countries: the Joint Implementation (JI) mechanism (Kyoto Protocol, Article 6), which made it possible for other Annex I countries to invest in efficient plants in Eastern Europe and register the emissions savings on their own accounts (the so-called Emission Reduction Units, ERUs). The JI mechanism was accepted in spite of heavy critique: the collapse of the communist regimes had resulted in the collapse of heavy industries which had been kept alive by massive subsidies, leading to an emission reduction of some 40 % in Russia alone, so there was plenty of ‘hot air’ to buy through the JI instead of investing in energy savings and renewable energy at home.

A similar mechanism for emissions-reducing investments in Non-Annex I countries, named the Clean Development Mechanism (CDM) (ibid., Article 12), was established. If investments which led to ‘additional’ or ‘supplemental’ emissions reductions were made in Non-Annex I countries, these reductions could be deducted from Annex I countries’ accounts (Certified Emission Reductions, CERs). This way, Annex I countries could pick cost-effective reduction potentials, and resources and investments were channelled to developing countries.

The reality has been far from ideal. Firstly, the opportunity to pick low hanging fruit makes it more difficult for developing countries to find efficient investments later on when reduction demands are tightened. Secondly, some Non-Annex I countries soon saw an advantage in making conservative business-as-usual (BAU) projections, rather than ambitious emissions reduction plans, in order to leave more opportunities for foreign investment. Finally, some highly problematic projects were designed to get reduction credits. For instance, factories producing equipment using CFC gases would have been closed without the profitable CDM revenues from the subsequent destruction of the gases.

The needs, means, and capability approach was used far from consistently. The Montreal Protocol was used as model, and all developed countries were lumped together and requested to reduce emissions by the same percentage – which ended up being 8 % – unless reasons could be given for a divergence from the general norm. The countries' performances were not assessed separately, despite significant differences; only countries in the EU 'bubble' were afterwards treated individually in an internal allocation process, as we shall see below.

Quite remarkably, the largest emitter of all, both in total and per capita, the USA, was only committed to reducing emissions by 7 %. Another significant emitter, coal-producing Australia, was even allowed to increase its emissions by 8 %. Yet, neither the American congress nor the Australian parliament ever ratified the Kyoto Protocol. Power was introduced as an authoritative criterion by countries that remained sceptical about ideas of common concerns and global partnership and were powerful enough to disregard all requests.

Other countries were aware of power too, of course, and were unwilling to enter costly agreements that might harm them in international competition. This is a main reason why the Kyoto commitments were so frail. At the same time, however, it is noteworthy how important the attitude of impartiality and universalization continued to be for representatives of countries that were ready to establish a binding agreement, even if this would be demanding for their energy policies.

The Kyoto Protocol has latterly been ridiculed for its inability to make significant contributions in the battle to avoid climate change. A 5 % reduction target was trifling, of course, given the magnitude of the challenge. It is worth remembering, though, that the very idea of reducing greenhouse gas emissions still seemed radical in many countries which had been used to increasing emissions levels for decades, or had been looking forward to a new phase of development based on fossil fuels.

After Kyoto: the internal EU agreement

At least some EU countries were front-runners in the effort to establish an agreement with binding targets. After Kyoto, the common commitment to an 8 %

reduction in the EU ‘bubble’ was allocated between Member States in a separate EU agreement, where some countries were assigned significantly larger commitments. Denmark was still at the high end of emissions and accepted reducing its emissions by 21 % on average for the period 2008-2012 compared to the 1990 level (EC 2002).

Countries committed to reduce emissions	Countries allowed to increase emissions
Luxemburg -28 %	Sweden +4 %
Denmark -21 %	Ireland +13 %
Germany -21 %	Spain +15 %
Austria -13 %	Greece +25 %
United Kingdom -12,5 %	Portugal +27 %
Italy -6,5 %	
Netherlands -6 %	
Belgium -7,5 %	
Finland 0 %	
France 0 %	

Table 9.2. EU's internal distribution of emissions reductions after Kyoto, with reduction target for each Member State. The total EU reduction target, according to the Kyoto Protocol, was 8 % before 2012 (EC 2002).

It is remarkable how different the targets are in the internal EU allocation. This indicates a stronger mutual commitment than in the global community. Some countries committed themselves to significant reductions: Luxembourg -28 %, Germany -21 %, and Denmark -21 %. At the other end, late-coming EU countries were allowed to increase emissions: Ireland +13 %, Spain +15 %, Greece +25 %, and Portugal +27 %. Sweden was also allowed to increase emissions by 4 %.

The distributive criteria are easier to identify than in the Kyoto Protocol. Firstly, grandfathering was still the main criterion, as common commitments were not strengthened beyond 8 %. Secondly, countries with highest reduction commitments all had high per capita emissions. So, deserts worked as a weighty criterion. Thirdly, the three countries which committed to the highest reductions were among the wealthiest and most technologically-advanced countries in the EU. So, means and capabilities were also an operative criterion. Some wealthy countries avoided strict demands due to their modest dependence on fossil fuels. Sweden, for instance, had a major part of energy consumption covered by nuclear and hydropower combined with wood or pellet stoves in private homes.

We need not dwell on the precise balancing of criteria. Power is always present as distributive criteria. It is quite remarkable, though, how willing a powerful country like Germany was to accept responsibility for emissions reductions, particularly compared to the reluctant USA with emissions levels twice as high. This indicates that impartiality and universalization played a substantial role, and that the EC was considered a political community where deserts, needs, means, and capabilities were regarded as relevant criteria, and where Member States were willing to allocate responsibility through deliberation. At the global level, the EU played a major role as a catalyst of a more equitable set-up, but some well-off countries were unwilling to accept commitments.

Copenhagen Accord 2009 (COP 15)

Once again, there were great hopes that a binding agreement could be reached at COP 15 in Copenhagen in 2009 as a substitution for the Kyoto Protocol. The meeting ended with the vague Copenhagen Accord without binding reduction targets, apart from the important overall goal of keeping global temperature increases below 2 degrees (see also Chapter 12). Instead of clear targets, however, the parties committed themselves to afterwards reporting the size of the reductions with which they were willing to contribute. The countries' reports indicated which criteria and rules they found it reasonable to apply if the common target was to be reached.

Despite several attempts, the Copenhagen summit did not break with the Kyoto division of wealthy Annex I countries and developing Non-Annex I countries, although it was becoming increasingly problematic, particularly in light of China's remarkable economic growth. The distinction between the two types of countries was continued in the reports which the parties provided after the conference.

The reduction commitments reported by Annex I countries were typically higher than in Kyoto, but only a few countries increased targets significantly (Table 9.3). One of these was Norway, promising an emissions reduction of 30-40 % before 2020, while Iceland was willing to reduce them by 30 %, and Japan by 25 % compared to 1990's emissions levels. The EU and Switzerland would reduce

them by 20 % and were willing to reduce them by 30 % if others followed suit. Australia would contribute with a reduction of 5, 15, or 25 % with the 2000 level as a reference, depending on other countries' announcements. Canada and the United States both announced 17 % reductions, but with 2000 and 2005 respectively as a basis, and levels had gone up significantly since 1990. The USA's 17 % reduction below the 2005 level corresponds to less than a 4 % reduction below the 1990 level. Other countries promised only modest changes from Kyoto targets.

Several Non-Annex I countries announced a willingness to reduce emissions, but they only promised to decouple an expected rapid economic growth from similar increases in emissions. China promised a 40-45 % reduction from a BAU (business-as-usual) scenario, partly by developing renewable energy technology which would provide for 15 % of total energy consumption and by increasing forest areas as CO₂ sinks. Brazil set a 36-39 % reduction target on expected emissions increases; this should be achieved by reducing planned deforestation, increasing the use of biofuel, and by using energy more efficiently. India declared a willingness to reduce emissions by an expected increase 20-25 %, while Mexico would achieve a 30 % reduction compared to the expected growth scenario, and South Africa would reduce an expected increase by 34 %.

Annex I countries	Non-Annex I countries
EU -20 %/-30 % (from 1990 level)	China 40-45 % decoupling compared to BAU: 15 % renewable energy, forest regrowth
Australia -5 %/-15 %/-25 % (2000)	Brazil 36-39 % decoupling from BAU (forest protection, biofuels, hydropower, renewable energy, energy efficiency)
Canada -17 % (2000)	India 20-25 % decoupling from BAU
Belarus -5-10 % (1990)	Indonesia 26 % decoupling from BAU
Iceland -30 % (1990)	Mexico 30 % decoupling from BAU
Japan -25 % (1990)	South Africa 34 % decoupling from BAU
Kazakhstan -15 % (1992)	
Croatia -5 % (1990)	
New Zealand -10-20 % (1990)	
Norway -30-40 % (1990)	
Russia -15-25 % (1990)	
Switzerland -20 %/-30 % (1990)	
USA -17 % (2005)	

Table 9.3. Selected reduction targets before 2020 announced by participants after the COP 15 conference in Copenhagen in 2009.

The criteria indirectly used were quite diverse. Temporary grandfathering continued to play a major role. No country promised radical reduction percentages. Norway was the country which promised to reduce emissions the most: -30 % and up to -40 % if other countries followed suit, but other countries were reluctant about significantly renouncing emissions. Still, several countries were willing to move further than the Kyoto Protocol, partly due to still-more promising opportunities for renewable energy technologies.

A second important criterion was the combination of needs, means, and capabilities with deserts and historical responsibility. On the one hand, Non-Annex I countries still considered it equitable to increase emissions in order to continue economic growth but were aware of a growing responsibility to stabilize emissions. On the other hand, some wealthy Annex I countries accepted taking the lead in reducing emissions. The EU countries, which again were active advocates for emissions reductions – some member countries remarkably more so than others – committed themselves to an aggregate reduction of 20 %, growing to 30 % if other countries would act likewise.

The announcements after COP15 are interesting, because each country was forced to think in line with the categorical imperative: which rule would it be equitable for countries like our own to follow? Instead of top-down established targets, based on commonly-agreed upon principles and a distributive scheme covering all countries, the process became a bottom-up process where each country announced the goals they found it reasonable to pursue (see Chapter 11). The line of thought is easy to follow: we do have an obligation to reduce emissions, but should not jeopardize our competitiveness, and will only go further if similar countries do likewise.

Paris 2015 (COP 21)

The bottom-up process after COP 15 was repeated before the COP 21 in Paris: the parties' announced their willingness to contribute with emissions reductions in order to avoid risky climate change. One hundred and sixty out of 185 countries –

including the countries responsible for more than 90 % of all emissions in 2010 – submitted their reduction targets, the so-called Intended Nationally Determined Contributions (INDCs). We return to this in Chapter 11 and shall, for now, only look at the targets announced, in order to identify the distributive criteria.

Selected Annex I countries	Selected Non-Annex I countries
Australia -26-28 % (from 2005)	China 60-65 % decoupling from BAU in 2005
Canada -30 % (2005)	Brazil 43 % decoupling from BAU in 2005
EU -40 % (1990)	India 33-35 % decoupling from BAU in 2005
Belarus -28 % (2005)	Indonesia 29-41 % decoupling from BAU
Iceland “Fair share” (1990)	Mexico 22-36 % decoupling from BAU
Japan -26 % (2013)	South Africa: unspecified commitment to help keeping temperature rise below 2°C
Kazakhstan -15-25 % (1990)	
New Zealand -11 % (1990)	
Norway -40 % (1990)	
Russia 0/-25-30 % (1990)	
Switzerland -50 % (1990)	
USA -26-28 % (2005)	

Table 9.4. Selected intended reduction targets – or Intended Nationally Determined Contributions – before 2030, reported by participants before the COP 21 conference in Paris in 2015 (unfccc.int/focus/indc_portal/items/8766.php; see also <http://climateobserver.org/open-and-shut/indc/>).

The submitted reduction targets constitute a mixed collection. Some countries submitted absolute emissions reduction targets related to a specified base year. Around half of the countries submitted relative targets for reducing emissions below a projected BAU level. A few countries included intensity targets, with reductions in greenhouse gas emissions per unit of GDP or per capita.

What were the chosen criteria? Firstly, the temporary grandfathering criterion still played a key role. Switzerland, Norway, and the EU took the lead with reductions of 40-50 % before 2030 – measured from the 1990 level – whereas other countries’ targets were in the 20s at best. As we shall see below, some EU countries, including Denmark, committed themselves to cutting more than 50 % of emissions in the internal EU distribution round after COP 21.

Another operative criterion was historical responsibility in an unclear combination with needs, means, and capabilities. Once again, Non-Annex I countries only reported intended relative reductions compared to BAU scenarios with significant emissions increases, even though China had already passed the USA as highest emitting country in 2007, and the average Chinese emissions level per capita had caught up with that of Europe. The Chinese government was prepared to take on growing responsibility, at least at home, but in the reported intended contributions they still categorized China as a developing country with a right to increasing emissions.

The position taken by the US in particular shows how important a role the power criterion played. Its intended reduction target of -26-28 % was significantly lower than those of other industrial countries, even though American emissions per capita continue to be twice as high as in Europe and Japan – and now China (Le Quéré et al. 2018). Moreover, the chosen reference year was again 2005, where US emissions were 15 % higher than in 1990 (US EPA 2016).

The bottom-up approach in the Paris summit process implicitly accentuates the role of universalization as a meta-criterion, as each country was forced to consider the equitable level for countries like themselves. So far, the announced reduction efforts have been far from sufficient to keep global warming lower than 1.5 °C or even 2 °C (IPCC 2018; Le Quéré et al. 2018). There is no reason to think that this is a consequence of the change to a bottom-up approach, however. As long as governments in powerful countries with high emissions levels refuse to cooperate and developing countries with large populations continue to use fossil fuels in their efforts to attain life improvement, it remains a true challenge to reach targets in time, anyway.

EU Emissions Trading System

The EU Emissions Trading Directive, announcing a new Emissions Trading System (ETS), was published in 2003 (EU 2003). It was a cap-and-trade scheme with a ceiling for emissions (cap) and tradable emission rights (trade) to power plants and industries using fossil fuels (listed in Annex I). The Directive called for national plans for distributing tradable quotas in accordance with the recognized

scheme, in order to promote reductions “in a cost-effective and economically efficient manner” (ibid., Article 1).

In the first phase of the system, at least 95 % of the quotas – tradable emissions allowances valid for a 5-year period – were allocated according to the temporary grandfathering principle, i.e. based on previous emissions, supplied with small reduction requirements (ibid., Article 10). These demands took only a little account of the potential of plants and industries to reduce emissions, making it easy and profitable to implement reductions. Currently, the ETS has gone through the two early phases and is in phase three. A fourth phase will begin in 2021. The rules for the allocation of quotas have changed over the four phases, as is shown in Table 9.5.

First phase, 2005-08	At least 95 % of quotas were allocated for free through the member state. Any remainder was auctioned.
Second phase, 2008-13	At least 90 % of quotas were allocated for free through the member state. Any remainder was auctioned.
Third phase, 2013-20	88 % of quotas were allocated through the Member States, according to their emission share in 2005. Ten percent were allocated to low income countries, 2 % to countries with 20 % or larger reductions. Full auctioning of allowances in the power sector (except co-generation facilities), as they could pass on the increased cost of CO ₂ to customers. For other sectors, free allocation amounted to 80 % in 2013, expected to be lowered stepwise to 30 % in 2020. The rest is auctioned. The total cap has been lowered 1.74 % each year.
Fourth phase, 2021-30	In 2021, 57 % of quotas will be sold at a common EU auction. Free quotas will only be allocated to particularly energy-demanding sectors, where companies may be tempted to leave the EU due to their significant expenses on quotas. The cap will be lowered 2.2 % each year.

Table 9.5. The four phases of the EU Emissions Trading System.

The ETS is based on two sets of criteria. One set is for allocation to energy plants and industries. In the first two phases, temporary grandfathering has been totally dominant, but in Phases 3 and 4, grandfathering is gradually overruled by supply and demand. The trading system also included the possibility of using the two controversial mechanisms JI and the CDM, which were considered helpful for cost-effectively achieving the goals (EU 2003, Article 30).

A second set of criteria was used for the allocation of permits to Member States in the first two phases of the ETS. Again, temporary grandfathering was the

main criterion, followed by needs and capabilities along with deserts and historical responsibility. The countries' use of the categorical imperative and their willingness to contribute constructively remain decisive factors, though, and it is remarkable how wealthy EU countries act as front-runners, even if a faster pace would be preferable.

The 2003 EU Directive allowed national plans to reward early reduction efforts (*ibid.*, Annex III.7), but this was not included in Danish laws (Energi-, Forsynings- og Klimaministeriet 2004 and 2007). Quotas were allocated based on fossil fuel-based power capacity (§ 18), i.e. a temporary grandfathering criterion with a minor savings percentage, and did not take previous actions into account (§ 5). Early emissions reductions were not rewarded; quite the opposite: the quota cap was set so high that many plants and industries could easily implement savings which allowed them to sell surplus quotas, giving them a competitive advantage over renewable energy plants.

The later revision of the EU quota system in 2009 included new sectors and gases in order to reinforce the carbon price signal and to offer new abatement opportunities (EU 2009b). The EU commitments, announced at the COP 13 conference in Bali in December 2007, were to reduce greenhouse gas emissions by at least 20 % below 1990 levels by 2020 – or 30 % if other developed countries contribute likewise – and 50 % in 2050. After a European Parliament decision after the Bali conference, preparations were made for a reduction target of at least 30% in 2020 and 60-80 % in 2050, using 1990 as the base year. This was equivalent to a reduction of 21 % below 2005 levels in 2020 (*ibid.*).

The scheme remained a cap and trade arrangement. Until 2013, 88 % of the quotas were allocated to EU countries with 2005 as the reference year (Table 9.6). Ten percent were distributed to low income countries – primarily in Eastern Europe – according to a solidarity principle which focused on needs and capabilities, whereas the last 2 % were allocated to countries – Romania, Poland, and Bulgaria in particular – with reductions of at least 20 % in 2005 compared to 1990, i.e., based on deserts or merits (*ibid.*, Article 10.2, Annex IIa and IIb). The cap was lowered by 1.74 % per year, and still more quotas are auctioned instead of being granted for free. More than half of the new quotas are now auctioned.

Belgium -15 %	Lithuania 15 %
Bulgaria 20 %	Luxembourg -20 %
Czech Republic 9 %	Hungary 10 %
Denmark -20 %	Malta 5 %
Germany -14 %	Netherlands -16 %
Estonia 11 %	Austria -16 %
Ireland -20 %	Poland 14 %
Greece -4 %	Portugal 1 %
Spain -10 %	Romania 19 %
France -14 %	Slovenia 4 %
Italy -13 %	Slovakia 13 %
Cyprus -5 %	Finland -16 %
Latvia 17 %	Sweden -17 %
	United Kingdom -16 %

Table 9.6. The reduction targets of the Member States' greenhouse gas emissions by 2020, using the 2005 levels as a baseline – including sources not covered by the 2003 Directive (EU 2009a).

A special arrangement was made in order to avoid energy-intensive sectors being tempted to leave the EU due to competition from countries without reduction commitments. This so-called 'carbon leakage' threat could easily lead to increased emissions and undermine EU efforts, and free allowances have therefore been allocated to sectors where the temptation to leave the EU is particularly high.

From 2021, when a large percentage of quotas will be auctioned, there may be a significant surplus. The exact purpose of the surplus has not been decided yet, but at least half of the proceeds will be used for climate-related aims (ibid., Article 10.3). Among the projects is a Modernization Fund which will support investment projects in energy systems in EU countries with a GDP per capita of below 60% of the average, and an Innovation Fund to support innovation in renewables, district heating, transport, carbon capture, and energy storage. It is also being considered to finance activities to tackle climate change and the threats of deforestation in developing countries, through a Global Energy Efficiency and Renewable Energy Fund and an Adaptation Fund.

In October 2014, in the so-called 2030 Climate and Energy package, the European Council decided to commit the EU to a target of at least a 40 % (domestic) reduction in greenhouse gas emissions by 2030 compared to 1990 (EC 2016), and 80-95 % before 2050. Reductions were planned not only in the ETS at 43 %, but also in sectors not covered by the ETS at 30%, compared to 2005-07 levels. The reductions in non-ETS sectors – mostly transport, agriculture, waste

management, and the buildings sector – should be implemented through national plans with differentiated targets, mainly based on GDP per capita according to the so-called Effort Sharing Decision (ESD) shown in Table 9.7.

Belgium -35 %	Lithuania -9 %
Czech Republic -14 %	Luxembourg -40 %
Germany -38 %	Hungary -7 %
Ireland -30 %	Malta -19 %
Spain -26 %	Netherlands -36 %
Croatia -7 %	Austria -36 %
Cyprus -24 %	Poland -7 %
Bulgaria 0 %	Portugal -17 %
Denmark -39 %	Romania -2 %
Estonia -13 %	Slovenia -17 %
Greece -16 %	Slovakia -12 %
France -37 %	Finland -39 %
Italy -33 %	Sweden -40 %
Latvia -6 %	United Kingdom -37 %

Table 9.7. The national reduction targets for greenhouse gas emissions in 2021-2030 (with 2005-07 levels as the baseline) from non-ETS sectors, as part of the implementation of the Paris Agreement's EU target of a 40 % reduction compared to the 1990-level (EC 2016).

The main criterion is still temporary grandfathering, but its influence is diminishing. Deserts and historical responsibility play a role, although they are secondary to needs, means, and capabilities, which have become key criteria – with GDP per capita as the measuring stick. The role of unjustified power has also diminished vis-à-vis the categorical imperative, as distributive rules become more and more transparent and the strictest commitments are assigned to the wealthiest Member States. Some targets have been modified in order to balance fairness with cost-effectiveness, just as a limited use of net removals from selected LULUCF activities has been included (EC 2016, 3), but these are only marginal adjustments. Moreover, additional actions by local and regional governments, by cities, and by local and regional organizations were strongly encouraged (EC 2016).

Conclusion

The question of justice or equity has been fundamental in international negotiations on climate change as a 'common concern of humankind', particularly since the UNFCCC was adopted in Rio in 1992. These discussions have had a growing impact on national policies, including Danish energy policy. In the first half of this

chapter, we saw how broad the variety of distributive criteria that could be applied in global agreements, as well as in the counties' own policies, were. In the 1990s and the beginning of the new century, the main issue was the distribution of emissions allowances. This is still a primary concern, even though more awareness is now directed to equity in relation to the impacts of and responses to climate change – mitigation, adaptation, and compensation.

In the second half of the chapter, the results of negotiations at global and EU levels were presented and analysed on the basis of the previous discussion of criteria. We saw how temporary grandfathering dominated global agreements, but also that other principles – particularly deserts (combined with supply and demand), needs, means, and abilities – have gradually been taking over in EU agreements. Apart from a growing concern about climate change in the EU, two reasons for this seem to be decisive. Firstly, the EU is considered a closer and more morally-binding community than the global community, where influential parties deliberately act irresponsibly. Within the EU, universalization arguments are less infected with power considerations. Secondly, the prospects for a green transition have become still less worrying. The EU even may profit economically from the transition, even though the benefits may not be distributed evenly.

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