

Luisa Carpinelli and Daniele Franco

## Strengthening Decision-making Processes to Address the Climate Challenge

### THE CONSENSUS ON CLIMATE CHANGE IS NOT BEING TRANSLATED INTO ADEQUATE POLICIES

Over the past few decades, consensus among scientists on the course and causes of global warming has gradually increased. Five points are now largely agreed upon: (1) the global temperature has risen by more than 1 degree Celsius compared to the pre-industrial era; (2) greenhouse gas emissions – mostly attributable to human activities – are the main cause; (3) in the absence of a reduction in the volume of emissions, the temperature could rise by 4–5 degrees by the end of the century; (4) the effects of this development on the well-being of the world's population would be very profound, in terms of health, physical risks, forced migration, and loss of production; and (5) to contain global warming in the 1.5–2 degrees range, emissions would have to be abated massively over the next few years and then brought to zero within the next few decades.

The international community has responded to these prospects primarily within the United Nations. In 1988, an intergovernmental infrastructure (the Intergovernmental Panel on Climate Change, or IPCC) was created with the aim of aggregating the scientific consensus on climate change. In 1995, annual meetings between countries have been launched (Conferences of the Parties, or COPs), where important agreements were signed (Kyoto in 1997, Paris in 2015). In parallel with the commitments made under the Paris Agreement, targets have been set for net zero emissions at the national or regional level (2050 for the EU and the US, 2060 for China, 2070 for India). Governments also adopted carbon-pricing measures (such as the European ETS), major packages of investments to facilitate the energy transition (such as the NGEU in the EU and the Inflation Reduction Act in the United States), and regulatory measures (such as those on vehicle emissions).

In advanced countries, the transition process is underway, as evidenced by the reduction in the carbon intensity of economic activity: for example, between 1990 and 2021, EU CO<sub>2</sub> emissions fell by 28 percent against an increase in GDP of 65 percent. Nevertheless, the results achieved so far and the progress expected for the coming years at the global level are still far from sufficient to contain the increase in temperature within 1.5–2 degrees. The latest IPCC report leaves no room for doubt: without a strong acceleration in climate action, the planet is bound to undergo dramatic climate changes. The impact would

### KEY MESSAGES

- **In spite of the dramatic implications of current climate trends, global action to reach net-zero objectives remains inadequate**
- **While the transition challenge is of an eminently technological and financial nature, the decision-making process is fundamental to effectively address climate issues, both at the national and international levels**
- **It is crucial to transfer scientific information to the general public in a systematic way, not only on the risks of climate change but also on climate and compensation policies. This can increase acceptability of immediate climate action, whose benefits will be more evident in the future**
- **The weight given to the future in the decision-making process should be strengthened through borrowing mechanisms from other fields, via legislation, procedures, and technical bodies**
- **In parallel, international coordination is fundamental. Voluntary UN level agreements are the ideal venue for cooperation, and should be pursued courageously, with the G20 in a leading position to aggregate political consensus. Climate clubs may represent a second-best solution that should be tested quickly**

be largest in the already less temperate areas, where the world's population is expected to increase most. This could lead to severe geopolitical tensions, for example through migration phenomena.

The relatively slow reaction to climate change of single countries and of the global community is due to many factors, which can be traced back to two areas.

The first is of a technical-financial nature. There is an enormous technological challenge to be faced: decarbonization<sup>1</sup> implies a radical transformation of energy sources and modes of production, consumption, and transportation. In the past, the transition from one primary source of energy to another took several dec-

<sup>1</sup> Decarbonization technically refers to the process of abating carbon dioxide (CO<sub>2</sub>) emissions, stemming in particular from the burning of fossil fuels (such as coal, oil, and natural gas) and other activities that release CO<sub>2</sub>, and making up about 75 percent of total greenhouse gases (GHG) emissions. In the common language it is used more generally to refer to the process of reducing or eliminating all GHG emissions through various means, including transitioning the energy system towards renewables (solar, wind, hydro), improving energy efficiency, and adopting carbon capture and storage technologies. For simplicity, we will use the term decarbonization in the latter broader sense.

ades. This transformation also involves huge financial costs: for the EU, it is estimated that annual investments of 2 percentage points of GDP will be needed. The effort in terms of research and development, investment, and mobilization of resources is enormous. In some cases, for example air travel, there are still no technological solutions that avoid emissions.

The second is of a political nature: the allocation of the costs of the transition. In the first place, it revolves around the distribution within countries. At the static level, high-emissions sectors are severely penalized and – lacking a systematic framework of compensation policies – may strongly oppose measures reducing emissions; at the dynamic level, the interests of the current generation and future generations may diverge. Secondly, the distribution of the burden across countries is also problematic: incentives to undertake ambitious climate action are weakened by the fact that, against positive externalities of mitigation policies distributed globally, costs are instead borne at the level of individual jurisdictions. This prisoner's dilemma setup induces free-riding behavior.

Against the backdrop of these two major challenges, some external factors further complicate decarbonization. Some are structural features, such as population aging – underway in advanced as well as in some emerging countries – which is increasingly stressing public budgets. Others are geopolitical factors, such as the effects of the Russian invasion of Ukraine, which highlighted the importance of security in energy supply, and in 2022 pushed fossil fuel consumption subsidies (Muta and Erdogan 2023) as well as coal-fired generation and related CO<sub>2</sub> emissions (International Energy Agency 2023) to an all-time high.

This note focuses on the obstacles related to the decision-making processes, at national and international levels, and on some solutions that can mitigate them.

## OBSTACLES WITHIN COUNTRIES

### The Perception of the Gravity of the Phenomenon

The prerequisite for a growing ambition in climate policies is a strong political commitment to pursue them. This in turn requires that the fight against cli-

mate change be a priority felt with urgency by citizens, whose preferences influence the economic decisions of the private sector and, especially in the case of democracies, orient electoral programs and government agendas. It is therefore important that widespread awareness of the existential threat posed by climate change takes hold.

The obstacles to the perception of climate risks are varied. It is a relatively new issue that requires a radical change of perspective on the interplay between the economy and the ecosystem: while economic growth has for a long time been a primary goal, allowing humanity to overcome poverty and starvation, suddenly growth is conditional on tight environmental constraints. As Nordhaus (2018) pointed out in his Nobel Lecture, climate change threatens to take humanity back to the Stone Age. In addition, since emissions are not seen or heard, the connection between the various human activities that produce them, the rise in temperatures, and the consequences for human existence in different parts of the planet cannot be easily perceived by most citizens. How can we trace, for example, the intensification of droughts in Africa or floods in Pakistan to the growth of greenhouse gases due to a coal-fired power plant in China or cattle ranching in Brazil? This difficulty in perception distinguishes climate change from other global challenges.

Surveys that measure public perception of climate change reveal widespread concern about the severity of the phenomenon. In *The Peoples' Climate Vote* (2021), a large survey conducted in February 2020 in 50 countries by the United Nations Development Programme (UNDP), 64 percent of respondents said that climate change is an emergency. Even in advanced countries, perception is still heterogeneous. While the sense of urgency seems to be particularly felt in the EU, with 77 percent of EU citizens believing that climate change is a very serious problem (Eurobarometer), in the United States just under half think that global warming poses a serious threat to their lifestyle and 40 percent believe that the severity of global warming reported by the media is exaggerated (Gallup 2023).

Hence there are ample margins for improving information flows, even in advanced countries. In particular, reports by the IPCC, which provide an account of the scientific consensus and its progress, are relatively unknown. Outreach programs, also in educational contexts, and a systematic and thorough effort of dissemination on the science of climate change, could contribute to greater awareness.

### Compensation for Negative Effects and Carbon Pricing

Secondly, it is crucial that those who are most harmed by the transition are supported and compensated in some way for the costs they bear.



**Luisa Carpinelli**

is an Economist at the Bank of Italy, currently Deputy Head of the Advanced Economies and Macroeconomic Policies Division of the Economics and Research Department.



**Daniele Franco**

previously served as Italy's Minister of Economy and Finance and as Director General of the Bank of Italy.

The structural transformation associated with decarbonization involves a radical sectoral re-composition of economies. Some industries – such as fossil fuel power generation and the traditional automotive sector – will shrink significantly, while others – such as renewable energy production and innovative means of transportation – will expand. This results in the obsolescence of a significant fraction of the existing capital stock and massive job losses in some industries. To give an order of magnitude, in the EU, it is estimated that by 2030, in the scenario with a 55 percent emissions reduction, employment in the coal sector will decrease by about 50 percent compared to a baseline of no action (Erbach et al. 2022).

In addition, some climate policies, in particular price-based instruments that make fossil fuel energy more expensive (carbon pricing), generally have a regressive impact, as low-income households spend a larger share of their income on essential goods such as energy. In this case, too, compensatory mechanisms are needed, which can also benefit from the revenue generated by carbon taxes.

Interventions that mitigate the employment and distributional effects of the transition, in addition to responding to the legitimate demand for a just transition, contribute to making more acceptable among citizens.

As a consequence, in the design of policies, it is essential to also consider how they are interpreted by society. In a survey of over 40,000 people from 20 countries, Dechezlepretre et al. (2023) find that a decisive factor underlying support for climate policies is the perception of their impact on low-income households. Projects that are perceived as more effective and redistributive are met with less resistance.

A particularly critical issue is the acceptability of carbon pricing, especially if applied through taxation. While most economists (see “Economists’ Statement on Carbon Dividends” in the Wall Street Journal 2019) and climate experts agree that significant results in decarbonizing the economy cannot be achieved without a large increase in emissions prices, the application of a carbon tax remains rather unpopular among the public, although, as mentioned, it is possible to devise compensating mechanisms.

Carbon taxes meet with opposition because they are associated with directly observable increases in energy prices. Other policies, potentially just as costly for citizens – for example, carbon pricing through cap-and-trade mechanisms that operate via production costs – generate less aversion. It is less clear that the costs of their implementation are borne, at least in part, by consumers.

At the same time, Dechezlepretre et al. (2023) also show that explaining in detail how policies operate and how different groups are affected is key to gaining support for climate policies. It is therefore necessary to include compensation instruments in the design of the most regressive measures while also

disclosing who benefits, who is temporarily penalized, and how this latter category is to be compensated. Furthermore, fundamental information to be conveyed without complacency is that every measure has a cost: one person’s subsidy is always another person’s tax, and the emission of debt is a tax on a future generation.

### **Dynamic Inconsistency, External Authorities and Rules**

A third obstacle to the adoption of ambitious mitigation policies is the different distribution of costs and benefits over time. Costs are mostly concentrated in the short term, whereas the benefits will be appreciated only in the medium to long term. The inability to achieve tangible results within the horizon of decision-makers, tied to electoral cycles, weakens their incentives to take the necessary steps. This misalignment is not specific to the climate challenge. It is in fact a feature of many areas of public policy. For example, it finds analogies in public finance, where budgetary targets often suffer from a tension between short-term political considerations and medium- and long-term economic, financial, and social needs (Di Bartolomeo et al. 2018). Another example concerns monetary policy: the tendency to produce higher inflation than is socially optimal that characterized the actions of several central banks for many years was the result of a suboptimal strategic interaction that led to giving weight to short-lived benefits.

Some proposals to overcome time inconsistency can therefore be borrowed from other contexts.

In fiscal policy, the goal of strengthening medium- and long-term considerations has been addressed within the European Union by mandating specific responsibilities to technical bodies (such as the EU Commission and the national fiscal councils) and by introducing budget procedures and rules that make it more difficult to neglect medium-term objectives. In monetary policy, the same goal has been addressed by strengthening central banks’ independence and thus their credibility.

Drawing on the success of central banks in taming inflation thanks to their independence from political power and to a medium-term horizon, Delpla and Gollier (2019) propose the establishment, within the EU, of a Carbon Central Bank (CCB). The CCB would receive a mandate from the European political authorities to reduce CO<sub>2</sub> emissions at a given rate each year, and would hold a monopoly on the issuance of CO<sub>2</sub> permits in the EU. Operationally, the CCB would translate this objective into a universal carbon price policy paid by selling CO<sub>2</sub> permits at a single price, both at the borders and within the Union. The institutional design would aim at maintaining a balance between democratic legitimacy and the technical profile of its management body. This would allow the CCB to implement a credible long-term strategy, with a ris-

ing carbon price trajectory. A stable and well-defined profile of future prices is key to guide economic actors in planning investments and consumption.

Finally, pressure to strengthen policy action can also come from the judiciary branch. One specific example concerns constitutional principles. In April 2021, the German Constitutional Court issued a ruling in which the judges stated that the climate policies approved by the government were insufficient on the basis of the right of young people to live their future life in an undamaged environment. The government reacted by strengthening its commitments. In recent years, courts from Australia to Pakistan and across Europe have issued similar rulings in favor of climate policy, putting pressure on their respective governments.

### INTERNATIONAL COOPERATION MECHANISMS

At the global level, a cooperative solution faces many obstacles, in particular the impasse on how to allocate the burden of decarbonization between the block of advanced economies and low- and middle-income countries, with the former being the main party responsible for the stock of emissions of the past and the latter substantially contributing to the current flow of emissions.

#### Plenary Mechanisms and Climate Clubs

Given that global temperature is a global public good, affected by any emission and by any abatement irrespective of its location, climate negotiations and agreements should take place at the widest possible scale, like the COPs under the UN hat.

Enforceability is one of the core problems: Who has the authority to impose sanctions on those who violate the agreements or on those not subscribing to the agreements? Gollier and Tirole (2015) identify the World Trade Organization and the International Monetary Fund as playing a fundamental role in this regard. The former should consider non-compliance with a climate agreement as a form of dumping, with subsequent sanctions. In addition, the IMF could consider the same violation as a liability for future administrations and treat it as sovereign debt.

The slow progress made so far suggests that the free-riding problem, exacerbated by the voluntary nature of membership and the impossibility of sanctioning commitments made, is particularly acute. For that reason, alternative coordination mechanisms should be considered. Even if they are suboptimal in terms of representativeness, they can be more effective from a practical point of view.

A proposal that has been discussed for some time is that of climate clubs. In this setting, a subgroup of countries unilaterally decides to reduce emissions on the basis of an agreement that strengthens the benefits for those who participate, but also imposes a penalty on those who do not join.

The concept of agreements between clubs of countries, widely used in the field of international relations, has become particularly well-known with the formalization of Nordhaus (2015 and 2020). In his proposal, the mechanism would be based on carbon pricing, to which a second distinctive element would be added, the sanctioning one: countries that do not participate or that do not achieve the objectives would be penalized. This solution gives rise to a structure of incentives that would encourage non-member countries, acting in their own interest, to join the club and undertake more ambitious climate policies. The penalties to which Nordhaus refers are generally of a commercial nature, such as tariffs and duties. In principle, these should be linked to the carbon content of imports, but the complexity of such calculation could make a uniform tariff more acceptable.

The climate club model is not without questionable implications and implementation problems. It is no coincidence that it has been discussed for many years and it is only now taking a concrete form.

The EU Fit for 55 Package, in broadening the scope and ambition of the EU Emissions Trading System (ETS), will substitute free allowances to firms most exposed to international competition with the Carbon Border Adjustment Mechanism (CBAM). The EU CBAM requires EU importers of certain carbon-intensive products to pay a fee equivalent to the carbon price differential between the EU scheme price and that of exporters. The objective is twofold: ensuring not only that importers pay the same carbon price as domestic producers, thus avoiding carbon leakage, but also incentivizing non-EU countries to implement stricter climate policy as well, in a spirit akin to a climate club. The transitional phase of the CBAM, in which firms are only required to provide information on the carbon content of their import, started in October 2023; the policy is set to take full effect in 2026. It remains to be seen how CBAM will fare in achieving its two objectives, as well as the implications it will have for EU external trade, absent the mechanism of compensation of free allowances for exporters and given the WTO rules.

In December 2022, upon the proposal of the German Presidency, the G7 launched a climate club project. Its initial focus was to be on energy and industrial sectors and not necessarily based solely on carbon-pricing measures, inviting interested states that pursue an ambitious climate policy to join. The degree of ambition of the policies would be differentiated by the level of income of participating countries, and thus encourage the participation of low- and middle-income countries. In addition, reaching an agreement could eliminate the application of existing carbon border adjustment mechanisms between participating countries. At the current stage, the proposal is still on paper.



## Creating International Consensus and the Role of the G20

While it is important to pursue policies at the regional level or climate clubs, which are more politically feasible, a global agreement remains the best solution to address the climate emergency. The case of ozone emissions shows that voluntary international agreements reached through the UN plenary mechanisms can be effective. The Montreal Protocol of 1987 (joined by 197 countries), which provided for restrictions on the use of chlorofluorocarbons (CFCs), has had very satisfactory results: the ozone hole is expected to close by mid-century.

In order to broaden the convergence between countries as much as possible, it is therefore essential to support dialogue and create consensus in the political arena. For these purposes, the role of the G20 is decisive. For one thing, it brings together the world's leading economies, so its actions can truly have an impact at global scale: G20 countries represent 60 percent of the world's population, 75 percent of global trade, over 80 percent of global GDP, and, importantly, almost 80 percent of emissions. At the same time, the dialogue takes place between a limited number of participants.

The G20 agenda is set by the rotating presidency and is fundamentally political. However, being a very lean structure, without a permanent secretariat, the support of international institutions and technical bodies is essential for the political discussion to focus on concrete proposals, based on in-depth analysis and shared in the various competent forums. The negotiation on the taxation of multinationals is a positive example of the role of the G20, which strongly supported the OECD in reaching agreements within the Inclusive Framework, which now includes 140 countries.

## POLICY CONCLUSIONS

The consensus view among scientists is clear: net emissions should be reduced as soon as possible. Nevertheless, in spite of some relevant progress, the will to take climate action is still largely lacking.

The transition challenge is primarily technological and financial. Solving this puzzle requires several pieces: R&D investment, rules – both price- and non-price-based – public investment, finance mobilization. This massive transformation cannot be achieved unless supported by strong political commitment within each country and by tighter international cooperation.

Bolstering society's support of climate action is key. This requires a thorough and granular effort of

public dissemination of the enormous risks posed by climate change, of the nature of climate policies, and of the compensating schemes supporting the most vulnerable in the transition.

Building trust in government-led climate action is even more important because climate negotiations occur at the international level. This additional level of interlocution poses a very delicate challenge for decision-making processes, because of the tension between the legitimacy of international agreements and the full exercise of national sovereignty (the Westphalian dilemma).

Pursuing citizenship support is made all the more urgent in a landscape of increased geopolitical fragmentation, which has tilted the balance between efficiency and strategic autonomy and further complicates addressing global issues through cooperative solutions.

## REFERENCES

- Dechezlepretre, A., A. Fabre, T. Kruse, B. Planterose, A. Sanchez Chico and S. Stantcheva (2023), "Fighting Climate Change: International Attitudes toward Climate Policies", *NBER Working Paper* 30265.
- Delpla J. and C. Gollier (2019), "Pour une banque centrale du carbone", *Astérian Analyse* 1, <http://grouplavigne.free.fr/delpla1019.pdf>.
- Di Bartolomeo G., M. Di Pietro, E. Saltari and W. Semmler (2018), "Public Debt Stabilization: The Relevance of Policymakers' Time Horizons", *Public Choice* 177, 287–299.
- Erbach, G., M. Höflmayr and N. Foukalová (2022), *Economic Impacts of the Green Transition*, Briefing European Parliamentary Research Service, [https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/733623/EPRS\\_BRI\(2022\)733623\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/733623/EPRS_BRI(2022)733623_EN.pdf).
- European Commission (2023), "Special Eurobarometer on Climate Change", <https://europa.eu/eurobarometer/surveys/detail/2954>.
- G7 (2022), "Terms of Reference for the Climate Club", <https://www.g7germany.de/resource/blob/974430/2153140/353c0548bb27a75534468d-624f738848/2022-12-12-g7-erklarung-data.pdf?download=1>.
- Gallup Poll Social Series: Environment (2023), <https://news.gallup.com/poll/474542/steady-six-say-global-warming-effects-begun.aspx>.
- Gollier, C. and J. Tirole (2015), "Negotiating Effective Institutions Against Climate Change", *Economics of Energy & Environmental Policy* 4, 5–27.
- German Constitutional Court (2021), "Neubauer et al. vs Germany", <https://climatecasechart.com/non-us-case/neubauer-et-al-v-germany/>.
- Muta, T. and M. Erdogan (2023), "The Global Energy Crisis Pushed Fossil Fuel Consumption Subsidies to an All-Time High in 2022", <https://www.iea.org/commentaries/the-global-energy-crisis-pushed-fossil-fuel-consumption-subsidies-to-an-all-time-high-in-2022>.
- Nordhaus, W. D. (2015), "Climate Clubs: Overcoming Free-Riding in International Climate Policy", *American Economic Review* 105, 1339–1370.
- Nordhaus, W. D. (2018), "Climate Change: The Ultimate Challenge for Economics", Nobel Prize Lecture, <https://www.nobelprize.org/uploads/2018/10/nordhaus-lecture.pdf>.
- Nordhaus, W. D. (2020), "The Climate Club How to Fix a Failing Global Effort", *Foreign Affairs*, <https://www.foreignaffairs.com/articles/untied-states/2020-04-10/climate-club#:~:text=States%20need%20to%20reconceptualize%20climate,the%20club%20model%20and%20include>.
- United Nations Development Program and Oxford University (2021), *The Peoples' Climate Vote*, <https://www.undp.org/publications/peoples-climate-vote>.
- Wall Street Journal (2019), "Economists' Statement on Carbon Dividends", 17 January, <https://www.clcouncil.org/media/EconomistsStatement.pdf>.