Study

CLIMATE ACTION THROUGH INTERNATIONAL COOPERATION: A WIN-WIN-WIN-POTENTIAL

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2026

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Executive Summary

1. The world is not on track on climate action. Global emissions continue to rise. At the same time, the very costly domestic measures taken by industrialized countries, above all Germany and the European Union, are making losses of competitiveness and economic and social collateral damage increasingly apparent.

2. International cooperation between the Global North and the Global South continues to be seriously neglected. The international legal principles of the UN Framework Convention on Climate Change, above all the principle of cost-effectiveness, are largely ignored.

3. This difficult situation opens up considerable win-win-win potential – for the climate itself, for developing countries and for industrialized countries. As Hölderlin put it: "*But where danger is, grows the saving power also*."

4. These diverse potentials can only be unlocked through a fundamental paradigm shift in climate action, which must be driven in particular by industrialized countries and wealthy individuals. Elements of this paradigm shift are international cooperation and efficient use of funds, greater consideration of individual responsibility, and maximum scaling of nature-based solutions. These must be complemented by a broader range of technological options in the energy sector and an appropriate regulatory framework for the economic system.

5. *Win for the climate:* International cooperation makes it possible to deploy climate finance where it can achieve the greatest impact. More cost-effective mitigation, additional international finance, scaling of nature-based solutions and stronger involvement of particularly high-emitting actors can significantly narrow the global emissions gap and increase the chances of moving back towards a 2°C or even 1.5°C pathway.

6. *Win for the Global South:* For the Global South, international climate action can become an additional engine of development. More capital, technology transfer and investment in energy, infrastructure and nature-based solutions create the conditions for industrialization, employment, food security and new value creation, thereby directly linking climate action with economic and social development.

7. *Win for the Global North:* For the Global North, international cooperation creates the opportunity to achieve climate targets more cost-effectively while maintaining competitiveness and economic performance. A broader solution space comprising international mitigation, nature-based solutions and more technological options reduces the pressure created by costly national go-it-alone approaches and can link climate action more strongly with economic prosperity and resilience.

8. Internationally oriented climate action should combine a range of complementary building blocks: use of Article 6 of the Paris Agreement, traditional international climate finance, international carbon pricing outside Article 6, voluntary carbon markets, climate-relevant technology transfer and capacity building, sectoral climate partnerships, and international supply-chain and corporate cooperation.

1 Introduction

Climate change is both a major risk and a major opportunity.

This becomes clearest when the world is viewed from different perspectives. Such a multi-perspective view forms the basis of this study.

From the perspective of both developing countries and industrialized countries, there are compelling arguments for finally addressing the climate challenge through international cooperation. It represents the only chance of limiting climate change to a manageable level.

The future of climate action will not be decided by the climate targets of individual countries seeking to position themselves as frontrunners, but by the ability of the international community to design cooperation in a way that benefits all parties involved. Achieving Global Net Zero is a technological and financial challenge, but even more fundamentally a challenge of international cooperation.

Contrary to international conventions pointing in a different direction, climate policy in recent years has largely been shaped by a logic of national responsibility. Countries define national climate targets, report on implementation and try to avoid questions about the distribution of financial responsibility between industrialized and developing countries. This approach is not effective. It leaves unanswered the question of how the enormous sums required to achieve global climate neutrality can be mobilized. Nor does it create sufficient incentives for companies to consistently view climate action in conjunction with their economic interests.

The world urgently needs a new story, a new narrative: climate action must no longer be understood primarily as a national or even individual task, but as an international cooperation challenge. International cooperation must not be seen as a supplement to national policy, but as its strategic core. It creates the opportunity to combine climate action with economic development, technological modernization, security of supply and new value chains. In a world increasingly shaped by national self-interest, climate action could become a vehicle for new forms of cooperation.

For the Global South, such an approach means access to investment, infrastructure, technologies, training and employment. For companies, it can create new markets, long-term raw-material and energy partnerships, and additional business opportunities in emerging fields such as green molecules, the circular economy and nature-based solutions. For industrialized countries, international cooperation offers the opportunity to achieve climate targets more cost-effectively, maintain economic competitiveness and at the same time meet their undeniable responsibility towards poorer countries. The climate benefits because emission reductions take place where they have the greatest impact while also supporting development.

The guiding idea of this study is therefore that international climate policy must evolve from a policy of increasingly contentious burden-sharing towards a policy of shared interests. The focus should not be on sacrifice, but on shared opportunities for the future. Climate action can thus become a supporting element of a comprehensive strategy for economic development, international stability and shared prosperity. This perspective builds on the goals of the 2030 Agenda and seeks to carry them forward under the conditions of a changing world order characterized by multipolarity and increasing nationalism, by placing opportunities at the centre and thereby seeking to bring as many actors on board as possible.

Against this background, the study pursues several objectives. First, it explains why a paradigm shift towards more cooperative international climate policy is indispensable. Second, it sets out the win-win-win potential that emerges from today's difficult status quo for the climate, developing countries

and industrialized countries. Finally, it presents instruments through which such a cooperative approach can be implemented in practice. Article 6 of the Paris Agreement, international climate finance, voluntary carbon markets, technology partnerships and international corporate cooperation are building blocks of a comprehensive international cooperation strategy. Its success must be measured by whether it simultaneously contributes to global climate action, the economic development of the Global South and the competitiveness of economies that are making their necessary contribution to successful climate action.

2 The Current Context

This chapter describes the current context in which climate action takes place. Since 2015, the Paris Agreement has provided the international legal framework for global climate mitigation and adaptation. It will be shown that it cannot even be regarded as "half the job". This is reflected, among other things, in the failure to mobilize the financial resources required for international climate action despite corresponding treaty commitments. Relevant figures are presented. The chapter also recalls the 1992 United Nations Framework Convention on Climate Change, which contains five important principles for successful climate action that are seriously neglected today. For anyone familiar with these principles, the question arises why the Global North in particular disregards them to such an extent, thereby not only obstructing successful climate action but also inflicting economic damage on itself.

Before considering individual issues, it is important to recognize how discouraging the continuing trend in global emissions is: in 2025 they rose to an all-time high of 42.2 billion tonnes of CO_2e, of which 38.1 billion tonnes came from fossil energy and industry and 4.1 billion tonnes from land-use changes such as deforestation and losses of carbon from soils and vegetation.[1]

2.1 The Paris Agreement – not even half the battle

At the heart of the Paris Agreement are the CO_2-reduction contributions of almost 200 countries and the European Union as a community of states, the so-called Nationally Determined Contributions (NDCs), which are to be reviewed and adjusted every five years.

It is far too little understood that the contributions of industrialized countries differ fundamentally from those of developing countries. Industrialized countries, which today account for less than 30 percent of emissions, have defined **absolute** reduction pathways that decline steadily towards climate neutrality by a specified date. The European Union defines a pathway to climate neutrality in 2050, with its best-known interim target being the "minus 55 percent" target by 2030 compared with 1990, which gave the Union's "Fit for 55" programme its name.[2]

The contributions of developing and emerging economies, by contrast, "only" describe relative reduction pathways, specifying the extent to which they intend to improve the CO_2 intensity of their economic growth. India, for example, aims to improve the CO_2 intensity of its growth by 33–35 percent by 2030 compared with 2005. Such a target ensures that economic growth remains possible and is not prevented by overly strict requirements for CO_2 reduction. Unsurprisingly, CO_2 emissions in developing and emerging economies are increasing. As a result, they are becoming the main sources of CO_2 emissions: economic growth outweighs the savings achieved per unit of value added. This is why global emissions, with the exception of the COVID year 2020, have continued to rise steadily.

Against this background, it is not surprising that the target timeframe for achieving global climate neutrality is set, without precise specification, in the second half of this century. At the same time, it is clear that a further increase in the atmospheric CO_2 concentration, and thus continued global warming, can only be stopped once the crucial goal of Global Net Zero has been reached.

There is another difference between the climate targets of industrialized countries and those of many developing countries whose significance can hardly be overstated: the latter are linked to payments from the Global North (conditional NDCs). They can therefore only be achieved if external financial resources flow. In total, around 4 billion tonnes of CO_2 are involved.[3]

[1] Cf. Friedlingstein et al. (2026).
[2] Cf. Radermacher (2020).
[3] Cf. Srouji et al. (2025).

Taken together, unconditional national pledges cover around 34 percent of the reductions required to achieve the 2°C target. If conditional pledges are added, the Paris Agreement covers about 43 percent of the necessary reductions.[4]

The consequence of this discrepancy is well known: the world is currently on a pathway towards warming of between 2.6 and 2.8°C.[5]

Another important element of the original Paris Agreement is international climate finance. In 2015, industrialized countries pledged to develop a roadmap under which USD 100 billion in public international climate finance would flow to developing countries each year from 2020 onwards.

After this figure was reached for the first time only in 2022, a new climate finance target – the New Collective Quantified Goal (NCQG) – was agreed at COP29 in Baku in 2024. The amount of public funding to be provided by 2035 was raised to USD 300 billion. An additional USD 1,000 billion is to be provided by non-state sources by 2035.

In this context, it is of great importance that the rules for international carbon markets under Article 6 were also finalized in Baku, making them fully operational. This creates a new opportunity to channel financial flows to the Global South.

The increasingly urgent issue of Loss and Damage, by contrast, still exists only as a placeholder, without any concrete indication of how this further, financially very significant field is to be addressed in future.

2.2 Status Quo of International Climate Finance

Anyone familiar with the logic of the Paris Agreement and the Baku decisions knows that international climate finance is of key importance for successful climate action.

International climate finance provided by industrialized countries has increased in recent years, but nowhere near the level required.[6] After the annual USD 100 billion target pledged for 2020 was initially missed, it was reached for the first time in 2022 at USD 115.9 billion. The volume then rose to USD 132.8 billion in 2023 and USD 136.7 billion in 2024. The "old" financing target under the Paris Agreement was thus exceeded for three consecutive years, while the Baku targets remain far out of reach. Around three quarters of recorded finance now comes from public bilateral and multilateral sources; mobilized private finance increased significantly to USD 30.5 billion in 2024. Nevertheless, the distance to USD 1,000 billion remains enormous.

The financing structure is particularly problematic. Public climate finance is predominantly provided in the form of loans: in 2024, USD 68.5 billion, or around 70 percent, was provided as loans, while grants amounted to USD 29.7 billion, or around 30 percent. Although the loan volume fell compared with 2023 and the grant volume increased, loans remain the dominant instrument. Particularly in highly indebted developing countries, this creates fiscal burdens that are difficult to manage. The structure is more favourable for low-income countries, where grants accounted for around 65 percent of public climate finance over the period 2016–2024.

There also remains a clear imbalance between mitigation and adaptation. Almost two thirds of total climate finance recently went to mitigation, while adaptation accounted for only around one quarter in 2023 and 2024. Adaptation finance reached USD 34.7 billion in 2024 and would have had to increase sharply again in 2025 to meet the agreed target of doubling it relative to 2019. At the same time, fi-

[4] Cf. UNEP (2025).
[5] Cf. UNEP (2026).
[6] Cf. OECD (2026).

nance is strongly concentrated in middle-income countries; low-income countries received only around seven percent of the total volume in 2023/2024.[7]

The following table provides an overview of the development and composition of international climate finance from 2015 to 2024:

Composition of International Climate Finance

Figures in Billion of US dollar

Year	Loans	Grants	Other Instruments	Public Climate Finance total	Climate Finance total
2015	n. a.	n. a.	n. a.	42,1	n. a.
2016	33,3	12,3	1,3	46,9	58,5
2017	38,6	13,8	1,8	54,2	71,6
2018	46,4	14,1	2,0	62,5	79,9
2019	44,9	16,8	1,7	63,4	80,4
2020	48,6	17,9	1,9	68,4	83,3
2021	49,5	20,2	3,4	73,1	89,6
2022	63,6	25,6	2,4	91,6	115,9
2023	75,6	24,8	3,9	104,3	132,8
2024	68,5	29,7	3,4	101,6	136,7

Table 1: Composition of International Climate Finance
Source: OECD (2026).

Viewed as a whole, it is apparent that public climate finance fell for the first time in 2024. The fact that the total amount did not decline is due solely to the growth in private finance.

Because public funding can be expected to decline further in the coming years, particular attention will have to be paid to the private sector in future.

Another field that requires particular attention in future is nature-based solutions. Today they receive only three percent of the already far too small sums of international climate finance.[8] This is particularly dramatic because, according to UNDP, they could provide around 37 percent of global mitigation potential.[9]

Finally, it should be noted that far larger sums are spent on domestic climate measures in industrialized countries. The cost of achieving climate neutrality by 2045 in Germany, for example, is estimated at EUR 5 – 11 trillion (EUR 5,000 – 11,000 billion) – for eliminating roughly 1 billion tonnes of CO_2 compared with the 1990 base year.[10] This national go-it-alone approach increasingly creates competitive disadvantages and reduces the performance of many companies.[11]

2.3 Neglected Principles of the UN Framework Convention on Climate Change

The lack of progress in global climate action has much to do with the fact that central principles of the 1992 United Nations Framework Convention on Climate Change are not being followed to a sufficient extent or even appear to have been "simply" forgotten.

[7] Cf. OECD (2026).
[8] Cf. UNDP (2025).
[9] Cf. UNDP (2024).
[10] Cf. Frontier Economics (2025); Agora Energiewende (2024).
[11] Cf. Projektgruppe Gemeinschaftsdiagnose (2025).

The five principles set out in Article 3 contain the following guiding ideas:[12]

1. Intergenerational Equity

The Convention explicitly contains the principle of intergenerational equity. Climate policy should not serve only present interests; it should also take account of the interests of future generations and safeguard the foundations of their lives.

2. Common but differentiated responsibilities and respective capabilities

This is probably the best-known principle. According to it, all countries bear responsibility for climate action. However, that responsibility is not the same for all; it depends in particular on their historical contribution to the problem, their economic and technological capabilities and their level of development.

For this reason, developed countries are obliged to take the lead in combating climate change and its effects.

3. Special consideration of developing countries

The special needs and circumstances of developing countries are to be taken fully into account. This applies above all to countries that are particularly vulnerable to climate impacts and that would have to bear disproportionate burdens in implementing the Convention, for example because they are highly dependent on fossil fuels or because a large share of their value creation takes place in climate-sensitive sectors such as agriculture.

Climate action must therefore not be considered separately from poverty reduction and economic development.

4. Precaution and cost-effective climate action

Countries should take precautionary measures to address the causes of climate change and mitigate its adverse effects. Scientific uncertainty must not be used as a reason to postpone such measures.

The Convention also contains the principle of cost-effectiveness, according to which measures to address climate change should "*be cost-effective so as to ensure global benefits at the lowest possible cost*". Climate measures should take account of different socio-economic contexts and cover all relevant sources, sinks and economic sectors. Measures may also be undertaken jointly by several Parties.

This principle provides a foundation for international cooperation, emissions trading and joint climate projects – precisely the kinds of approaches that currently receive far too little attention.

5. Development and an open, non-discriminatory trading system

Climate measures should be adapted to the concrete conditions of a country and enable economic development, because the problems associated with climate change can only be addressed from a position of economic strength. Climate action is therefore not an alternative to development; on the contrary, it requires the integration of environmental and climate protection, poverty reduction, and economic and social development.

The framework for climate action should be an "*open international economic system*" that enables economic growth and development. Climate measures must not constitute discrimination or restrictions on international trade.

In this light, European regulations such as carbon border adjustment mechanisms (CBAM), supply-chain legislation (LkSG, CSDDD) and product standards (EUDR) should be viewed critically when

[12] Cf. UN (1992).

they are presented as contributing to climate action beyond German or European borders but in practice protect domestic products from cheaper imports. This conflicts with fundamental WTO principles.

2.4 Interim Conclusion

The discouraging trend of steadily rising global CO_2 emissions described at the outset is ultimately not surprising. It is the result of a fundamentally misguided approach to the global challenge of climate change.

While largely neglecting the principles of the Framework Convention on Climate Change – and especially the principle of cost-effectiveness – climate funds have been and continue to be directed overwhelmingly towards domestic measures "whatever the cost", while international climate action still receives nowhere near the importance it needs. Powerful interests ensure that climate funds remain within national borders.

This picture is reinforced by misleading narratives that prevent climate action from being understood by society at large for what it is above all else: a major international financing challenge. Instead, a sense of responsibility or even guilt dominates, encouraging individuals to believe they must contribute primarily through personal measures. Few recognize that such individualization does not do justice to the problem.[13]

Although the existing approach is clearly not effective, it continues largely unchanged. National beneficiaries appear too powerful and strongly defend the status quo. The forces of inertia are enormous, despite the fact that the economic and social collateral damage of costly national go-it-alone approaches is becoming increasingly obvious.

Yet as much as the status quo threatens to push the world into ever greater difficulties, it also represents an opportunity, because what is wrong can be improved. In this situation, win-win-win potential emerges for the climate, developing countries and industrialized countries. It is difficult to understand why this potential is still not recognized and why neither state nor non-state actors have managed to seize the obvious opportunity.

For a United Nations organization such as UNIDO, there is an opportunity to use internationally oriented climate action as a lever for advancing many other objectives, including industrial and agricultural development and food security. UNIDO could become an engine for better solutions.

[13] Cf. Rostalski (2025).

3 Necessary Paradigm Shifts for Successful Climate Action

This chapter describes three necessary paradigm shifts required for successful climate action. For many reasons, international cooperation is indispensable. It enables funds to be used more efficiently and therefore generates far greater climate impact per euro spent.

Nature and nature-based solutions should be scaled up and integrated as extensively as possible into global climate activities, not least because of their ability to store CO_2 and function as carbon sinks.

Much greater attention should also be paid to differences in individual responsibility, particularly the distinction between rich and poor.

Further paradigm shifts addressed in separate studies include broadening the politically permissible technological solution space for energy supply and establishing an appropriate global economic framework in the form of an eco-social market economy.

3.1 International Cooperation and Efficient Use of Funds

The most important dimension of the required paradigm shift is a much more international orientation of climate action and international cooperation accompanied by substantial financial flows from the Global North to the Global South. Without such an approach, climate action cannot succeed and even a 2°C target will remain out of reach, regardless of what domestic measures individual countries take. Extensive international cooperation is a conditio sine qua non for successful climate action and for improving the prospects of the 2030 Agenda.[14]

When implementing the Paris Agreement, the climate measures of state and non-state actors in industrialized countries should therefore be internationally oriented and comprise three pillars, illustrated below using Germany as an example. Global climate neutrality – Global Net Zero – must be the goal, and it can only be achieved in this way.

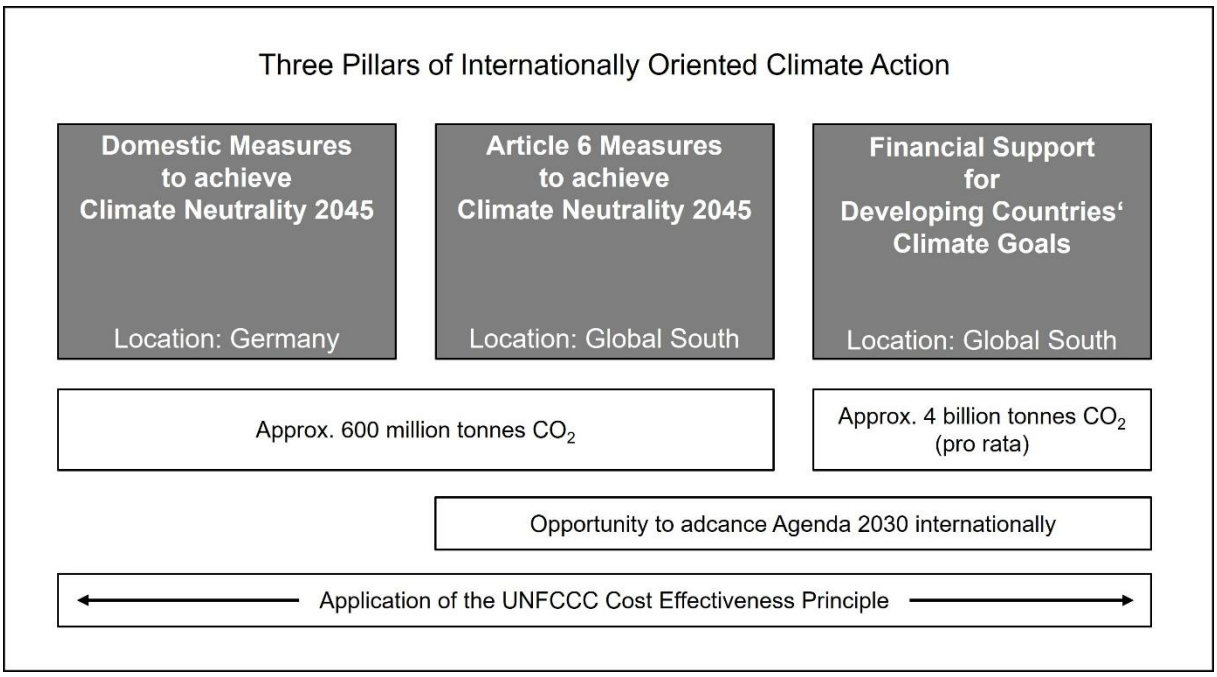


Fig. 1: Three pillars of Internationally Oriented Climate Action
Source: Authors' own illustration

[14] Cf. Radermacher (2023).

To achieve its own climate-neutrality target (currently 2045), Germany should make significant use of international instruments to eliminate the remaining roughly 600 million tonnes of CO_2 and finance measures in the Global South that contribute to climate action there. This is where Article 6, agreed after lengthy negotiations at the climate conference in Baku, comes into play. It regulates international cooperation and international trade in emission reductions between countries. Such an approach makes it possible to achieve the national target far more cost-effectively than through domestic measures alone. In the mobility and buildings sectors in particular, enormous costs and potentially four-digit CO_2 abatement costs are emerging if targets are pursued exclusively on domestic territory.[15] If policy allows international contributions to count towards target achievement, pressure on businesses and citizens can be reduced significantly while preserving economic performance without abandoning the climate target. The higher the share of international contributions and the more extensive the internationally cooperative approach, the more the pressure on the "frontrunner" – in this case Germany – is reduced.

The full picture becomes clear only when the third pillar is considered: industrialized countries and their actors have a responsibility to support developing countries in meeting their climate targets. This pillar has so far been seriously neglected and is hardly discussed, even though the Paris Agreement is clear on this point. A large share of developing countries' climate targets is conditional on payments from the Global North (conditional NDCs). They are rightly described as the "Achilles heel" of the Agreement.[16] The elimination of around four billion tonnes of CO_2 will only take place if actors from industrialized countries finance it.[17] At COP29 in Baku in 2024, the required amount of international climate finance was quantified at USD 1.3 trillion per year by 2035.

Extensive action under pillars 2 and 3, which is essential from a climate perspective, also creates major opportunities to promote further sustainable development goals of the 2030 Agenda internationally – particularly when measures and projects are deliberately designed to generate positive effects for both the environment and development. Nature-based solutions such as soil restoration, agroforestry, afforestation and rainforest conservation are especially valuable because they can simultaneously advance climate mitigation, adaptation, biodiversity and development.

Extensive engagement in pillars 2 and 3 is also required under international law.[18] Article 3, Principle 3 of the 1992 Framework Convention on Climate Change states that policies and measures to deal with climate change "*should be cost-effective so as to ensure global benefits at the lowest possible cost"* and should take into account different socio-economic contexts, be comprehensive, cover all relevant sources, sinks and reservoirs of greenhouse gases and adaptation measures, and encompass all economic sectors.[19]

Given the enormous financing requirements at both national and international levels, efficient use of funds is indispensable. It is therefore all the more problematic that this important principle appears to have been forgotten in recent years and that cost-effective opportunities to reduce CO_2 have sometimes been disparaged as a cheap way of buying oneself free of responsibility.[20] In future, the objective must be to make the greatest possible contribution across all three pillars. The cost of avoiding one tonne of CO_2 should be a central decision criterion in allocating resources. In this context, South Pole founder Renat Heuberger is seeking to establish the term "Carbon Unit" as an alternative to the negatively connoted term "Carbon Credit" – often interpreted as a right to pollute.[21] In this sense, the common task of the international community would be to generate as many Carbon Units as possible across all three pillars in order to achieve global Net Zero. In times of tight public budgets, anyone seeking to achieve as much as possible must recognize that efficient use of funds is unavoidable.

[15] Cf.. Deutscher Bundestag (2026).
[16] Cf.. Pauw et al. (2020).
[17] Cf. Srouji et al. (2025).
[18] Cf. Herlyn, Schwintowski (2026).
[19] Cf. UN (1992).
[20] Cf. Carbon Market Watch (2023).
[21] Cf. Heuberger et al. (2025).

Germany could and should redefine the climate frontrunner role it has long sought and become a frontrunner in international cooperation. This could also mean seeking to build a "coalition of the willing" consisting of countries from the Global North and Global South in order to achieve climate targets jointly. Such an approach could open up more cost-effective pathways, for example through a common CO_2 trading system based on the reduction pledges of the participating countries.[22]

Finally, it should not be overlooked that well over half of global emissions lie outside the Paris Agreement. Around 70 percent of the emission reductions required to achieve a 1.5°C target are currently not part of countries' NDCs.[23] This creates a fourth pillar that is clearly larger than the three pillars described above together. Following the principles of the UNFCCC, it too should be addressed in a way that ensures measures being cost-effective and contributing to achieve global benefits at the lowest possible cost. Under this logic, the overwhelming majority of these measures can be expected to be implemented in the Global South.

3.2 Maximum Scaling of Nature-based Solutions

Alongside technology, nature plays an important and often underestimated role in climate mitigation and adaptation. This is particularly true for the Global South. Climate is by no means the only reason why nature-based solutions deserve far greater attention and scaling than they receive today. In 2023, private and public financial flows with direct negative impacts on nature amounted to around USD 7.3 trillion. By contrast, only around USD 220 billion was spent on its conservation. The discrepancy between current reality and clear necessity is enormous.[24]

There are many reasons why conserving and restoring nature and ecosystems must become a central task of our time. In addition to climate mitigation and adaptation, this is about protecting and restoring ecosystems and preserving biodiversity. Nature-based solutions also generate multiple positive effects for people. Agricultural and forestry projects promote development. Soils are of particular importance because they offer the greatest CO_2-binding potential and can store at least four times as much carbon as above-ground biomass. They are also central to overcoming hunger if measures such as humus formation succeed in increasing soil productivity. Intact ecosystems are therefore an indispensable prerequisite for resilience, prosperity and stability.[25]

In times of pervasive scarcity, nature-based solutions offer a major opportunity to enlarge the "cake" available for distribution and thereby ease distributional conflicts. It is not surprising that nature-based solutions can address all three "urgencies" identified in the WBCSD Vision 2050: 1) "Nature in Crisis", 2) "Climate Emergency" and 3) "Mounting Inequality".[26] These urgencies are nothing other than risks of the kind highlighted for several years in the World Economic Forum's Global Risks Reports. The destruction of nature, climate change and rising inequality translate into some of the greatest long-term threats to humanity, as well as to companies and their ability to create value.[27] Conserving and restoring nature therefore makes sense for reasons that go far beyond climate. In agriculture and forestry, nature provides the environment for economic development, particularly in developing countries. Moreover, intact nature is a fundamental prerequisite for any value-creating activity. From a basic economic perspective, nature must be understood as a form of capital that provides the starting point for all economic activity and therefore requires protection. Nature-based solutions are particularly well suited to enabling development in line with the 2030 Agenda while simultaneously delivering positive effects for climate and biodiversity.[28]

[22] Cf. Bane et al. (2023).
[23] Cf. UNEP (2026).
[24] Cf. IPBES (2026).
[25] Cf. IPBES (2024).
[26] Cf. WBCSD (2021).
[27] Cf. WEF (2023/2024/2025/2026).
[28] Cf. IUCN & UNEP (2021).

For many reasons, therefore, the world should work towards maximum scaling of nature-based solutions. The fact that ecosystem and biodiversity protection, like climate action, are inherently global undertakings makes these issues a second lever for creating opportunities across the entire 2030 Agenda.[29]

3.3 Greater Consideration of Individual Responsibility

The Paris Agreement makes climate action a task to be regulated and allocated between countries. What receives far too little attention is the individual level and thus the distribution of responsibility between rich and poor.

"*We should not hide behind our poor*." as one wealthy Indian put it. Conversely, a person receiving basic income support in Germany should of course be involved in climate action differently from a German billionaire.

This seemingly self-evident proposition is underpinned by four principles of justice that can serve as the foundation for equitable climate action and were already set out in the IPCC Fifth Assessment Report in 2014:[30]

1. The polluter-pays principle (IPCC: responsibility)

2. The ability-to-pay principle (IPCC: capacity)

3. Equal treatment (IPCC: equality)

4. The needs principle (IPCC: right to develop)

The first two principles are particularly important for the necessary paradigm shift.[31]

Under the polluter-pays principle, those who have had or continue to have a negative impact on the environment – for example by emitting CO_2 – should bear the cost of remedying the damage. In economic terms, externalized costs or damage caused by CO_2 emissions are internalized through compensation of an equivalent scale: "The polluter pays."

Under the ability-to-pay principle, individuals should be involved in solving existing challenges to appropriately different degrees depending on their economic capacity and also on their ability to influence outcomes.[32]

[29] Cf. Herlyn (2021).
[30] Cf. IPCC (2014).
[31] Cf. Gore (2021).
[32] Cf. Chancel & Piketty (2015).

4 International Climate Action – Win-Win-Win-Potential

This chapter describes the substantial win-win-win potential that future action in line with the paradigm shifts outlined above would generate.

The benefits would accrue not only to the climate itself, but also to all participating countries in both the Global North and the Global South.

The various potentials are described briefly and concisely so that readers can easily select individual points for use in their own communications in different contexts.

4.1 The Win Potential for the Climate

The potential gains for the climate arising from the paradigm shifts are diverse:

International cooperation unlocks the most cost-effective mitigation opportunities worldwide

The cost of avoiding one tonne of CO_2 differs substantially between countries, sectors and technologies. While additional reductions in industrialized countries can often only be achieved at very high cost, many developing and emerging economies still have large, comparatively low-cost potentials. If these are mobilized through international cooperation and climate finance, a given volume of finance can achieve a significantly greater CO_2 impact.

The cost of emission reductions can on average be almost halved

According to the United Nations Environment Programme, comprehensive use of international carbon markets can reduce the cost of implementing climate targets by around 40 to 60 percent by 2030.[33] International cooperation can therefore, on average, almost halve the cost of emissions abatement. The same financial resources, deployed differently, could thus generate at least twice the climate impact.

Cost savings can be translated into additional climate ambition

International cooperation need not mean merely achieving existing targets more cheaply. The funds saved, or part of them, can be used to finance additional emission reductions and raise climate targets. Article 6 of the Paris Agreement explicitly provides for international cooperation in order to enable higher ambition.

International finance enables implementation of conditional NDCs

The national climate targets of many developing countries depend to a substantial extent on international finance, technology transfer and capacity building. Without significantly larger financial flows from the Global North, these emission reductions will not happen – this is the third pillar described above. International cooperation therefore activates additional climate action that would not be realized under a purely nationally oriented policy.

A cooperative approach can move the world back closer to a two-degree pathway

Current climate pledges are insufficient and point towards warming of around 3°C. To achieve a 2°C pathway, expected emissions in 2030 must fall substantially below the level implied by current pledges. International cooperation, cost-effective mitigation measures and additional financial transfers can help close this emissions gap. If available mitigation options are implemented consistently, it would in principle even be possible to move back towards a pathway compatible with 2°C.

[33] Cf. UNEP (2021).

Nature-based solutions unlock substantial additional mitigation potential

Protecting and restoring forests, peatlands, soils, mangroves and other ecosystems can remove large additional quantities of CO_2 from the atmosphere. Nature-based solutions are an indispensable climate instrument that must complement decarbonization of the energy system. Maximum scaling can enormously increase the mitigation potential of natural sinks.

Protecting nature has an immediate effect

It is particularly effective to prevent the destruction of existing forests, peatlands and carbon-rich soils. This avoids emissions that, if restoration occurs later, could only be rebound over long periods. Nature-based climate action can therefore contribute to narrowing the global emissions gap in the short term.

Nature-based solutions combine emission reduction and CO_2 removal

Intact ecosystems not only store existing carbon; they continuously absorb additional CO_2. Reforestation, natural forest regeneration, agroforestry, humus formation and the rewetting of peatlands strengthen these sinks. Nature is therefore not merely protected, but deliberately used as part of a global net-zero strategy.

Co-benefits multiply the positive impact of every euro invested

Nature-based solutions often contribute simultaneously to climate mitigation, adaptation, biodiversity, food security and economic development. An afforestation or agroforestry project can bind CO_2, stabilize soils, store water and create income for local communities. Because several problems are addressed with the same investment, particularly high positive societal benefits can be achieved.

Intact ecosystems increase the durability of climate action

Forests, soils and wetlands are more resilient when they are biodiverse, ecologically intact and embedded in local development structures. Linking climate action, biodiversity and economic benefits therefore increases the likelihood that natural carbon stores will be maintained over the long term. Nature-based solutions are especially effective when local communities benefit permanently from their protection.

Greater recognition of individual responsibility targets the sources of particularly high emissions

Climate policy has so far allocated responsibility primarily between countries. Within almost all countries, however, there are substantial differences between low-income and wealthy population groups. People with high socio-economic status generally contribute disproportionately to emissions and at the same time have the greatest potential to contribute to climate action – as consumers, investors, citizens, decision-makers and social role models.

Focusing on particularly emission-intensive lifestyles increases efficiency

Measures addressing air travel, large living spaces, emission-intensive mobility, investments and particularly resource-intensive consumption by wealthy groups can achieve greater reductions than blanket burdens placed on the population as a whole. The individual-responsibility dimension allows for a much more targeted and more effective climate policy.

The ability-to-pay principle mobilizes additional financial resources

People with high incomes and wealth not only have greater individual mitigation opportunities, but also a greater capacity to finance climate measures. Stronger orientation towards the polluter-pays and

ability-to-pay principles can therefore mobilize additional private funding for international climate projects, nature-based solutions and technological transformation.[34]

A fairer distribution of burdens strengthens social acceptance

Broad-based climate-policy burdens affect low-income households relatively more strongly because they spend a larger share of their income on energy and basic needs. A policy oriented towards the polluter-pays and ability-to-pay principles can limit these regressive effects. This increases the likelihood that ambitious climate policy will be socially accepted and sustained over the long term.

The three paradigm shifts reinforce one another

International cooperation directs funds towards the most effective mitigation opportunities. Nature-based solutions expand the supply of cost-effective measures and natural sinks. Greater recognition of individual responsibility mobilizes additional finance and distributes burdens more fairly. Taken together, the paradigm shifts enable more avoided and bound CO_2 per euro spent, higher social acceptance and greater international ambition.

The large win potential for climate action can be summarized as follows:

Infobox 1. Win Potential for the Climate

The central gain for the climate lies in pursuing climate targets more efficiently and comprehensively, rather than abandoning them in view of the difficult economic situation facing many industrialized countries. If international cooperation reduces abatement costs by around half, nature-based solutions are scaled consistently, and particularly high-emitting and capable actors are more strongly involved, available climate finance can trigger a considerably larger volume of mitigation than is currently mobilized. In this way, the chances of narrowing today's emissions gap and moving the world back towards a 2°C pathway increase.

4.2 The Win Potential for the Global South

For the Global South, future action in line with the paradigm shifts described above opens up a wide range of economic, ecological and social opportunities.

More climate finance strengthens development and expands economic policy space

An internationally cooperative climate policy would channel substantial additional financial flows from the Global North to the Global South. If designed intelligently, these resources could not only reduce emissions but also enable investment in infrastructure, energy supply, agriculture, education and economic development. Development cooperation, which has been under pressure for years, would be strengthened substantially.

Access to energy creates a key foundation for prosperity and poverty reduction

Clean, reliable and affordable energy supply is an essential prerequisite for industrialization, productivity gains and social development. International cooperation, technology transfer and investment in appropriate energy infrastructure can therefore promote climate action and economic development at the same time. For many countries of the Global South, this creates an opportunity to overcome devel-

[34] Cf. Orthen (2021).

opment deficits without becoming locked into emission-intensive development pathways over the long term.

Technology transfer enables climate-friendly industrialization

Stronger international cooperation can improve access to modern energy, industrial and production technologies. This allows developing countries to build value creation while using more efficient and lower-emission technologies. Climate action thus ceases to be an obstacle to economic development and can instead become part of a new industrialization strategy.

Nature-based solutions create income, employment and new value creation

Agriculture and forestry are among the most important economic sectors in many countries of the Global South. Afforestation, agroforestry, soil restoration, sustainable forest management and other nature-based solutions can therefore create income and employment directly. In this way, climate finance simultaneously becomes development finance.

Better soils contribute directly to fighting hunger

Maximum scaling of nature-based solutions also improves soil conditions in particular. Measures such as humus formation, soil restoration and agroforestry can improve soil fertility, strengthen water retention and stabilize agricultural yields. They therefore function simultaneously as carbon sinks and as a contribution to food security.

Protecting biodiversity safeguards long-term economic foundations

Nature-based solutions combine climate action with the protection of ecosystems and biodiversity. This is particularly important in countries whose economic development depends heavily on agriculture, forestry, fisheries or natural resources. Preserving natural capital therefore also safeguards long-term opportunities for value creation.

Targeted biomass production can ease resource scarcity

Sustainable use of agriculture and forestry can, alongside climate and biodiversity benefits, provide additional biomass for food, materials, energy or industrial applications. This creates new opportunities for value creation and can at least partially alleviate growing resource scarcity.

International financial flows can reduce global inequality

A substantial transfer of capital, technology and know-how from the Global North to the Global South has not only climate-policy effects but also distributional effects. If investments are designed so that they create local income, employment and productive structures, they can contribute to reducing economic inequality between countries.

Greater involvement of wealthy individuals opens additional sources of finance

Greater consideration of individual responsibility broadens the group of actors contributing to climate action. If private top emitters in particular are more strongly involved in accordance with the polluter-pays and ability-to-pay principles, additional funding can be mobilized for climate action and development. International support would then not have to rely exclusively on already constrained public budgets.

International cooperation enables climate action without constraining development

The basic idea of the Framework Convention on Climate Change is not to prevent development, but to achieve global climate impact as cost-effectively as possible. If emission reduction, technology trans-

fer, climate finance and development are considered together, countries of the Global South can continue their economic development – potentially better than under the status quo – while making an increasing contribution to global climate action.

Global markets can reduce the cost of climate-friendly technologies

An internationally cooperative approach relies more strongly on open markets and economies of scale than on protectionism. If climate-friendly technologies are produced and deployed worldwide, production volumes and learning-curve effects increase while costs can fall. The Global South benefits from faster access to the technologies required and from new sales and production opportunities.

The Global South gains the opportunity to participate more strongly in future markets

International climate investment can help ensure that value creation does not remain concentrated largely in the Global North. Production, processing, energy generation and nature-based value creation can increasingly be established locally. This can create new industrial clusters, jobs and export opportunities.

Climate adaptation and nature-based solutions increase resilience

Many countries of the Global South are particularly affected by droughts, floods, soil degradation, water scarcity and other climate risks. Investments in resilient ecosystems, soils, water systems and sustainable agricultural systems reduce these risks and stabilize livelihoods and economic development.

More development and less environmental destruction strengthen social stability

Progress in poverty reduction, food security, employment, climate adaptation and resource protection reinforces itself. It reduces social vulnerability and can lower the risk of social tensions, economic crises and political instability. International climate cooperation thereby also becomes an instrument of risk prevention.

The 2030 Agenda is increasingly becoming a development agenda

Stronger integration of climate, nature, economic development and social justice returns to the original core of sustainable development. For the Global South, this means that climate action no longer appears as an additional burden alongside poverty reduction and development, but as part of a strategy through which several goals can be achieved simultaneously.

Cooperation creates an alternative to protectionism and geopolitical fragmentation

In a world of increasing trade conflicts, sanctions and geopolitical tensions, climate cooperation creates a field in which shared interests can remain visible. Cooperation between countries of the Global North and Global South can demonstrate that rules-based collaboration generates concrete economic and social benefits for both sides.

A “coalition of the willing” can foster new international partnerships

Even if comprehensive global cooperation is politically difficult in the short term, groups of countries willing to cooperate can move ahead. Joint climate projects, investment, technology transfer and trade can demonstrate that cooperation creates tangible advantages. Successful partnerships could become the starting point for a gradual renewal and intensification of international cooperation.

The large win potential for the Global South can be summarized as follows:

Infobox 2. Win Potential for the Global South

For the Global South, the central potential of the paradigm shifts described lies in no longer treating climate action as a constraint on economic development, but as an additional engine of development. International cooperation mobilizes capital and technology; nature-based solutions connect CO_2 sequestration with food security, biodiversity and local value creation; and stronger consideration of responsibility and capacity opens up additional sources of finance. This makes it possible to address poverty, hunger, inequality, loss of nature and climate risks simultaneously. The decisive gain lies in linking environmental and climate protection with economic development and thereby once again making the core logic of the 2030 Agenda the guiding principle for action.

4.3 The Win Potential for the Global North

There are also numerous reasons why the Global North should act in line with the paradigm shifts described above:

Lower climate-action costs and greater cost-effectiveness

A more international orientation of climate action makes it possible to avoid emissions or bind CO_2 where this can be done at significantly lower cost. In addition to technological mitigation options, nature-based solutions in the Global South in particular can unlock cost-effective potential. The use of international cooperation, especially under Article 6 of the Paris Agreement, can therefore significantly reduce the overall economic cost of climate policy.

A wider range of solutions increases climate impact per euro spent

Combining international mitigation measures, technological openness and maximum scaling of nature-based solutions substantially broadens the spectrum of available options. Climate funds can be deployed more systematically where they have the greatest effect. This enables more emission reduction and CO_2 sequestration for the same level of spending while simultaneously relieving public budgets, businesses and citizens. In this context, the walls of today's regulatory "climate prison" must be opened. Extensive changes are required to achieve this.

Nature-based solutions create additional value rather than costs alone

Investment in forests, soils, peatlands, agroforestry systems and other ecosystems does more than contribute to climate action. It can simultaneously preserve biodiversity, improve climate adaptation, raise agricultural productivity and support economic development. For the Global North, this means that international climate finance can generate much broader prosperity-enhancing effects than isolated domestic CO_2-reduction measures.

Protecting natural capital reduces long-term economic risks

Intact ecosystems form a fundamental basis for economic value creation. Their destruction increases risks to food security, raw-material supply, water availability, supply chains and social stability. Investments by the Global North in conserving and restoring natural systems are therefore not merely climate and development finance; they are also investments in the stability of the Global North's own economic framework conditions.

International cooperation strengthens competitiveness and industrial value creation

A more internationally coordinated climate policy reduces competitive disadvantages relative to countries with lower climate-policy burdens. Energy-intensive value creation needs to relocate less frequently, jobs can be maintained and industrial value chains can be preserved domestically. At the same time, the risk of carbon leakage – in which emissions are merely shifted abroad rather than actually reduced – declines.

Greater resilience and fewer strategic dependencies

Maintaining domestic industrial value creation strengthens the economic resilience of the Global North. At the same time, investment in nature, soils and sustainable agricultural structures in the Global South promotes more stable production conditions and more resilient supply chains. International cooperation therefore generally has a stabilizing effect on both sides.

Greater individual responsibility can relieve companies and the wider population

If climate responsibility is not allocated exclusively between countries but is differentiated more strongly according to actual causation and economic capacity, burdens can be distributed more precisely. Particularly high-emitting and economically capable individuals can make a greater contribution, while lower-income groups need to bear less of the burden. Climate policy thereby becomes more socially balanced.

The polluter-pays principle creates additional incentives to reduce emissions

Stronger orientation towards the individual polluter-pays principle means that high emissions are more closely linked to the social costs they cause. This creates more targeted incentives for changes in particularly emission-intensive consumption, mobility, housing or investment decisions without burdening all citizens equally.

The ability-to-pay principle can mobilize additional private climate finance

Wealthy individuals not only have particularly great opportunities to reduce their own CO_2 footprints, but also possess considerable financial scope for action. Greater involvement of this level can mobilize additional resources for international climate measures, nature-based solutions, innovation and development projects. Climate finance can thus be broadened without relying solely on public budgets.

A fairer distribution of burdens increases social acceptance

Climate policy loses support when broad sections of the population bear high costs even though their individual emissions and financial means are limited. Stronger orientation towards responsibility and capacity can change this perception. Those who emit more and have greater financial means also contribute more to the solution. This can make ambitious climate policy more socially and politically sustainable.

Climate targets become more realistic and politically sustainable

When international mitigation opportunities, nature-based solutions, technological options and the individual-responsibility dimension are used together, the available climate-policy room for manoeuvre expands considerably. Climate targets need to rely less on particularly expensive individual domestic measures. Both the economic feasibility and social acceptance of ambitious climate policy therefore increase.

A new positive narrative on climate action and sustainability becomes possible

Combining international cooperation, nature-based solutions, technological openness and a fairer distribution of individual responsibility fundamentally changes the perspective on climate action. Sustainability appears less as a project of sacrifice, regulation and higher costs, and more as an opportunity to improve ecological stability, economic development, innovation and social justice at the same time.

The large win potential for the Global North can be summarized as follows:

Infobox 3. Win Potential for the Global North

For the Global North, the central potential of the paradigm shifts described lies in removing climate action from the logic of a predominantly national and cost-intensive transformation project. International cooperation unlocks more cost-effective mitigation options, nature-based solutions create additional ecological and economic value, and stronger orientation towards individual responsibility distributes burdens more precisely and fairly. Taken together, these approaches can lower the cost of climate action, strengthen competitiveness and resilience, mobilize additional private and public resources and increase social acceptance. Climate action, economic prosperity and social stability are thus no longer played off against one another, but pursued together.

5 Approaches to Cooperative International Climate Action

This chapter presents seven approaches to cooperative international climate action. They should be understood as a system of complementary building blocks that connect public and private finance, carbon markets, technology, industrial cooperation and global value creation.

The paradigm shifts described at the outset can be implemented in practice through a wide range of instruments. Together, they open up a broad solution space for involving both state and non-state actors in international climate cooperation. Article 6 of the Paris Agreement, traditional climate finance, internationally coordinated carbon pricing, voluntary carbon markets, technology transfer, sectoral partnerships and cooperation along global supply chains can complement one another. Together they can help channel finance, technologies and entrepreneurial activity – very much in the spirit of UNIDO – far more strongly towards places where high climate impact can be combined with positive development effects.

5.1 Using Article 6 of the Paris Agreement

A central starting point for better climate policy is the systematic use of Article 6 of the Paris Agreement. It creates, for the first time, an internationally anchored legal framework within which countries can cooperate in meeting their climate targets and use internationally transferred mitigation outcomes. Article 6.2 governs bilateral and multilateral transfers of so-called Internationally Transferred Mitigation Outcomes (ITMOs). Article 6.4 establishes a United Nations-supervised international carbon market, while Article 6.8 enables non-market approaches to cooperation. The key implementation rules were further specified at COP29 in Baku, so the conditions for much broader practical use are now in place.

For cooperative climate action, the potential lies in particular in allowing industrialized countries to achieve part of their climate targets through additional mitigation measures in other countries. Germany, for example, could finance emission reductions or CO_2 sequestration in the Global South and count an appropriately authorized share of the resulting mitigation outcome towards its own climate target. Article 6 cooperation already exists, for example, between Switzerland and Thailand on electric buses, between Switzerland and Vanuatu on solar energy, and between Japan and Thailand under the Joint Crediting Mechanism.

The particular opportunity lies in linking cost-effectiveness with development. Instead of eliminating one tonne of CO_2 where doing so is particularly expensive, international projects can be financed where large mitigation or sink potentials exist at significantly lower cost. Nature-based solutions such as afforestation, agroforestry, soil restoration and forest protection could play a major role. The savings reduce the economic burden and could be used for additional climate measures that generate further co-benefits. In this way, Article 6 puts into practice what the Framework Convention on Climate Change already required in 1992: achieving global climate benefits at the lowest possible cost.

UNIDO's Carbon Market 4 Development (CM4D) Partnership, being launched at COP31, points precisely in this direction.

5.2 Conventional International Climate Finance

Alongside market mechanisms, traditional international climate finance remains indispensable. Its central actors today include the Green Climate Fund, the Global Environment Facility, the World Bank and other multilateral development banks, as well as bilateral development cooperation. Ideally

grants, but also concessional loans, guarantees and equity finance, should be used in particular where climate projects cannot be refinanced directly through conventional markets. This includes climate adaptation, ecosystem protection, infrastructure development, institution-building and projects in particularly poor and fragile states.

The financing requirement is substantial. At COP29 it was agreed to increase climate finance for developing countries to at least USD 300 billion per year by 2035. At the same time, all actors are to work together to scale public and private financial flows to USD 1.3 trillion per year by 2035. The world remains very far from this level today. In 2024, according to the OECD, industrialized countries provided and mobilized USD 136.7 billion, around three quarters of which was public funding. Loans continue to dominate over grants, finance remains strongly concentrated in middle-income countries, and adaptation and nature-based solutions remain underfunded.

A new approach to international climate finance should therefore be designed more strongly around impact. Funds should preferably flow to places where high climate, development and biodiversity impacts can be achieved simultaneously. Public funds should also be used more systematically to mobilize private capital – for example through guarantees, risk-sharing, first-loss structures or blended finance. Where projects cannot generate adequate commercial returns, grants are required. Highly indebted and poor countries in particular must not be driven further into debt by climate finance. International climate finance should be understood less as a traditional transfer payment and more as a strategic lever for effective climate action that mobilizes additional private investment while enabling implementation of conditional NDCs.

5.3 International Carbon Pricing Outside Article 6

A further approach to cooperation lies in stronger international linkage of carbon-pricing systems. Numerous emissions trading systems and CO_2-tax approaches now exist worldwide. According to the World Bank, nearly 30 percent of global greenhouse-gas emissions are now covered by direct carbon-pricing instruments; in 2025 these instruments generated more than USD 107 billion in public revenues.[35]

The problem today lies less in the complete absence of carbon prices than in their strong fragmentation. Price levels, sectoral coverage and regulatory design differ substantially. This creates competitive distortions and carbon-leakage risks. International cooperation should therefore aim to make existing systems gradually more compatible – for example through comparable emissions-measurement rules, common sectoral benchmarks, carbon-price corridors or minimum prices. Linking existing emissions trading systems is also conceivable in principle. Unlike Article 6, such an approach would not necessarily have to rely on transferring individual mitigation outcomes for the purpose of meeting national NDCs, but could initially align the economic framework conditions for emission reduction.

Climate clubs composed of both developing and industrialized countries could provide an institutional framework for these approaches. Over time, such cooperation could lead to larger common CO_2 markets. This is also the direction indicated by the idea of a “coalition of the willing” establishing a common CO_2 trading area on the basis of participating countries’ reduction pledges. Compared with unilateral border-adjustment measures, the advantage would be to place cooperation and shared economic interests more strongly at the centre than exclusion and sanctions.

[35] Cf. World Bank Group (2026).

5.4 Voluntary Carbon Markets

Voluntary carbon markets should play a special role in future because they involve not only governments, but also companies, foundations and wealthy individuals in international climate finance. Companies can, for example, finance reforestation, forest and peatland protection, methane avoidance, clean energy or technical CO_2 removal and acquire verified CO_2 certificates in return. In this way, private funds can flow into climate measures that might otherwise not be implemented.[36]

This approach fits particularly well with the paradigm shift towards greater consideration of individual responsibility. If particularly high-emitting and economically capable actors finance additional climate action beyond their legal obligations, the available volume of finance can be expanded considerably. In this context, the concept of the "Carbon Unit" is helpful: the focus is not on acquiring a right to pollute ("Carbon Credit"), but on financing a measurable additional elimination of CO_2.[37]

It is to be hoped that criticism of voluntary markets will finally become history. Additionality, permanence, baselines, avoidance of double counting and the actual impact of individual projects are important quality criteria that are addressed by the newly created Integrity Council for the Voluntary Carbon Market. With its Core Carbon Principles – including effective governance, transparent registries, independent validation and verification, and robust quantification of mitigation outcomes – a framework should now be in place that takes the wind out of critics' sails.

Projects with additional development and nature benefits are particularly interesting. High-quality afforestation, agroforestry, soil or mangrove projects can simultaneously bind CO_2, protect biodiversity, create income and improve the adaptive capacity of local communities. Given the current underfunding of nature-based solutions, a robust voluntary market could become an important additional source of finance.

In this context, it is to be hoped that the Development and Climate Alliance, launched in 2018 by the German Federal Ministry for Economic Cooperation and Development (BMZ), will realize its full potential for mobilizing private finance in the near future.

5.5 Technology Transfer and Capacity Building

Financial resources alone are not sufficient for successful international climate action. Developing countries also need access to technologies, know-how, training and institutional capabilities. The Paris Agreement explicitly recognizes this. Article 10 places technology development and technology transfer, alongside finance and capacity building, at the centre of international cooperation. Within the UNFCCC context, a Technology Mechanism already exists for this purpose, consisting of the Technology Executive Committee (TEC) and the Climate Technology Centre and Network (CTCN).[38] At the request of developing countries, the CTCN provides technical advice, knowledge and connections to experts and technology providers.

The key is not to understand technology transfer simply as the export of finished equipment. It must also involve adapting existing technologies to local conditions. Building domestic technological, entrepreneurial and institutional capabilities has greater long-term impact. This includes training, research cooperation, local production capacity, appropriate regulatory frameworks, financing expertise and the ability to operate, maintain and further develop technologies. Capacity building and technology transfer must therefore be considered together.

[36] Cf. Radermacher (2018).
[37] Cf. Heuberger et at. (2025).
[38] Cf. UNFCCC Technology Mechanism (2022).

For the Global South, this creates an opportunity for climate-friendly industrialization, which corresponds precisely to UNIDO's core mandate. Clean energy, grids, storage, efficient industrial equipment, hydrogen, CCUS and the circular economy can be used to build new local value creation. Technology transfer should remain technology-open and reflect each country's economic and natural conditions. The joint work programme of the UNFCCC Technology Mechanism for 2023–2027 accordingly covers areas including energy systems, infrastructure, industry, innovation systems and water-energy-food systems.

This is a particularly important field of action for UNIDO. International partnerships can combine technical knowledge, investment and industrial expertise. UNIDO follows this approach, for example, in decarbonizing steel, cement and construction materials, with particular emphasis on linking technology cooperation, finance and green industrialization in developing and emerging economies. This directly supports the objective of giving the Global South access to technology, training, employment and new value creation while simultaneously contributing to climate action.

5.6 Sectoral Climate Partnerships

International climate cooperation does not always have to encompass an entire national economy. In many cases it may be more effective to transform individual, particularly emission-intensive sectors jointly. This applies especially to steel, cement, chemicals, fertilizers, shipping, aviation and power generation. Such partnerships can combine common technology standards, finance, research cooperation, infrastructure development and offtake agreements. Here too, technological openness is important in order to make consensus-based solutions easier to find.

A structural example is provided by the Just Energy Transition Partnerships (JETPs). Under the partnership agreed with Indonesia in 2022, international public and private partners pledged to mobilize USD 20 billion to accelerate transformation of the country's energy system. Comparable partnerships exist with South Africa and Vietnam, among others. In Vietnam, concrete projects are now being developed for pumped storage, hydropower and wind energy. The key approach is to combine finance and policy reforms in a longer-term transformation partnership.

The UNIDO-supported Industrial Deep Decarbonisation Initiative (IDDI) is even more sector-specific. It focuses on steel and cement and works, among other things, on common definitions and standards, emissions measurement and green public procurement. Through their substantial purchasing power, a group of cooperating countries can create a market for low-emission steel and cement, thereby giving private investors greater planning certainty.

Sectoral partnerships have particular win-win potential. Technologies and infrastructure can be built in countries of the Global South where substantial additional production capacity will be needed in any case. At the same time, jobs and industrial value creation are generated locally. Companies in the Global North gain new markets, cooperation partners and long-term access to climate-friendly intermediate goods. Such partnerships should therefore not be understood as one-sided decarbonization requirements, but as shared industrial and development strategies. A current example is the UNIDO-supported initiative to decarbonize South Africa's steel industry, which combines international support with the goal of a competitive low-emission steel sector. The approach of developing industrial corridors in Africa is also of particular interest.[39]

Throughout these efforts, technical feasibility and especially costs must of course remain in view. In the German steel industry, recognition is growing that the pathways pursued so far towards green steel

[39] Cf. UNIDO (2025).

using hydrogen or electricity lead to prices that are not competitive.[40] There is a risk that billions in public subsidies will have been deployed and effectively "burned" without productive effect.

5.7 International Supply Chain and Corporate Cooperation

A substantial share of international climate cooperation can ultimately take place directly through companies and global value chains. Multinational companies possess investment capital, technical knowledge, international supplier networks and substantial purchasing power. These capabilities can be used to organize climate action through concrete investments and joint transformation projects in supply chains.

One approach is to conclude long-term offtake agreements for climate-friendly products. Companies in the Global North could, for example, offer producers in the Global South guaranteed demand for green steel, climate-friendly cement, sustainable fuels, green hydrogen or sustainably produced raw materials – once domestic demand in those countries has been met. This creates the planning certainty needed to finance new production capacity. The First Movers Coalition follows precisely this logic: more than 100 companies create demand through binding procurement commitments in sectors such as steel, aluminium, cement, aviation, shipping and heavy-duty transport. Steel buyers, for example, commit to sourcing at least ten percent of their procurement volume as near-zero-emission steel by 2030.

A second level concerns direct cooperation with suppliers. Companies can provide finance, technical advice and know-how to modernize production processes, integrate renewable energy or improve resource efficiency. Instead of excluding suppliers from value chains when they fail to meet ever higher standards, a cooperative approach would help them manage the transformation themselves. This preserves value creation and employment in the Global South while reducing Scope 3 emissions from the perspective of companies in the Global North.

Particular opportunities again arise in nature-based supply chains. Companies in the food, textile, timber, paper or tyre industries can invest together with producers in developing countries in agroforestry, regenerative agriculture, forest conservation and soil restoration. This can combine raw-material security, biodiversity, climate adaptation, CO_2 sequestration and local income. The sensible maximum scaling of nature-based solutions thereby becomes part of real economic value creation rather than merely an additional environmental programme.

The paradigm shift ultimately consists in moving companies from being passive objects of sustainability regulation towards becoming stronger actors in international climate cooperation. Transparency remains necessary, but it is not an end in itself. What matters is whether international supply chains generate measurable climate impact, technological modernization, additional investment and economic development.

[40] Cf. PwC (2026).

6 Conclusion and Outlook

The question that remains is: given the many potentials and opportunities, what is preventing climate action from being pursued in the manner described?

Obviously, powerful countervailing forces exist that must be identified, understood and overcome.

A large share of people do not understand the substantive interconnections described and would certainly be prepared to support the paradigm shifts outlined if they understood why they are necessary. This points to an enormous need for information and education. Sustainable development is characterized by major gaps in knowledge and understanding. In recent years and decades, it has rarely been considered holistically and in the context of its historical origins, which began with the first global environmental conference in Stockholm in 1972.[41] The overarching question that comes before all individual issues – how environmental and climate protection AND development can succeed together – is not understood by far too many people, including those in influential positions.[42] Nor is it sufficiently understood that the core objective must be the best possible simultaneous realization of economic prosperity, human well-being, and environmental and climate protection, while avoiding every form of inefficiency – for example excessively high costs of climate action.

Given its particular constellation – developing and emerging economies as its "clients" and a Director General from an industrialized country – UNIDO can play a special role in promoting a impact oriented form of international climate action.

The organization has the opportunity to argue in both directions for the absolute necessity of cooperation, bring actors together and promote joint action. Many of the central fields of activity described lie directly within UNIDO's mandate.

UNIDO can also help establish new narratives in both directions along the lines of: "Without international cooperation, there can be neither successful climate action nor long-term economic prosperity." In the German-speaking world, industrial initiatives of this kind are increasing out of necessity. UNIDO should closely follow emerging activities, for example by BDI and DIHK, and seek to support them as effectively as possible with its know-how and its connections to the Global South. The win-win-win potential described can only be unlocked through joint action – and the world needs visible and successful frontrunners to demonstrate that this is possible.

[41] Cf. Gandhi (1972).
[42] Cf. Herlyn (2020).

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Cover images: Forest in Xieng Khouang, Laos, photographer: Sebastian Koch (GIZ), Pixabay.