



Compass 2020

Germany in international relations
Aims, instruments, prospects



International climate policy 2020

A challenge for German
(environmental) foreign policy

Hermann E. Ott

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The Compass 2020 project represents the Friedrich-Ebert-Stiftung's contribution to a debate on Germany's aims, role and strategies in international relations. Compass 2020 will organise events and issue publications in the course of 2007, the year in which German foreign policy will be very much in the limelight due to the country's presidency of the EU Council and the G 8. Some 30 articles written for this project will provide an overview of the topics and regions that are most important for German foreign relations. All the articles will be structured in the same way. Firstly, they will provide information about the most significant developments, the toughest challenges and the key players in the respective political fields and regions. The second section will analyse the role played hitherto by German / European foreign policy, the strategies it pursues and the way in which it is perceived. In the next section, plausible alternative scenarios will be mapped out illustrating the potential development of a political field or region over the next 15 years. The closing section will formulate possible points of departure for German and European policy.

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International climate policy 2020

A challenge for German (environmental) foreign policy

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Abstract

Climate change is rapidly becoming a key issue of German foreign policy and international co-operation. The very long-term effects involved and their often unjust distribution across the world make climate change a real challenge for the whole human race as well as for individual states like Germany.'

This year's fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) has further underlined the warning of the dangers posed by a change in the world's climate. Even traditional economists like Sir Nicholas Stern are taking climate change extremely seriously. Stern estimates that rapid action would cost about one percent of the global gross domestic product, whereas failure to act would cost up to 20 percent.

Three possible scenarios for the future development of climate policy will be presented below.

In the first scenario nothing is done and the negotiations on continuing with the Kyoto Protocol fail (business as usual). The concentration of greenhouse gases in the atmosphere steadily increases and in 2020 exceeds the limit of tolerance below which a warming rate of just +2°C would still be possible. By 2100, temperatures rise by up to 4.5°C. At this point all projections break down, as the face of the earth would change so much as to make it unrecognizable.

In the second scenario negotiations continue, but aimlessly and on the basis of the same old growth premises. Promotion of the major technologies (nuclear, coal, large biomass, large hydropower) is insufficient to prevent climate change. The absence of a revolution in the field of renewable sources of energy and the failure to use energy efficiently lead to a sharp rise in CO₂ emissions. As these missed opportunities in the conservative structural approach are unlikely to repeat themselves, the world might relapse into the first scenario.

In the third scenario rapid action is taken on an equitable basis. This assumes that the international climate negotiations for the period after 2012 are brought to a speedy conclusion with social compensation for those affected. Every country in the world must make its contribution to combating climate change with determination and efficiency. One of the main obligations of the rich nations is to finance measures in the developing and newly industrializing countries. At the national level these obligations include using energy more efficiently, promoting regenerative sources of energy, and creating a decentralized energy system. Ultimately, the interplay of all these aspects gives the world a chance to keep global warming below +2°C. This scenario also entails extensive adaptive measures, but it could stave off catastrophe.

This last scenario should be the aim of German climate diplomacy. But first a credible national climate policy is needed plus massive promotion of climate-protection and adaptive measures in the southern hemisphere. The conditions for an effective climate policy are good. By pursuing a consistent global public policy Germany has the opportunity to perform a service for itself, Europe and the world.

I. Background – What is the situation?¹

In recent years a crucial issue has increasingly occupied the attention of those responsible for foreign and security policy: the environment in general and climate in particular. Along with the aim of securing a reliable energy supply (“energy security”) the danger of far-reaching environmental changes calls for a paradigm shift in foreign policy.² The resulting challenges are of an intellectual, conceptual and organizational nature, since the whole problem of climate has a highly complex structure.

The chains of cause and effect in the climate system are not yet fully understood – in short, things could get worse than has hitherto been assumed. The effects of human activity only make themselves felt after a lapse of decades or even centuries. In addition, these effects are often not felt by those who cause them. Furthermore, the causes of climate change (the use of fossil fuels and the clearing of the tropical rain forests) are numbered in millions and spread all over the globe. The fact that these fuels form the energy base of our mechanized civilization makes everything even more difficult. Moreover, both our economic and our political systems are not remotely capable of coping with a change in the global environment. Last but not least, the human planning and interest horizon – so far at any rate – is not really up to the challenges of global, long-term, structural change.

I.1 Climate change – facts and costs

The message was not exactly revolutionary, but it had a very marked effect on the public, because it came from a “traditional” economist: “The scientific evidence is now overwhelming: climate change is a serious global threat and demands an urgent global response.” Those words were written by Sir Nicholas Stern, a former chief economist at the World Bank and now head of Britain’s Government Economic Service, in the report that bears his name. This report attracted a good deal of international attention when it was published in October 2006.³ Although the consequences of climate change, as set forth by Stern, and its economic challenges seem shocking, they are essentially nothing new.

Since the 1960s better and more reliable data have been forthcoming with every passing year. And all the data – whether they are atmospheric measurements, ice core analyses, satellite photos or climate statistics – point in the same direction: over the past 50 years the average global temperature has risen considerably – and it is the effects of our own actions that are changing the face of the earth.

In 1988, the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) set up the Intergovernmental Panel on Climate Change (IPCC) to analyse the reasons for climate change and its possible consequences as well as to consider what action should be taken. This body does not conduct any research itself, but compiles all the latest research in a very thorough manner. Each report is drawn up by several hundred scientists and reviewed by up to 2,000 other scientists over a period of years. In 1990 this UN “Climate Council” published its first Assessment Report, which was followed by two others in 1995 and 2001. In the course of 2007 the fourth

1] I should like to thank Florian Mersmann for his valuable support. I am also very grateful to Wolfgang Sterk, Rie Watanabe, Jochen Luhmann and Malte Meinshausen for their comments and suggestions.

2] Cf. Sachs, Wolfgang/Ott, Hermann E.: Öljunkies auf Entzug! Umweltpolitik ist Ressourcenpolitik ist Sicherheitspolitik. Neue Herausforderungen für die Außenpolitik. In: Internationale Politik, Vol. 62, 2/2007, pp. 6-15. English edition: Sachs, Wolfgang / Ott, Hermann E.: A New Foreign Policy Agenda. Environmental Politics is Resource Politics is Peace Politics. In: Internationale Politik, Journal of the German Council on Foreign Relations (IP-Global Edition), Vol. 8, 1/2007, pp.16-22

3] Stern, Nicholas: The Economics of Climate Change. The Stern Review. Cambridge University Press, 2007, www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/sternreview_index.cfm.

Assessment Report (AR4) have been issued in several sections. With each report the data have become more exact and irrefutable.

Although the final versions of the reports are highly politicized (and hence watered down), the IPCC's fourth report contains startling findings and concludes that the undiminished emission of greenhouse gases at present levels can have catastrophic consequences.⁴

The worst-case scenario – which assumes that nothing is going to change – would thus unfold in the following phases (time scale from the report of the IPCC's Working Group II):

- 2020 (+1°C): 30 to 40% of all known species increasingly threatened with extinction, most coral reefs bleached. Heat waves, floods and droughts drive up mortality rates.
- 2050 (+2°C): Climate change causes major upsets in biological systems with mostly negative impacts on biodiversity and the food and water supply. Many millions of people all over the world live in coastal areas acutely threatened by flooding.
- 2050-2080 (+3°C): The strain on the world's health systems grows. World food production drops dramatically. About 30% of the earth's humid areas have dried up.
- 2080 (+4°C): Over 40% of plant and animal species have become extinct. The world's gross domestic product declines by up to 5%. The at least partial melting of the ice caps in Greenland and the Antarctic causes the sea level to rise by a further four to six metres.

These are sombre visions of the future, but the effects of climate change can be observed even today. Physical systems (e.g. glaciers, ice caps, lakes, etc.) and biological systems (e.g. the distribution areas of various species) are already showing signs of regional climate changes, especially temperature rises. Cultivated and human systems are also affected. In Europe and Asia, for example, the mortality rate has increased as a result of heat waves (the one in Europe in 2003 claimed an estimated 30,000 lives). Furthermore, the agricultural cycle in the northern hemisphere has already changed.

Each rise in temperature makes global water and food resources scarcer, places a greater strain on ecosystems including the extinction of a large number of plant and animal species, increases the threat to millions of people in coastal areas and river estuaries, and causes an alarming increase in tropical diseases, allergies, climate-related diseases and fatalities. The greater the change in temperature, the more drastic the effects.

As the time scale indicates, the dangers of climate change will increase greatly as time goes on. Even if the mean temperature rise could be stabilized at a mere +1.5°C (in relation to 1980-1999), the health hazard would increase considerably, floods and storms would occur with greater frequency, and the corals would die. The more the temperature rises in the future, the graver the consequences for man and nature will be. If the temperature rises by more than 3.5°C, all systems – biological, physical and social – will exceed the limits of adaptation. We may not know exactly what such a future would look like in practice, especially in badly affected regions such as the Arctic, sub-Saharan Africa or the Asian river deltas, which would be hit by massive floods. But, as NASA scientist James Hansen warns, it would certainly be a "different world".

A rapid reduction in greenhouse gas emissions by switching to a non-fossil-based path of development could, indeed, mitigate many of the effects indicated above. But as some climate changes can no longer be halted, other far-reaching adjustment measures will have to be taken as well. There is a wide range of options. But technological measures

⁴ All the IPCC reports are available at www.ipcc.org.

(e.g. the building of dams, infrastructure schemes), will have to go hand in hand with changes in human behaviour (e.g. eating habits) and preventive political and economic measures, targets and standards if an effective stop is to be put to climate change.

The IPCC scientists are therefore insisting that rapid and comprehensive adjustment and climate-protection measures be taken as quickly as possible, because a belated reaction would lead to irreversible damage and the costs will rise with every delay.

This call coincides with the already quoted assessment of Sir Nicholas Stern, who considers comprehensive adjustment measures to be a matter of urgency and believes that the costs of avoiding climate change will be considerably less than the anticipated losses. In the "Review on the Economics of Climate Change" published in 2006, Stern and his team studied the economic challenges and opportunities arising from climate change. Surprisingly, the liberal mainstream economist Stern comes to the radical conclusion that climate change is "the greatest market failure the world has ever seen".

The Stern Report, which runs to almost 600 pages, begins by examining the expected climate changes foreseen in various scenarios in order to determine their effects on the economic and social well-being of societies and individuals, before going on to analyse possible countermeasures. There follows a calculation, using different economic methods and modelling techniques, of the anticipated costs of action and inaction respectively. Finally, political options for reducing greenhouse gases and for the necessary adjustment to the now inevitable climate change are presented and forms of international co-operation proposed.

Like the IPCC scientists, Stern underlines the economic advantages of taking early and decisive action, contrasting them with the costs to be expected in the case of delay. According to his calculations, the costs of taking instant action can be limited to about one percent of the global gross domestic product (GDP). In his view, that is expensive, but tolerable. It corresponds roughly to the amount spent every year in the world on advertising or to the cost of a global 'flu epidemic, as estimated by the World Bank.⁵ It should be noted, however, that Stern bases his calculations on a scenario which assumes a stabilisation at a level of 550 ppm CO_{2eq}⁶ – i.e. far more than a limitation to 2°C would allow. A stabilisation at 450 ppm CO_{2eq} would therefore cost somewhat more than one percent of the global GDP.

However, these calculations must be seen in relation to the costs of climate change. Should no measures be taken at all (the "business-as-usual case"), Stern sees the possibility of the resulting damage costing up to 20 percent of the global GDP for the next 200 years or at least "five percent of global GDP each year, now and for ever". The enormous margin this represents is the result of the more or less conservative method of calculation: the lower five percent are merely the results of the model used (PAGE 2002). These costs would rise to 11 percent of GDP if account were taken of factors that have so far proved resistant to modelling, such as the effects on the environment and human health. Other factors not reproduced include the risk of the climate system being more vulnerable than expected and the fact that a disproportionate share of the losses will occur in the poor countries of the southern hemisphere.

Thus in purely economic terms the possible losses for the business-as-usual case amount to up to 20 percent of global GDP. These are the financial resources which, on average, would no longer be at the world's disposal each year – an inconceivable sum. The report

5] Gaby Hinsliff: Landmark report reveals apocalyptic cost of global warming. In: The Observer, 29 October 2006.

6] The concentration of all greenhouse gases in the atmosphere is expressed in CO₂ equivalents, abbreviated as CO_{2eq}.

attempts to illustrate its dramatic nature by pointing out that the effect of climate change on our economic and social well-being would correspond roughly to that of the two world wars or the Great Depression in the first half of the 20th century.

Nevertheless, Nicholas Stern would like us to see climate change not only as a threat, but also as an opportunity for the world economy. The development of emissions trading systems, the technological developments initiated by climate policy, and the mechanisms created by the Kyoto Protocol (see below) could open up new markets and trading opportunities. In his view, climate change will not necessarily turn out to be a brake on growth. On the contrary, it harbours tremendous potential for development, not least in developing and newly industrialized countries. Here the liberal mainstream economist adds his voice to the predictions that have been made by German and international ecologists for some time now. This is shown by a quotation from the report: “The *pro-growth strategy* for the longer term is tackling climate change – which can be done in a way that does not cap any countries’ aspirations for growth.”⁷

Climate change is a global phenomenon requiring a joint response by all countries. Stern therefore calls for a binding international framework in which a combination of emissions trading, technical co-operation, reduced deforestation and adjustment measures can be agreed upon. In his opinion, climate change cannot be explained away, but its worst consequences can be averted by rapid and effective international co-operation.

1.2 Diplomacy in defence of the climate

Climate diplomacy is less than 20 years old, since it was only in 1990 that the negotiating delegations met for the first time to create a basis in international law for co-operation in tackling climate change.⁸ The negotiations culminated in the United Nations Framework Convention on Climate Change in May 1992 in New York. The finished text of the treaty was then signed in June 1992 with great fanfare at the “Earth Summit” in Rio de Janeiro by the 150 heads of state and government assembled there.

This convention can hardly be counted a great success. Since the delegations were unable to agree on concrete and, above all, binding measures on the reduction of climate change, the more non-committal form of a “framework convention” was chosen and limited to co-operation in research with the prospect of closer co-operation in future. This approach was in keeping with the findings of the late 1980s and 1990s, namely that international environmental problems can best be solved in a gradual process: from the approval of non-binding “action plans” through the conclusion of an international framework agreement to the drafting of a protocol with binding targets. This approach had already been successfully adopted in the combating of air pollution in Europe (cf. the 1979 Geneva Convention on Long-range, Transboundary Air Pollution, LRTAP) and had also functioned very well in the international measures to protect the ozone layer (1985 Vienna Convention and 1987 Montreal Protocol).

As soon as the Framework Convention on Climate Change entered into force in March 1994, negotiations accordingly began on a reduction protocol. At the “First Conference of the Parties” or COP1 held one year later in Berlin a mandate for these negotiations was approved under the chairmanship of the then minister for the environment, Angela Merkel. The time frame in the “Berlin Mandate” for the adoption of a protocol was deliberately kept tight and a negotiating marathon of nine rounds eventually led to the

7] Stern, Nicholas: The Economics of Climate Change. The Stern Review. Cambridge University Press, 2007, p.ii.

8] Cf. Oberthür, Sebastian/Ott, Hermann E.: Das Kyoto Protokoll. Internationale Klimapolitik für das 21. Jahrhundert. Opladen 2000. English version: Oberthür, Sebastian / Ott, Hermann E.: The Kyoto Protocol. International Climate Policy for the 21st Century; Springer Verlag (Berlin, Heidelberg et al.) 1999.

adoption of the Kyoto Protocol in autumn 1997.⁹ Any assessment of this protocol is necessarily ambivalent. On the one hand, it may rightly be described as a “milestone” in the history of ecological foreign policy, as it marked the first-ever specification of upper limits for the emission of climate-polluting gases. On the other hand, it fell far short of what was needed to tackle climate change effectively, because the reduction targets envisaged – representing about five percent of all the emissions of the industrialized countries – were too low.

Yet the boldness of the draft of the Kyoto Protocol is made clear by the fact that even the relatively modest reduction commitments agreed upon were subjected to yet another revision. A suitable opportunity for such a revision arose from the fact that there had not been time to put the protocol into its final form. Although agreement had been reached on an obligation to reduce greenhouse gases differentiated by countries, in the text of the treaty itself the instruments necessary for implementation had only been enshrined in rudimentary form.

For this reason negotiations recommenced in 1998 under the chairmanship of the first Green minister for the environment, Jürgen Trittin, and continued up to that dramatic moment at the end of 2000 when the conference in The Hague broke up without result. As of March 2001 the negotiations seemed finally doomed when the new US president, George W. Bush, declared his “opposition” to the Kyoto Protocol in a letter to members of Congress. This rejection weighed heavily on the situation, since the U.S., as the world’s leading political, military and economic nation, is practically indispensable for any global task. Furthermore, the U.S., which accounts for about four percent of the world’s population, is responsible for 25 percent of the world’s emissions of greenhouse gases, and any arrangement reached without it would necessarily be of limited effect. On the other hand, this demonstrative rejection was also the occasion for an equally demonstrative rallying of the remaining rest of the world – it is even possible that without this rejection by the US president no agreement would have been reached at all. The EU and virtually all the developing countries sorted out their differences, agreed on the broad outline in Bonn in mid-2001, and at the end of 2001 in Marrakech they approved the so-called “Marrakech Accords”, which supplemented the Kyoto Protocol.

The fortunate passing of these supplementary regulations was of course favourably influenced by the broader political context. After the terror attacks of 11 September the U.S. was more dependent than ever on the active support of the world in the struggle against terror. In late 2001 this worldwide solidarity was still unbroken and the U.S. did not want to jeopardize it by an obstinate rejection of the further development of the Kyoto Protocol.

In return for its non-intervention, however, the U.S. forced through far-reaching amendments to the Kyoto Protocol, for example the allowance for “sinks”, i.e. the storing of carbon in plants, which further restricted the treaty’s effectiveness. These and other measures led to a reduction to about two percent of the industrialized countries’ original pledge of five percent. Nevertheless, the protocol was still workable with the Marrakech Accords and could be ratified. In particular, the “flexible mechanisms” – the market instruments of emissions trading, Joint Implementation (JI), and the Clean Development Mechanism (CDM) – had been worked out, which made it much easier for the industrialized countries to ratify.

9] On the content cf. Oberthür/Ott 2000; Yamin, Farhana/Depledge, Johanna: The International Climate Change Regime. A Guide to Rules, Institutions and Procedures, Cambridge University Press, 2004, and Ott, Hermann E.: The Kyoto Protocol. Unfinished Business. In: Environment, Vol. 40, No. 6 (1998), pp. 16-20, 41-45.

Nevertheless it took over three more years – till the end of 2004 – before the protocol had been ratified by the 55 states responsible for 55 percent of the industrialized countries' emissions. The fact that it took so long was mainly due to a delaying strategy on the part of Russia, whose ratification was required for formal reasons. Russia made full use of its negotiating advantage. Only after the European Union abandoned its resistance to Russia's joining the WTO was the Kyoto Protocol ratified by the Russian parliament. It entered into force on 16 February 2005, three months after Russia's ratification document was filed with the UN Secretary General in New York.

At this point the dynamic nature of the climate regime was again made clear, and negotiations on a revision of the treaty beginning immediately after the protocol entered into force, as had happened in the case of the Framework Convention. This was attributable to the fact that the commitments made by the industrialized countries were limited to a period of just five years – from 2008 to 2012. In a strictly legal sense, the emissions of all the states, which had entered into commitments, could subsequently increase again unhindered. This performance period had originally been set to compensate for economic fluctuations which might have made it impossible for a state to meet its obligations if it were tied to a specific target year. As the formulation "and for the period thereafter" had not been added, the negotiations for the period after 2012 had to start again more or less from scratch.

The negotiations for a "post-2012" regulation of the reduction pledges began at the first Meeting of the Parties to the Kyoto Protocol in Montreal (COP/MOP1) in 2005.¹⁰ The German delegation was headed for the first time by the newly appointed minister for the environment, Sigmar Gabriel. The result could only disappoint those familiar with the urgency of the climate problem, as neither a clear mandate nor a specific completion date was agreed upon. The first Meeting of the Parties to the Kyoto Protocol (COP/MOP1) produced neither a concrete mandate to expand the pledges for industrialized countries nor a mandate to admit important newly industrialized countries to the group of signatory states.

To put this bad impression in perspective, however, one must remember the laboured pace of the negotiations and the enormous resistance to a speedy procedure. This applies not only to the U.S., which has not changed its attitude to the Kyoto Protocol even in the final phase of George W. Bush's presidency. Nor does it apply only to Japan, which after a brief phase of active climate policy in the late 1990s has lapsed into a state of political rigidity that renders an effective domestic or foreign climate policy impossible. The greatest impediment to a rapid agreement on extending the climate regime lies rather in the abstruse negotiating logic which dictates that progressive industrialized countries are at permanent loggerheads with the large developing countries, as if they were engaged in trench warfare. Instead of focusing on common interests, the negotiations are seen as a zero-sum game in which one side loses what the other side gains. If the climate negotiations are to be effective, this division must be overcome.

A snapshot of the climate negotiations in mid-2007 may serve to illustrate the character of this trench warfare. In Montreal the parties to the Kyoto Protocol set up an "Ad-hoc Working Group (AWG) on Article 3.9 of the Kyoto Protocol".¹¹ The AWG is only supposed to deliberate on the reduction pledges of the industrialized countries, while the involvement of the previously excluded developing countries is expressly not part of its mandate.

10] Wittneben, Bettina/Sterk, Wolfgang/Ott, Hermann E./Brouns, Bernd: The Montreal Climate Summit. Starting the Kyoto Business and Preparing for post-2012. The Kyoto Protocol's First Meeting of the Parties (MOP 1) and COP 11 of the UNFCCC. In: Journal for European Environmental and Planning Law (JEEPL) 2/2006, pp. 90-100.

11] See also Ehrmann, Markus: Das internationale Klimaschutzregime nach Montreal. In: Zeitschrift für europäisches Umwelt- und Planungsrecht (EuUP), 1/2006, pp. 37-44.

Nor has agreement been reached on setting specific targets or deadlines. Hence there has been no change since the Second Conference of the Parties in Nairobi in late 2006.¹² Failure to agree on a concrete negotiating timetable there foundered on the opposition of the industrialized countries, which did not want to make the first move until the developing countries agreed on a timetable for new pledges for themselves. On the other hand, the EU's attempt to include the urgently needed long-term target of a global temperature rise not exceeding 2°C was frustrated by the G77 and China. So the year 2007 was devoted to the discussion of potential reductions.

The other side of these negotiations was the industrialized countries' attempt to win acceptance for a timetable for the revision of the Kyoto Protocol under Article 9 of the treaty. This revision, in contrast to Article 3.9 mentioned above, provides an opportunity to discuss not only the appropriateness of the duties of industrialized countries, but also the effectiveness of the protocol as a whole, including the question of whether the developing and newly industrialized countries should not be more closely involved. This was opposed by the developing countries, which wanted to gain time by waiting to see how ambitious the industrialized countries would make their next, post-2012 pledges. Finally, agreement was reached on a timetable for the revision, but with the proviso that the results of this revision could not be made the basis for new pledges, for which formal negotiations would have to be initiated.

In the end, the convention did make allowance for a process of dialogue, which however was expressly forbidden to comprise any negotiations. The thinking behind this had originally been to bring in the U.S. and Australia, which had not ratified the Kyoto Protocol and were consequently not part of the post-2012 negotiations envisaged by the protocol. After Montreal the convention process got off to a promising start, although after a year it had run out of steam.

Apart from the global climate negotiations under UN auspices, the first decade of the new century witnessed a number of international initiatives – mainly supported by the U.S. – to promote certain technologies. The Asia-Pacific Partnership for Clean Development and Climate¹³, in particular, achieved a certain notoriety, since it had been initiated by the U.S. for the purpose of developing an alternative to the Kyoto Protocol. This partnership was introduced to the public in July 2005 at a meeting of the Association of South-East Asian Nations. The other signatory states apart from the U.S. were Australia, China, India, Japan and South Korea. Some meetings took place, but because of their non-binding character they failed to live up to their promise of genuine co-operation on new technologies.

Other co-operation agreements for specific technologies are the Carbon Sequestration Leadership Forum (<http://www.csforum.org/about.htm>) to promote capture and storage technologies for greenhouse gases; the "Methane to Markets" programme (<http://www.methanetomarkets.org/>) for developing technologies to capture methane gases from waste disposal sites, for example; and the International Partnership for the Hydrogen Economy (<http://www.iphe.net/>) for co-operation in the field of hydrogen technologies. The two last-named initiatives include Germany among their members. These platforms for technological co-operation are generally non-binding and of limited effectiveness with regard to the avoidance of greenhouse gas emissions. So this form of co-operation does not match up to the scale of the threat posed by climate change.

12] Cf. Sterk, Wolfgang/Ott, Hermann E./Watanabe, Rie/Wittneben, Bettina: The Nairobi Climate Change Summit (COP 12 – MOP 2). Taking a Deep Breath before Negotiating Post-2012 Targets? In: *Journal for European Environmental & Planning Law (JEEPL)* 2/2007, pp. 139-148.

13] Asia Pacific Partnership for Clean Development and Climate, <http://www.asiapacificpartnership.org/>.

An appropriate response to the challenges of climate change was sought above all from the group of the eight main industrialized countries (G8). At the urging of the British presidency the participants in the 2005 G8 summit meeting in Gleneagles, Scotland, agreed to find a joint solution for the deadlocked international negotiations. This “Gleneagles process” was then continued under subsequent G8 presidencies with the aim of reaching an agreement in 2008 under the Japanese presidency. The aim of the Gleneagles process and the G8 initiatives is to involve, in addition to the eight established G8 states, the largest and most important newly industrialized countries (Brazil, China, India, Mexico and South Africa) in a climate timetable. At the same time a support plan for Africa was initiated in order to implement the millennium goals of the United Nations without driving the poorer developing countries into opposition.

It was no coincidence that the impetus for this G8 initiative came from the UK, where an enlightened business elite had been convinced of the reality of climate change since the dawn of the new millennium. In particular, John Browne, the Chief Executive of BP, had launched his company on a new course (“beyond petroleum”) as early as 1998. A few years later the British government and a few large companies reached a consensus on the following points: first of all, climate change was a reality; secondly, this danger could only be combated with funds from the global financial markets and the big companies; and thirdly, global regulatory measures should be designed to allow financial markets and companies to profit from them. One concrete result of this agreement was the creation by the British presidency of the Gleneagles process in 2005 within the framework of the G8.

II. Germany’s climate diplomacy

For the past 30 years German foreign policy has been intertwined with environmental and, more specifically, climate policy. This is primarily because of the traditionally important role environmental policy has played in German foreign policy and because of the country’s perception of itself as an international actor. A progressive, forward-looking environmental and climate policy can be traced across all political parties. It began at the time of the Social Democrat-Liberal coalition in the early 1970s, when the then interior minister and FDP (Liberal) politician Hans-Dietrich Genscher recognized environmental policy as an important element in the rehabilitation of the Federal Republic after the Second World War and took corresponding initiatives. Germany’s accession to the United Nations in 1973 was at least partly due to Germany’s active involvement in the UN Stockholm Conference on the Human Environment in 1972.

The Christian Democratic era began under the aegis of Klaus Töpfer, who as minister for the environment helped negotiate the Climate Convention and attended the 1992 Earth Summit in Rio – an important step on the way to his later appointment as Executive Director of the United Nations Environment Programme (UNEP). In 1995 it fell to the young minister for the environment, Angela Merkel, to chair the first Conference of the Parties to the Framework Convention on Climate Change in Berlin. Under her chairmanship a mandate was approved to negotiate a climate-protection protocol. Chancellor Helmut Kohl lent his active support to the continuation of the negotiations, opening the conference himself and proving his credibility both at home and abroad by confirming a 25% reduction in German emissions by 2005. These efforts, together with the successful work of the German Foreign Office, were rewarded with the moving of the Permanent Secretariat of the United Nations Framework Convention on Climate Change from Geneva to Bonn, which marked the birth of Bonn’s UN campus.

Jürgen Trittin's Green climate diplomacy was marked by the crisis following the collapse of the negotiations in 2000, the subsequent operation at Marrakech to rescue the Kyoto Protocol at the end of 2001, and the latter's successful entry into force in late 2004. Finally, in 2005 Sigmar Gabriel became the first Social Democrat to head the environment ministry, thus assuming overall responsibility for climate negotiations. The big test for Sigmar Gabriel will come from 2008 onwards, in the negotiations that will be initiated in Bali (Indonesia) on a mandate for the regulations of the Kyoto Protocol "post-2012". In these negotiations, which are expected to last at least two years, diplomacy, tactical skill and a certain chutzpah will be very important for success. It is also important that the national basis for a successful foreign policy relating to climate change should be retained, as a credible climate policy is needed at home if it is to be advocated convincingly abroad.

Thus Germany has always played a vital role in the international negotiations on climate protection, since all national governments have regarded environmental protection as an integral part of foreign policy. This is only logical, as it is a traditional aim of governments in conducting foreign policy to take preventive measures to protect their own population (and now, increasingly, that of Europe) against hazards originating from outside their own territory. In addition to traditional threats, such as military attack or economic blackmail, the range of possible threats caused by the onset of climate change has had another important danger added to it. This cannot fail to affect even a state in the centre of Europe with a relatively short coastline – especially if German foreign policy is increasingly defined in European terms.

Finally, climate change is going to hit our partners in the southern hemisphere hard. It is a good tradition of German foreign policy to take an active interest in the well-being of our partners. If the effects of climate change can ultimately ruin all our successes in development co-operation – to quote the almost prophetic words of the minister of development aid, Heidemarie Wieczorek-Zeul – this cannot fail to influence our foreign policy. In view of the urgent need to act on the basis of new scientific findings in climate research the importance of an ecological foreign policy will continue to increase.

III. Climate policy scenarios for the period up to 2020

There follows a description of three possible scenarios¹⁴ for the development of climate policy in the period up to 2020. These scenarios are of necessity somewhat simplistic, as each represents a typical development with its basic characteristics. The background to all the scenarios is a strong pressure to act, as the IPCC yet again confirmed only recently. In the next 15 to 20 years we will have to work very efficiently to put the world back onto a reasonably secure climate course. If the sensitivity of the climate system is 3°C or higher, as the IPCC has just established, the global concentration of greenhouse gases must peak at a level that is not much higher than 450 ppm CO_{2eq}.¹⁵

III.1 The business-as-usual scenario: Nothing gets done

Although most governments have heard the warnings of looming climate change and understand that not much time remains to act, the international negotiations on the continuation of the Kyoto Protocol after 2012 end in failure. In certain industrialized countries there are initiatives for a change of policy, and even China strives to use energy more efficiently and expand the share of renewables. But the urge to combat climate change effectively remains limited, because companies' short-term profit considerations outweigh the longer-term perspective; because governments lack the courage to take on these companies with short-term interests; and because the populations of most countries in the rich northern hemisphere are far too lethargic to actively change their living and consumption patterns. In the newly industrialized countries, fossil-fuelled economic growth proceeds apace with undiminished vigour, as the assumption that social stability can be assured through the distribution of affluence is given priority over longer-term ecological (and hence also economic) stability.

But the negotiations are also doomed by the fact that the governments' bunker mentality prevents them meeting one another half way. The trend observed in the talks on a negotiating mandate at the Meeting of the Parties in 2006 in Nairobi (see above) continues unchanged. Although the European Union and a few friendly industrialized countries are prepared to adopt further measures in principle, they expect concessions from the developing countries in return. On the other hand, the countries of the southern hemisphere argue that it is hardly up to them, as they have to think first and foremost of their economic development; moreover, what they have received from the industrialized countries hitherto can only be described as pathetic. The new US government elected in late 2008 shows no interest in climate protection, continues to reject the Kyoto Protocol and torpedoed any possibility of agreement by luring the newly industrialized countries with offers of technology transfer and co-operation. But the hopes of the newly industrialized countries for new technologies are dashed. Confidence in the good faith of the industrialized countries dwindles as North and South withdraw into their bunkers.

The negotiations are protracted so that no agreement can be reached by the end of 2009, and even after that date climate diplomacy fails to extricate itself from the blind alley it has worked itself into. Negotiations on an interim solution, such as prolonging the existing pledges until a new treaty can be negotiated, peter out. As a result the emerging markets for carbon (emissions trading, etc.) collapse in 2011 for lack of prospects. The European

¹⁴ These narrative scenarios are, however, supported by scenarios calculated by the IPCC, cf. <http://www.ipcc.ch>. A very good example of narrative scenarios is provided by the Global Scenario Group http://www.tellus.org/seib/publications/Great_Transitions.pdf.

¹⁵ See Meinshausen, Malte: What Does a 2°C Target Mean for Greenhouse Gas Concentrations? A Brief Analysis Based on Multi-Gas Emission Pathways and Several Climate Sensitivity Uncertainty Estimates. In: H.-J. Schellnhuber et al. (eds.): *Avoiding Dangerous Climate Change*. Cambridge University Press, 2006.

Union falls far behind with its targets, and the EU's internal system of emissions trading among companies breaks down because the individual governments grant their companies too many emission rights and fail to see to their fulfilment. As a result the EU fails to meet the target it set itself in early 2007 of a 20% reduction of its emissions by 2020.

On the climate issue public opinion reverts, as it did after the warnings in the 1970s and 1980s, to a wait-and-see attitude. Climate change is played down, while many people want "to enjoy life to the full again". Companies put their faith in coal, gasification of coal and a promise to store carbon dioxide in underground containers. They block efforts to separate power generation from power supply and to decentralize the latter. Although the share of renewable sources of energy rises, the reduced emissions are cancelled out by increased consumption.

The upshot is that emissions continue to increase unabated with no end in sight, so that the barely tolerable upper limit for the concentration of greenhouse gases (450 ppm CO_{2eq}) will be exceeded by 2020, by which time it will be too late to turn back. Also, keeping climate change below a global mean of three degrees Celsius would require such drastic cutbacks that any government trying to impose them would be swept away by popular wrath. Hurried investments are made in gigantic projects to sequester carbon dioxide, huge areas are afforested, gas is pumped into underground storage sites, and billions of little mirrors are shot into space to reflect the sunlight. But the constantly increasing climate change destroys the afforested areas, the underground sites cannot retain the carbon dioxide, and the mirrors fall to earth, their mission unaccomplished. Every country is out to salvage as much as possible for itself.

The world is on a climate course that will lead to a rise in the global mean temperature of up to 4.5°C by 2100 or perhaps even more.¹⁶ This earth is, in the words of NASA scientist James Hansen, a different earth – the difference in mean temperature between the last Ice Age and today is only about 5°C.

III.2 The structurally conservative scenario: Something is done, but too little, too late, and it is the wrong thing anyway

The international negotiations on the continuation of the Kyoto Protocol are successful, but only a minimum consensus is reached. Following extremely arduous negotiations an agreement is achieved in 2011. These talks are marked by a persistence of the bunker mentality (see above), which causes the industrialized countries, on the one hand, and the developing or newly industrialized countries, on the other, to eye each other on the principle of "Whoever moves first is dead". They never get beyond petty disputes about who is to blame for climate change – the industrialized countries because of their rigid adherence to established emission rights, and the developing and newly industrialized countries because of their relentless copying of the Western development model.

The reason for this failure is the structurally conservative basis of this scenario, which is the desire – mainly on the part of the energy industry – to avoid any change in the underlying principles and structures of the international economic order in tackling climate change.

On the one hand, many companies, not only in Britain, now have climate change "on their radar screens". The dominant topic at the so-called "World Economic Summit" in Davos in January 2007 was climate change and the opportunities it represented. In both Europe

16] See Meinshausen, Malte: What Does a 2°C Target Mean for Greenhouse Gas Concentrations? A Brief Analysis Based on Multi-Gas Emission Pathways and Several Climate Sensitivity Uncertainty Estimates. In: H.-J. Schellnhuber et al. (eds.): Avoiding Dangerous Climate Change. Cambridge University Press, 2006.

and the U.S. – especially since the Stern Review – more and more initiatives are being taken by companies which see climate change as a threat to their future. In early 2007, the Climate Action Partnership (USCAP, <http://www.us-cap.org>) was founded in the U.S., to which firms like General Electrics, DuPont and Caterpillar belong. At the beginning of 2007 the Swedish power company Vattenfall launched an initiative known as “3C” (Combat Climate Change, www.combatclimatechange.org), which was soon joined by almost 40 major European companies, including E.on and EnBW, Vattenfall’s competitors in Germany. The 3C initiative set itself the express aim of influencing the global distribution of emission rights and the negotiations for the period after 2012.

On the other hand, however, there is no intention of bringing about a real change. An indicator of the structurally conservative thrust of the corporate climate protectors is a plan presented by Vattenfall in early 2006 for a global distribution of emission rights (<http://www.vattenfall.com/www/ccc/ccc/index.jsp>). The distribution described in this plan is based on a principle that stabilizes the existing situation: the number of emission rights each state is to receive depends on that state’s share of global GDP at a certain time. Although the plan is ecologically correct enough to reward those states which in the past have been particularly efficient in managing their resources and thus have a good ratio between energy input and economic output, at the social level, however, it penalizes those who have been left behind in the race for economic development: it only gives to the haves.

Thus the sheer scale of the structural changes causes both companies and governments in the industrialized countries to recoil from them. The mantra of eternal economic growth is left intact. Indeed, economic growth continues to be regarded as a precondition of climate protection for both industrialized and developing countries.¹⁷ Naturally, the conditions to be preserved are those which constitute an important basis for company profits. In Germany, for example, these are the old and centrally organized power networks owned and controlled by the power utilities, which are not adapted to the challenges of a decentralized energy supply system based on renewable sources of energy.

According to various analyses, between 26 and 40 coal-fired power stations have been planned in Germany in 2007, although this is clearly at odds with the climate-protection targets. This adherence to a centralized, fossil-based energy supply is also reinforced by the international development banks, as exemplified by the World Bank in its Energy Investment Framework of 2007.¹⁸ The drive towards coal-fired power stations thus continues unabated. Since the beginning of the new millennium two new power stations have been built every week, with over 1 billion tonnes of CO₂ emissions every year, and the trend is accelerating. In the years 2008-2012 enough coal-fired power stations are built to generate an additional 12 billion tonnes of CO₂ emissions every year.¹⁹

The overexploitation of resources continues without restraint until the oil and gas reserves are squeezed dry. The adherence to old structures of energy supply means that policy is mainly directed towards finding alternatives to oil. Oil is scarce and getting expensive. Yet the alternatives to oil are not necessarily climate-friendly. When coal is turned into gas, for example, to be used as a fuel for cars, the consequences for the climate balance are twice as bad as when oil is burned. In Canada oil sand is exploited by means of a process in which the oil must first be washed with a very high expenditure of energy and of water – a catastrophe for both the climate and the ecology of the region, as the extrac-

17] Cf. e.g. the conclusions of the Chair of the Ministerial Gleneagles Meetings (3-4 October 2006, Monterrey), www.defra.gov.uk/environment/climatechange/internat/pdf/chairs-conclusions-mexico-october06.pdf.

18] See <http://www.worldbank.org/energy>; cf. How the World Bank’s Energy Framework Sells the Climate and Poor People Short. A Civil Society Response to the World Bank’s Investment Framework for Clean Energy and Development, September 2006, http://www.seen.org/PDFs/Energy_Framework_CS0.pdf.

19] Projection in Christian Science Monitor of 22 March 2007 – <http://www.csmonitor.com/2007/0322/p01s04-wogi.html>.

tion process leaves behind veritable lunar landscapes. Finally, attempts are made to satisfy humanity's growing energy requirements by exploiting the huge reserves of methane hydrates located in the permafrost of the Arctic region and under the ocean floor.

Thus, in the structurally conservative scenario, support is mostly given to the main traditional technologies: nuclear power (although it can at best cover only a small percentage of the world's energy requirements); coal (with the uncertain promise of non-harmful combustion, as the climate gases are to be sequestered underground); hi-tech bioenergy (although it soon becomes clear that there will be a worldwide scramble for arable land between foodstuffs and energy crops, which has already – in 2007 – led to a "tortilla crisis" in Mexico, for example); and large-scale water power (although the latter has pronounced side effects and its reliability is steadily dwindling as a result of the effects of climate change on precipitation).

There is no move towards decisive improvements in the efficient use of energy or of renewable sources of energy. Although wind power soon becomes a marketable commodity in countries such as Germany, Spain and India, the old industrial interests manage to get their way. As a result the promotion of renewable sources of energy – by introducing feed-in legislation, for example – makes no headway and the next phase of the boom is missed. And yet in the space of a few years – between 1998 and 2006 – wind power in Germany had attained a six percent share of the power generation market. But none of this makes any difference – the structurally conservative forces of the "business as usual" school are stronger.

On the international level there are initial signs of a relaxation in relations between industrialized and developing countries, as the negotiations within the framework of the G8+5 and the Gleneagles process lead to unusually brisk communication. But it soon becomes clear that the rich countries of the northern hemisphere are not really considering a restriction of their economic activities. They show no readiness to limit their own emission of greenhouse gases in order to give the newly industrialized countries some scope for growth.

The international climate negotiations within the framework of the Climate Convention and the Kyoto Protocol therefore make no real progress. In 2011, an agreement on a further pledge period after 2012 is reached, but the package is not adequate to the problem. The U.S. is not part of this agreement, while the other industrialized countries pledge themselves to a total reduction of eight percent in relation to the year 1990 (albeit by making generous allowance for the avoidance of emissions in the forest sector) and the developing countries undertake voluntarily (but in a vague manner) to promote renewable sources of energy and make more efficient use of energy. The gap that appears between the pledges is filled by an interim agreement. But the confidence of the markets is shaken and emissions trading is no longer taken seriously. Many citizens' initiatives advocating a different way of life emerge, but most of the global economy does not become much more efficient.

When the amended version of the Kyoto Protocol finally comes into force in 2016, the world is on a course which could bring about a rise in the global mean temperature of up to 4°C by the end of the century. Whether the turnaround in global emissions will really succeed is uncertain. The old interests are too strong, the alternatives too weak, and the temptation to use imperialist power policy to secure energy requirements too great. A relapse into the first scenario is not unlikely.

III.3 The ecologically equitable scenario: fair and effective action is taken

The international climate negotiations for a follow-up agreement to the Kyoto Protocol after 2012 are completed by the end of 2009. The discussions are marked by the customary bitter diplomatic disputes, but these are kept under control. The trust between industrialized and developing countries built up by the G8 and Gleneagles processes does a lot to help. The participating governments do not yield to business pressure for a structurally conservative solution, but use the impetus provided by corporate initiatives to achieve basic agreement on the main points of a post-2012 strategy. This agreement contains not only greater reduction targets for industrialized countries, but also elements of confidence-building for the developing countries.

Following the example of the EU, which in March 2007 committed itself unilaterally to a 20 percent reduction of its emissions by 2020, Japan, Canada and a few smaller countries are also willing to make further-reaching pledges. Admittedly, they do not pledge as much as 20 percent, but the European pledges are also lower in real terms, as the EU has in the meantime grown from 15 to 27 members and the East European states have contributed the reductions they achieved after 1990.²⁰ But the Europeans succeed in persuading their partners of the solidity of the targets adopted – and top this by raising their pledge to 27 percent. In return the partners pledge reductions averaging 10 percent. Although even these targets do not go far enough to steer climate development onto a safe trajectory, a clause is inserted to the effect that the appropriateness of the pledges has to be examined immediately after their entry into force and new negotiations begin on more ambitious pledges.

The U.S. cannot make any pledge under the Kyoto Protocol because the new government only takes office at the beginning of 2009. The new administration takes climate change seriously, using the climate protection measures introduced by many states and the changed mood in Congress to initiate a far-reaching national climate policy aimed at reducing emissions to their 1990 level by 2020. This strategy is “non-partisan” – i.e. supported by the two main parties – and is basically aimed at introducing an emissions trading system for companies on the EU model and a massive promotion of renewable sources of energy. In late 2009, at the climate summit concluding the post-2012 negotiations, the U.S. puts this national commitment on the table and simultaneously issues a legally binding unilateral declaration that it will abide by the commitment in its international dealings.

This legally binding declaration is accepted by the other governments and declared to be part of the negotiating package. The major newly industrialized countries, in particular, abandon their distrust of the U.S. and declare that a vital condition for a constructive joint policy has been met. There is another condition that is much harder to satisfy. The states of the southern hemisphere expect generous financing to fund their own climatic measures and to cover part of the costs for the necessary adaptation to climate change. Traditionally, the rich nations of the northern hemisphere are reluctant to make financial transfers to the southern hemisphere, suspecting that the money will be pocketed by the elites in the recipient countries.

Previous practice has shown that it is only in cases of extreme danger – such as the need to protect the ozone layer – that any substantial sums are provided. Within the framework of the 1987 Montreal Protocol a special fund was set up to cover the “incremental”

20] Cf. Luhmann, Hans-Jochen/Sterk, Wolfgang: Klimaschutzziel für Deutschland. Kurzstudie für Greenpeace Deutschland, Energiebereich. Hamburg: Greenpeace, February 2007.
http://www.greenpeace.de/fileadmin/gpd/user_upload/themen/klima/Klimaschutzziel-40Prozent_01.pdf.

costs of measures to protect the ozone layer, i.e. the additional costs incurred by the need to use non-ozone-depleting substances (<http://www.multilateralfund.org/>). More than two billion dollars have flown from north to south via this channel. The financial requirements for abandoning the path of fossil-fuelled development will naturally be a multiple of this. Yet the dangers of climate change are similar or even greater than the depletion of ozone. It is therefore decided in the post-2012 negotiations to set up a similar fund based on the existing funds of the Framework Climate Convention and the Kyoto Protocol. Another fund is set up to cover the costs of adaptation. This fund is partly financed by the proceeds from the auctioning of emission certificates in Europe and elsewhere. A global system of emissions trading with part of the proceeds being used to reimburse the public is agreed as a long-range target for the period after 2020.²¹

In return, the major newly industrialized countries indicate their willingness to undertake commitments to limit their own emissions. These targets are not yet “quantitative” like those of the industrialized countries – they do not set fixed upper limits for emissions, as it is too early for that. But for certain sectors (e.g. steel, power generation, etc.) clearly defined measures are agreed to reduce emissions. It is also agreed that by the year 2020 at least 30 percent of the power generated must be accounted for by renewable sources of energy, a development to be partly financed by the industrialized countries. The agreement is supplemented by a number of technical chapters specifying co-operation in the development and dissemination of climate-protecting technologies. These obligations do not apply to all developing countries, just to the “newly industrialized countries” which have reached a certain stage in their economic development. This threshold is calculated on the basis of a complex index, which measures historical responsibility, economic power and countries’ potential for reductions.²² The poorest states (least developed countries) have no reduction commitments, but receive aid in the form of electrification using renewable sources of energy and adaptation to climate change.

In view of the rapid completion of the climate negotiations by the end of 2009 market confidence in emissions trading and the direction of climate policy is maintained. The ratification of the Kyoto 2 Agreement drags on longer than expected, but the existing pledges are renewed for a transitional period (after 2012). In mid-2014, Kyoto 2 enters into force. Even before this, however, negotiations have begun on a tightening-up of the protocol – this time with the U.S. The Europeans succeed in convincing the Americans of the necessity of a long-term target for global emissions. The long-term target adopted for the industrialized countries is a (not strictly binding) reduction of greenhouse gas emissions amounting to 80 percent by 2050, as a first step towards a global reduction of 50 percent by the middle of the century. This can serve as a basis for a rational, negotiated strategy for the global distribution of emission rights.

Not only in Europe and Japan, but also in the U.S. the stage is being set for a solar economy. The leading position enjoyed by American wind and solar companies 20 years earlier is quickly restored. After the right economic framework has been created, the U.S. experiences an unprecedented boom in renewable sources of energy. As in the years 2007/2008, when billion-dollar investments ushered in a competition over bioenergy, capital is combing the whole range of solar sources of energy for investments. Even Exxon, previously a “fossil” among the oil multinationals and notorious for financing counter-studies against climate change, recognizes the signs of the times and sets up a renewables division. The outlook is that Exxon will remain the world’s biggest company even in the solar age.

21] Cf. e.g. Barnes, Peter: Capitalism 3.0. A Guide to Reclaiming the Commons. Berrett-Koehler Publ. 2006.

22] Cf. Ott, H.E./Winkler, H./Brouns, B./Kartha, S./Mace, M.J./Huq, S./Kameyama, Y./Sari, A.P./Pan, J./Sokona, Y./Bhandari, P.M./Kassenberg, A./La Rovere, E.L./Rahman, A.: South-North Dialogue on Equity in the Greenhouse. A proposal for an adequate and equitable global climate agreement, GTZ Climate Protection Programme, May 2004, (http://www.wupperinst.org/uploads/tx_wiprojekt/1085_proposal.pdf).

Naturally, the measures do not take effect as quickly as expected. In China and India especially, emissions continue to rise for quite a while, largely as a result of these countries' intensive use of coal. Furthermore, the technology of sequestering CO₂ in deep rock shafts and old gas fields (carbon capture and storage, CCS) does not live up to expectations. Apart from individual cases, the companies cannot guarantee that the climate gases will remain in the earth. Civic action groups are founded to oppose the storage of compressed carbon dioxide in populated areas, as a deadly hazard is feared if the gas leaks out. Many citizens' initiatives are also directed against coal-fired power stations, as happened in 2006 when a new coal-fired power station was planned for Mainz (<http://www.kohlefreies-mainz.de>). In most European countries a moratorium on new coal-fired power stations without sequestration is adopted at the beginning of the second decade, followed by the U.S. and Canada around 2015 and China in 2020. To cover possible gaps in the energy supply, gigantic wind parks are set up with the aid of billionaire investors. As in the rest of the world, the power grid in China is geared to decentralized transmission with a high sequestration capacity. The previously overheated economic growth eases off and there are fewer social inequalities.

In the ecologically equitable scenario, too, the concentration of greenhouse gases in the atmosphere exceeds the magic limit of 450 ppm CO_{2eq'}, which offers only a 50% chance of keeping the warming rate below a global mean of 2°C. For a short while the concentration will even soar to up to 475 ppm CO_{2eq'}, only to fall continuously thereafter, at first slowly but then with growing speed. In view of the sluggishness of climate systems, which in this case turns out to be an advantage, there is still a chance of global warming staying below 2°C. This earth will be different from the one we have known so far. Great efforts must be undertaken to adjust to the altered circumstances and it is also necessary to resettle parts of the population of coastal regions – yet a catastrophic development could still be averted.

IV. Recommended courses of action for German climate diplomacy

In view of the looming crisis of resources, the ecological crisis will irrevocably alter the coordinates of foreign policy. As Willy Brandt once said, using a phrase coined by Carl Friedrich von Weizsäcker, all foreign policy will in future be nothing less than global public policy ("Weltinnenpolitik"). For just as the economic autonomy of nations is increasingly restricted by ever closer economic ties, the ecological challenges are erasing the dividing line between "internal" and "external": crises affecting our environment and resources give rise to trans-national risk chains, which in turn are fed by trans-national cause-and-effect chains.²³

The resulting conflicts will only be successfully avoided or resolved if foreign policy is seen as biosphere policy. We can no longer think in "national" categories, as an international climate policy without national reduction measures makes no sense. And "national interest" properly understood, which naturally continues to be the guiding principle of foreign policy, today embraces, via a large number of feedback and cascade mechanisms, the well-being of all the people on the planet. In this sense the main frame of reference of foreign policy is no longer the national interest, but the global common good. An ecologically oriented policy will, therefore, also have to be concerned with settling international social conflicts.

The very first thing that is required is a credible national climate policy. Only if domestic and foreign policy are seen as a unity can either of them be successful. This is a new quality – both for foreign and domestic policy. Those who wish to pursue deterrence in the field of security policy must see to it that the military means have been provided at home. Those who want to convince others that climate policy is of existential importance must give this issue priority at home. This is, therefore, the first confidence-building measure.

This limitation also provides space for the development of the southern hemisphere. For the international climate negotiations – this is the second confidence-building measure – will only be successful if the rich countries of the northern hemisphere are willing to share with others. This means that the established industrialized nations must create some space for others to grow as well. For governments this means not yielding to the energy industry's demands for "business as usual". In any case, the developing countries no longer have much room to grow, as too much time has been wasted already. But there is also a matter of principle at stake here. And the negotiating clout of the newly industrialized countries is considerable. Basically, they only need to carry on as they have done in the past to trigger a catastrophic development. The fact that they will be harder hit by climate change than the North will not necessarily induce the elites in these countries to change their minds, as they give precedence to socio-economic stability in the short to medium-term. The EU's offer of a unilateral 20% reduction in emissions marked the beginning of a confidence-building measure. If it really wants to play a pioneering role, however, it would need to raise that offer to 30% – which is possible, even without nuclear energy, as the Wuppertal Institute for Climate, Environment and Energy has shown in a report for the WWF.²⁴

Because the negotiating clout of China, India and Brazil is so great, the North – third point – will not be able to avoid financing, at least partially, the climate protection mea-

23] Sachs, Wolfgang/Ott, Hermann E.: Öljunkies auf Entzug! Umweltpolitik ist Ressourcenpolitik ist Sicherheitspolitik. Neue Herausforderungen für die Außenpolitik. In: Internationale Politik, Volume 62, 2/2007, pp. 6-15. English edition: Sachs, Wolfgang / Ott, Hermann E.: A New Foreign Policy Agenda. Environmental Politics is Resource Politics is Peace Politics. In: Internationale Politik, Journal of the German Council on Foreign Relations (IP-Global Edition), Vol. 8, 1/2007, pp. 16-22.

24] WWF: Target 2020. Policies and measures to reduce greenhouse gas emissions in the EU, October 2005. A report by the Wuppertal Institute, www.panda.org/climate/EUtarget2020.

asures in these states. These incremental costs will not be astronomically high, but they will be perceptible. In Sir Nicholas Stern's report the incremental costs, i.e. the additional costs of switching to low-carbon technologies in developing countries, are estimated at 20 to 30 billion US dollars a year at the minimum – and this is probably a low estimate.²⁵ Nevertheless, some of the funds expended – as in the case of development aid – flow back to their point of origin, which happens when technologies and know-how are purchased in Germany and Europe. The question is how long it will take for this insight to become obvious and be included in the negotiations – and also whether it will be realized early enough to avoid any excessive strain being put on the relations between old and new industrialized countries. It is not a matter of naively dispensing hand-outs in all directions. Rather, the rich countries must make clear their own priorities for climate protection and present an offer that the southern hemisphere can accept and adopt. The offer to share the costs of reduction measures in developing countries would send out a strong signal.

Fourthly and finally, the readiness to share must extend to the adaptation to a climate change that is no longer avoidable. The record of the industrialized countries in this respect is less than impressive – the money they gave was too little too late. What is to be done with 100 million people in Bangladesh when the tides rise? What is to be done with the people on the flat islands of the Pacific, who like the inhabitants of Tuvalu have already applied for asylum in Australia and New Zealand? How are we to react to the threat of global famine, if the climate goes haywire? The assurance of dependable and adequate financing for adaptive measures would be the fourth confidence-building measure, without which no progress will be possible.

In conclusion, the starting point for Germany's foreign climate policy is excellent. It can build on its sound balance of the past 20 years, it has the European Union as a booster and sounding board, and the population is behind it. The ministers for environment, economic co-operation, foreign affairs and finance would have the opportunity of devising a cogent and coherent "global public policy" ("Weltinnenpolitik"). Whoever seizes this opportunity will earn the gratitude of Germany, Europe and the world.

On the author: Hermann E. Ott was Director of the Wuppertal Institute's Climate Policy Division until the end of 2003 and has headed its Berlin office since 2004.

25] Stern, Nicholas: The Economics of Climate Change. The Stern Review. Cambridge University Press, 2007, p. 491ff, www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/sternreview_index.cfm.

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