

T20 Recommendations Report

Climate Change and Environment

Work in Progress¹

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About this Report

This Recommendations Report contains Policy Briefs addressing the policy priorities of the G20. These policy priorities were reflected in the research agenda of the T20, the official think tank network advising the G20, which has produced research-based Policy Briefs containing recommendations for decision-makers.

This report provides a repository and categorization of the T20 Policy Briefs and additional relevant literature. It also provides information about the relevant G20 commitments. The report can be used by future T20 Task Forces to set up a research agenda, which builds upon the past efforts of the T20 network.

Clicking on the paper titles will open the paper.

¹ This is a living document. Comments, suggestions and additions are very welcome. Please send them to juliane.stein-zalai@ifw-kiel.de

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1. Introduction

Anthropogenic climate change caused by the accumulation of greenhouse gases from human activities is a major threat to humanity. The effects of climate change or global warming include rising sea levels, regional changes in precipitation, more frequent extreme weather events such as heat waves, and expansion of deserts. Climate change threatens to diminish crop yields, harming food security, and rising sea levels may flood coastal infrastructure and force the abandonment of many coastal cities.

To successfully combat climate change requires actions across all economic and societal sectors and at all levels. The main global response to climate change is the 2015 Paris Agreement, in which governments committed to keeping global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. The 2015 G7 Summit in Elmau and G20 Summit in Antalya were major building blocks on the road to the Paris Agreement.

After Paris, the G20 in 2017 expressed their support to the Paris Agreement and committed to national low-carbon plans in line with the Agreement; this unanimity was broken up one year later after the decision of the US to withdraw from the Paris Agreement.

T20 task forces in the area of Climate change and Environment developed policy proposals and recommendations for Climate mitigation to support implementation of the Paris Agreement targets (A.), including through new measurement, assessment and forecasting tools to inform climate actions at all levels, including infrastructure development and industrial policy; a carbon pricing road map that entails increased coverage of emissions, minimum price, a peer review to assess adequacy of carbon prices for delivering NDCs and Paris, and measures to make carbon pricing socially balanced; and options for implementing a socially balanced climate policy, including through using reductions in fossil fuel subsidies to finance a modern approach to fight poverty, making climate policy and carbon pricing socially progressive, and implementing complementary policies.

A particular focus is on alignment of financial flows with the Paris targets, as public finance will not suffice to finance the necessary climate actions and a fundamental shift from high carbon to low carbon investment is required to enable a well below 2 degree trajectory. Recommendations cover the areas of public and private energy R&D, enabling of clean energy markets, common definitions of sustainable infrastructure and standardization of green finance practices as guidance for public and private investment, disclosure standards for carbon and environmental risks, and supporting green SMEs through.

Task Forces also made recommendations to the G20 for Supporting climate actions in developing countries (C.), including assessment of existing financing sources for climate mitigation and adaptation, and implementation of climate mitigation through technology transfer and international cooperation.

Urban and infrastructure development (D) are also important areas for climate mitigation, since the design of the built environment has a strong influence on future emission levels. Infrastructure and city planning are also crucial levers for building climate resilient societies.

Finally, the Circular Economy (E.) can make major contributions to solving a number of environmental and resource challenges through the principle of the “three Rs”: Reduce, Re-use,

Recycle. It has attracted major attention in recent years as a response to climate change and plastics pollution.

2. Suggested Issues for Research

The following topics have been suggested by members of [the Council for Global Problem-Solving \(CGP\)](#):

Elcano Royale Institute

- How to make carbon tax compliant with WTO rules.
- Agenda 2030. Synergies, trade-offs and interactions.
- Pathways to net zero. Sharing best practices. Learning from past mistakes.
- Legislating for a low-carbon transition. Elements, instruments and processes of robust climate laws. Climate litigation.
- Aligning financial flows with climate goals. Accounting for climate risks. Divestments. Asset stranding. Green fiscal reforms. Green deals. Disclosure. Taxonomies.
- Science and citizens. Ensuring Paris compatible and socially acceptable climate policies. For a Just Transition.

Ethos Public Policy Lab (ETHOS)

- International cooperation to reduce emissions related with what we eat
- Policy guidelines for a less polluting agriculture

G20 Research Group

- What new targets and indicators are needed beyond the few, general ones in SDG 13 on climate change
- How can one strengthen carbon/GGE sinks through 1. forestation, b. farmland, c. ocean seagrass/mangroves, and d. CCS and other (commercially or NETS) unproven technological innovations.
- Climate finance for financial stability, from central bankers & the FSB for defining and using green bonds, QE etc. for direct climate change control
- How are climate change and human health most closely linked and what G20 actions will maximize the co-benefits from both and for other things eg fossil fuel subsidy phase out, shifting subsidies.
- Moving the world to eat plants, not meat, to control climate change and improve human health.

Economic Policy Research Foundation of Turkey (TEPAV)

- Green finance agenda – mobilizing private capital for greener investments
- Green Climate Fund – increasing availability of funds to support climate action and adaptation of developing countries
- Increasing ambition – pioneering 1.5 degree Celsius pathways

- Climate change and trade – linking environmental/climate issues in trade agreements to sustainability

OECD, Policy Studies Branch

- Developing an implementation framework for green budgeting, including guidance for classification for environmentally related expenditure.
- Measuring the impact of government procurement on climate change. Climate mitigation and well-being - linking climate to the broader social and health agenda
- The digital revolution and the environment - how will AI, machine learning, big data affect climate and environmental monitoring, compliance and enforcement
- Climate tipping points - the importance of systems resilience and the role of strategic foresight
- Sustainable plastic design and circular economy

3. Policy Briefs

A. Climate Mitigation to support implementation of the Paris Agreement

Climate change is one of the most urgent global problems as documented in a series of IPCC reports including its latest IPCC Special Report on the Impact of Global Warming of 1.5 degrees centigrade (IPCC 2014, IPCC 2018). Substantial mitigation and adaptation actions at all levels are needed to ensure survival of human society, as scientific evidence suggests that cumulative GHG emissions have already caused climate change

[Strengthened Actions towards Decarbonised and Climate Resilient Society](#)

T20 Policy Brief: G20 Japan

Lewis Akenji (Institute for Global Environmental Strategies (IGES))
Aryanie Amellina Kenji Asakawa (Institute for Global Environmental Strategies (IGES))
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Caroline Ott (Rocky Mountain Institute)
Sunhee Suk (Institute for Global Environmental Strategies (IGES))
Kentaro Tamura (Institute for Global Environmental Strategies (IGES))
Joe Thwaites (World Resources Institute)
Shelagh Whitley (Institute for Global Environmental Strategies (IGES))
Helena Wright (E3G)

As a group of world leading countries, G20 is expected not only to pioneer ambitious actions for transition to low-carbon or decarbonized society but also to lead international cooperation in capacity development of less developed countries for implementing ambitious actions and in financing such actions. Recommendations:

Proposal 1: G20 member countries should take a lead on enabling and facilitating the transition towards decarbonisation of consumer lifestyles through footprint assessment, strategic planning, and transition experiments.

Proposal 2: G20 member countries should promote carbon pricing, carefully designed not to cause excessive economic shocks and negative social impacts, for facilitating and promoting the transition to decarbonised society.

Proposal 3: G20 member countries must take the lead in making finance flows consistent with a pathway towards low greenhouse gas emissions and climateresilient development – as part of their commitments under the Paris Agreement.

Proposal 4: G20 member countries should support more detailed preparation of funding proposals for external climate related funds including bilateral, multilateral and private funds.

Proposal 5: G20 member countries should start an initiative to prepare statistics for “activities” for all country to address climate change mitigation, starting from energy.

Proposal 6: G20 member countries should lead to utilize biennial reporting system under the Paris Agreement in order to strengthen voluntary activities by all Parties beyond transparency, and initiate institutional process to share the experiences.

[Promotion of Constructing Zero Carbon Society: Effectiveness of Quantitative Evaluation of Technology and System for Sustainable Economic Development](#)

T20 Policy Brief: G20 Japan

Kanako Tanaka, Dr. (Center for Low Carbon Society Strategy (LCS), Japan Science and Technology Agency (JST))

Koichi Yamada, Prof. (Center for Low Carbon Society Strategy (LCS), Japan Science and Technology Agency (JST))

This PB clarifies the usefulness and importance of quantitative technical evaluation that can be used for investment judgment and expansion of TD&D which practically accelerate low carbonization and innovation.

Proposal 1: accelerate the technology transfer speed and introduce appropriate technology systems through international cooperation

Proposal 2: establish a scheme that quantitatively predicts future technological innovation and provides necessary information, such as timing and scale, of infrastructure investment for a low-carbon society

Proposal 3: To be able to develop and disseminate technology according to the development conditions of each country and region; develop and use quantitative technology evaluation for guiding investment

Proposal 4: Scenario planning for effective international specialisation in environment, resource and energy efficiency industries.

[The Tipping Point: How the G20 Can Lead the Transition to a Prosperous Clean Energy Economy](#)

T20 Policy Brief: G20 Argentina

Eric D. Beinhocker (Oxford Martin School (OMS))

J. Doyne Farmer (Oxford Martin School (OMS))

Cameron Hepburn (Oxford Martin School (OMS))

The world is approaching an historic tipping point. The cost of clean energy technologies such as solar, wind, and batteries are declining rapidly while their performance increases. In the coming 10-20 years it is highly likely that clean energy technologies will become less expensive than coal, oil, and gas electricity generation for almost all regions and all applications. When this tipping point is reached, clean, modern, cheap energy infrastructure

will rapidly replace dirty fossil infrastructure. While this is good news, unfortunately this tipping point is not going to happen soon enough to prevent dangerous levels of climate change. The generating infrastructure the world has today already has enough “baked in” future emissions to exceed the 1.5-2°C warming limit committed to in the Paris Agreement. Recommendations:

Support Clean Energy R&D: Most G20 governments have made public commitments to the Mission Innovation initiative whose goal is to double current annual public R&D funding in clean energy to \$30 billion globally by 2020. A key step is to ensure that those commitments are fulfilled, that the remaining G20 countries join the pledge, and the ambition of the pledges increases. It is also critical for countries to take policy steps to encourage the private sector to significantly increase its R&D investments as well, for example through R&D tax credits, public/private R&D partnerships, and government supported innovation competitions.

Enlarge the Clean Energy Market: History shows that government market creation/expansion can help increase cumulative production volumes thus driving new technologies down the Wright’s Law curve to the tipping points where market forces take over. Policies that would encourage market expansion include: Auctions for clean energy power, Investment incentives (e.g. tax credits), End-user adoption incentives (e.g., feed-in-tariffs tax credits), Performance standards (e.g. renewable portfolio standards), Government purchasing (e.g. energy, buildings, vehicles), Removing subsidies for fossil fuels, Carbon pricing

Enable Clean Energy Deployment

Finally, even as clean energy sources become cost-competitive and even cheaper than fossil fuel sources, a further set of barriers to their deployment must be addressed. Current grid systems and other infrastructure are optimized for the fossil fuel economy. Critical public investments and reforms will be required to enable large scale renewable adoption. These include: Smart-grid R&D and investments, Demand management technology R&D and adoption incentives Grid enlargement, interconnect investments, Electric vehicle charging infrastructure investments/incentives

[Towards a comprehensive approach to climate policy, sustainable infrastructure, and finance](#)

T20 Policy Brief: G20 Germany

Céline Bak (Centre for International Governance Innovation (CIGI))

Amar Bhattacharya (The Brookings Institution)

Ottmar Edenhofer (Mercator Research Institute on Global Commons and Climate Change (MCC))

Brigitte Knopf (Mercator Research Institute on Global Commons and Climate Change (MCC))

This policy brief proposes a comprehensive approach that links inclusive growth, sustainable development and the climate goals. It builds on a sustainable infrastructure with three key pillars:

(i) G20 governments should strengthen and reorientate investment strategies to exploit the significant opportunities of low-carbon, climate-resilient infrastructure, through targets on

quantity and quality of sustainable infrastructure consistent with the Sustainable Development Goals, systematic assessments of current investments and future plans and of the impediments to sustainable infrastructure, and by inviting Multilateral Development Banks (MDBs) working in cooperation with other international organizations and private entities to establish common definitions and standards for sustainable infrastructure to shape public and private investments

(ii) To transform finance to enable and drive change, the G20 should: ask MDBs to set a system-wide target for supporting the scaling up of sustainable infrastructure consistent with the ambitions of the SDGs and the Paris Agreement; invite the Financial Stability Board (FSB) to establish a platform to exchange experiences and develop approaches to disclosure on climate-related financial risks; and encourage Development Banks and private-sector financial institutions to adopt shadow carbon pricing in internal decision-making

(iii) Setting the prices right by phasing out fossil fuel subsidies by 2022 and putting a price on carbon. To achieve the latter, the G20 should commit to a peer review process to assess the adequacy of the current carbon pricing systems and develop a carbon pricing roadmap, including: increased coverage of emissions, minimum price, a peer review to assess adequacy of carbon prices for delivering NDCs and Paris, measures to make carbon pricing socially balanced and enable a just transition

[Policy options for a socially balanced climate policy](#)

T20 Policy Brief: G20 Germany

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Gianluca Grimalda (Kiel Institute for the World Economy)

Climate policies, including removing fossil subsidies or imposing carbon prices, can be designed in a way that is both efficient in addressing climate change and results in a fair distribution of the associated costs.

Recommendations:

- Explore the feasibility of further strengthening the ongoing process of carbon pricing
- Use reductions in fossil fuel subsidies to finance a modern approach to fight poverty
- Determine the optimal form of making climate policy progressive, e.g. by using a revenue neutral approach
- Identify and implement complementary policies

- Explore options for overcoming political obstacles, e.g. by addressing the interests of affected workers and asset owners

B. Aligning finance flows with the Paris targets

[Investing in Climate Change Mitigation: A G20 Action Plan for Upscaling Private Sector Contributions](#)

T20 Policy Brief: G20 Japan

Venkatachalam Anbumozhi (Economic Research Institute for ASEAN and East Asia (ERIA))

Kaliappa Kalirajan (Australian National University)

Jootae Kim ((German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE))

Peter Wolff (German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE))

The world will need to see some US\$ 20 trillion in capital expenditure on lowcarbon energy supply and in energy efficiency to meet the Paris Agreement targets. Given the large scale of the investment required to decouple carbon emissions from economic growth, it will have to rely largely on mobilizing private capital. The G20 has taken initial steps to formulate a climate agenda to be financed by private capital, but more needs to be done. The Policy Brief proposes four interrelated solutions: a low-carbon transition fund, a financial performance warranty program, best low-carbon regulations and a high-quality infrastructure program as an action plan for G20 to accelerate a private sector-led climate mitigation agenda at the global level.

[Green Shift to Sustainability: Co-Benefits & Impacts of Energy Transformation on Resource Industries, Trade, Growth, and Taxes](#)

T20 Policy Brief: G20 Germany

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Energy transformation towards 100% renewable energy is economically inevitable, and socially and environmentally desirable, yet it may produce negative signals in outdated statistics as fossil trade diminishes and the sector shrinks. The PB proposes that this paradoxon should be addressed in a joint report by, e.g., IRENA, IMF, OECD, and the World Bank, and the Task Force on Climate-Related Financial Disclosures, on the wider economic implication and the true costs and benefits of the energy transformation that are not visible in widely used economic statistics.

[Fostering sustainable global growth through green finance – what role for the G20?](#)

T20 Policy Brief: G20 Germany

Kathrin Berensmann (German Development Institute, DIE) Ulrich Volz (SOAS University of London and German Development Institute, DIE)

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Celine Bak (Centre for International Governance Innovation, CIGI)

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Lawrence MacDonald (World Resources Institute, WRI)

Tian Huifang (Chinese Academy of Social Science, CASS)

Qingqing Yang (Renmin University of China, RDCY)

For a 2°C compatible pathway, the G20 countries face an enormous investment gap. However, public spending will not suffice to finance the green transformation. In fact, a significant amount of private investment is required. It is therefore important to align the financial system – banking, capital markets and insurance – with sustainable development. To increase green investments and align financial markets with sustainable development, the G20 should:

- 1) promote the standardization of green finance practices,
- 2) enhance the transparency of information by promoting disclosure standards for carbon and environmental risks;
- 3) support market development for green investments at a global level;
- 4) support developing countries in developing and implementing national sustainable finance roadmaps.

[Innovative green-technology SMEs as an opportunity to promote financial de-risking](#)

T20 Policy Brief: G20 Germany

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Céline Bak (Centre for International Governance Innovation (CIGI))

Joël Ruet (The Bridge Tank) Elena Verdolini (Fondazione Eni Enrico Mattei (FEEM))

The policy brief recommends that the G20 target innovative green-technology SMEs as an opportunity to promote financial de-risking while addressing Paris Agreement commitments

and UN Sustainable Development Goals. This should be achieved by creating signals for private investors through:

- (1) a reporting system that can help monitor the scale-up of green-technology SMEs;
- (2) the use of public funds to signal innovative green-technology SMEs to investors;
- (3) the inclusion of SMEs in the design of green finance platforms. By implementing these recommendations, the G20 will ensure that innovative, low-carbon SMEs become attractive, low(er)-risk investment opportunities for the private sector.

C. Support climate action in developing countries

[Energy Transition in Emerging and Developing Countries: Promoting the New Paradigm](#)

T20 Policy Brief: G20 Japan

Thomas Spencer (The Energy and Resources Institute [TERI])

Ajay Mathur (The Energy and Resources Institute [TERI])

There is a new paradigm of energy transition emerging. In several important sectors, the transition is now endogenous, driven by the achieved or imminent competitiveness of low-carbon technologies. This is the case notably for the power sector, energy efficiency, and increasingly for segments of the personal transport sector. However, other sectors such as industry and heavy transport are lagging behind. These sectors are particularly relevant for developing countries, which have large unmet material and freight transport needs. The whole international policy environment needs to evolve to reflect the new paradigm.

Recommendations:

- G20 Countries Should Announce A 2030 Deployment and Cost Target for Stationary Storage and A Related Initiative to Scale-Up R&D in Grid-Scale Energy Storage
- G20 Countries Should Announce A Platform For Low-Carbon Industry and Goals for the Deployment of Pilot Projects
- Reallocate Funding to Assist Developing Countries in Meeting the New Paradigm (cost advantage of RE/low carbon)

[Green Fiscal Reform for a Just Energy Transition in Latin America](#)

T20 Policy Brief: G20 Argentina

Carlos Trinidad (Sociedad Peruana de Derecho Ambiental: SPDA)

Rafael Soria (Escuela Politécnica Nacional de Ecuador)

Ottmar Edenhofer (Mercator Research Institute on Global Commons and Climate Change (MCC))

Michael Jakob (Mercator Research Institute on Global Commons and Climate Change (MCC))

Abstract: Green fiscal reforms would contribute to climate change mitigation, increase the economic efficiency of national tax systems and provide additional public revenues. Policy makers need to ensure that the overall political and macro-economic conditions are favorable for green fiscal reforms and develop comprehensive reform plans. Reforms cannot usually be introduced directly; they require gradual introduction and appropriate policy sequencing. To avoid adverse impacts for the poorest sections of the population, it is crucial to understand the distributional impacts of higher energy prices and design appropriate compensation schemes. To ensure that all relevant social groups are fairly considered, transparency and stakeholder participation are crucial. International fora, such as the G20, can play a crucial role in sharing experiences on different design options, carrying out monitoring and peer-review of green fiscal policies, providing financial assistance and building administrative and institutional capacities.

Potential of Various Renewable Energy and its Introduction Policy in Southeast Asia
T20 Policy Brief: G20 Japan

Hiroshi Komiyama (Mitsubishi Research Institute Inc.)
Kazuo Matsushita (Institute for Global Environmental Studies [IGES])
Ajay Mathur (The Energy and Resources Institute)
Tamiksha Singh (The Energy and Resources Institute)
Kenichiro Yamaguchi (Mitsubishi Research Institute Inc.)
Kuniyuki Nishimura (Mitsubishi Research Institute Inc.)
Nobuyuki Kobayashi (Mitsubishi Research Institute Inc.)
Turki Alaqeel (King Abdullah Petroleum Studies and Research Center [KAPSARC])

Abstract: Renewable energy has gained importance and is changing the face of energy business. Introduction of community-based off-grid renewable electricity in developing countries is desirable from the viewpoint of fostering inclusive growth. Southeast Asia provides an ideal ground for demonstration, since the region is endowed with abundant renewable resources as well as a significant need for off-grid electricity. Identified impediments include inadequacies in accumulation of relevant data, management skills, financing and harmonization. Assistance by governments and international institutions such as development banks, coupled with utilizing private sector skills on energy management and novel financing methods are the keys to overcoming them.

[The G20 Countries Should Lead the Way in Designing and Participating in a Greenhouse Gas Emissions Allowance Trading System that Will Provide Adequate Financing to Enable Low-Income Countries to Meet their COP21 Pledges](#)

T20 Policy Brief: G20 Germany

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International policy coordination, such as a system of tradable greenhouse gas (GHG) emissions allowances, can greatly lower the cost to all participants of slowing climate change. An emissions trading system involving all G20 countries that made unconditional pledges could reduce total mitigation costs from an estimated \$1.5 trillion to \$0.24 trillion, a savings of 83%. Moreover, the ensuing allowance sales revenues would greatly enhance the capability of lower-income G20 countries to meet their pledges.

Recommendations:

Recommendation 1: G20 countries should show leadership in developing a GHG emissions allowance trading system. Progress by G20 countries in this direction has the potential to illuminate the path forward toward a truly global system of emissions trading.

Recommendation 2: Under an emissions allowance grandfathering and trading arrangement, require supplemental direct cash transfers from either, or both, high-income countries and the

middle-income countries/regions for whom allowance sales revenue more than offsets mitigation costs, to fund the \$100 billion needed by low-income countries to meet their COP21 pledges.

Recommendation 3: Design an auction-based trading arrangement that provides the \$100 billion to LMI countries through the redistribution of auction revenues.

Recommendation 4: Gradually establish international policy linkages, such as via linked C&T systems, harmonized carbon prices (e.g., coordinated GHG taxes or price floors in C&T systems), or linked regulatory policies, to realize efficiency gains from achieving the least-cost combination of mitigation strategies across countries and from implementing international climate finance transfers.

Recommendation 5: The design and implementation of an allowance trading system should be considered in a broader policy context, including accompanying measures. A Monitoring, Reporting and Verification framework is needed to guarantee the additionality of emission reductions under the trading system.

D. Urban and infrastructure development

Addressing Critical Issues for Building Climate Resilient Infrastructure

T20 Policy Brief: G20 Japan

Riya Rahiman(The Energy and Resources Institute [TERI])

The changing climate, manifested through weather anomalies and extreme weather events pose direct physical risks to infrastructure and assets and threaten vital infrastructure. Taking into account the vulnerability of infrastructure to climate change impacts, it is imperative that climate change concerns are a key consideration while designing infrastructure

Proposal 1: G20 member countries should mainstream climate change concerns when planning and designing infrastructure to develop climate resilient infrastructure.

Proposal 2: G20 member countries should strengthen an enabling environment to mainstream climate change concerns in planning and approval processes for infrastructure development and improve access to climate risk information, and capacity building for informed policy formulation.

Proposal 3: G20 member countries should direct concrete efforts towards leveraging on innovative financial mechanisms for maximizing investment in the development of climate resilient infrastructure.

Enhancing climate resilience through urban infrastructure and metropolitan governance

T20 Policy Brief: G20 Argentina

Gabriel Lanfranchi, Centro de Implementación de Políticas Públicas para la Equidad y el Crecimiento, (CIPPEC)

Ana Carolina Herrero, Centro de Implementación de Políticas Públicas para la Equidad y el Crecimiento, (CIPPEC)

John E. Fernandez, Massachusetts Institute of Technology (MIT)

Francisca Rojas, Inter-American Development Bank (IADB)

Katerina Trostmann, World Resources Institute (WRI)

The largest amount of greenhouse gas (GHG) emissions are produced in cities. Yet they are also at risk of facing the financial and human consequences of climate change, both in terms of lives lost and in material damages. However, national policies have great difficulty coordinating their efforts with subnational governments in a systematic manner. The PB proposes three types of innovative approaches to be considered, adopted and promoted by national governments and implemented locally:

Integrate the concept of urban metabolism into adaptation strategies: We propose the promotion of a new technical-methodological approach across a given territory that accounts for the relationship between resource and energy flows and greenhouse gas (GHG)emissions;

Develop metropolitan governance mechanisms to promote and manage resilience more effectively: an integral way of organizing the governance of the planning and intervention processes in a given territory beyond its jurisdictional limits, to include multi-sector and multi-stakeholder coordination to overcome the administrative gridlock.

Incorporate low-carbon development strategies by rethinking infrastructure investments: a framework to finance infrastructure in order to achieve low carbon development pathways and climate resilient cities. This also means supporting the rapid development of green finance to support such investments. The G20 can support these recommendations by organizing its working groups by comprehensive themes and not by sectors.

[The New Urban Paradigm](#)

T20 Policy Brief: G20 Argentina

Ana Carolina Herrero (Centro de Implementacion de Politicas Publicas para la Equidad y el Crecimiento (CIPPEC))

Gabriel Lanfranchi (Centro de Implementacion de Politicas Publicas para la Equidad y el Crecimiento (CIPPEC))

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Salvador Rueda Palenzuela (Agencia Ecología Urbana Barcelona)

Steffen Bauer (German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE))

This policy brief argues in favor of a new urban model that harnesses the power that cities have to curb global warming. Such a model is essential for meeting complex challenges in cities, such as promoting a cohesive social life and a competitive economic base while simultaneously preserving agricultural and natural systems crucial to soil, energy, and material resources. With most of the population living in urban areas, the G20 should recognize the key role that cities play in addressing global challenges such as climate change. The G20 Development Working Group, Climate Sustainability Working Group, and Energy Transitions Working Group should incorporate an urban approach to discussions related to climate change.

1) Foster the development of *a new ecologically-based urban model to tackle climate change: compact in its morphology, complex in its organization, metabolically efficient and socially cohesive*. Cities offer an extraordinary opportunity to implement cleaner energy and transport systems as well as refurbish and create new climate-resilient infrastructure. In this context, the G20's DWG, ETWG and CSWG should explore the benefits of a planned and climate–ecologically urban development.

2) *Make strides toward the implementation of the New Urban Agenda (NUA)*. Given the role cities have as economic, social, and political actors, the G20 should promote the implementation of the NUA while accounting for the current challenges that hinder such development, such as the need to revive and transform existing urban systems that contribute to unsustainability.

3) Focus on empowering cities. Most of the SDGs and NDCs are to be implemented in urban areas. Thus, swifter decision-making, financial support, and local government planning are

key. G20 should enhance and promote the participation of cities in the international arena, particularly bearing in mind the critical role cities play in the implementation of NDCs, SDGs and the NUA Agendas. Moreover, the G20 should work to ensure that financing challenges do not constrain city-level decisions for investing in low carbon and climate-friendly infrastructure.

[Delivering National Climate Action Through Decarbonized Cities](#)

T20 Policy Brief: G20 Japan

Gabriel Lanfranchi (Centro de Implementacion de Politicas Publicas para la Equidad y el Crecimiento (CIPPEC))

Kate Kooka (OECD) Olivier Richard (Paris Urbanism Agency (Apar))

Malcolm Shield (C40 Cities Climate Leadership Group (C40))

The Paris Agreement Preamble recognized the significant role of local governments in tackling climate change. The G20 governments have the power to contribute to meeting the objectives set out in the Paris Agreement by undertaking ambitious policies that ensure decarbonization by 2050. The PB makes five proposals to the G20 to support this:

National governments of G20 countries should work with city governments to target decarbonization objectives

Empower local governments to finance the low-emission and resilient transition

Create under G20 a metropolitan working group

Acknowledge the role of local governments as pathfinders to support the transition

Enable local governments to adapt or develop the necessary legal and regulatory tools

E. Circular Economy

[Policies and Practices to Enable Business Models for Resource Efficiency and a Circular Economy](#)

T20 Policy Brief: G20 Japan

Joyita Ghose (The Energy and Resources Institute (TERI))

Shilpi Kapur (The Energy and Resources Institute (TERI))

If current patterns of production and consumption continue, the global demand for materials is expected to more than double by 2050. The efficient use of resources can enable economic growth while also ensuring resource security and environmental sustainability. The promotion of business models which reduce the extraction of primary raw materials, increase the use of secondary materials, and generate less waste is central to achieving resource efficiency and a circular economy. However, the market share of these ‘circular’ business models has been limited,

Recommendations:

- (i) incentivize circular business models through policy instruments that improve access to finance, the provision of tax incentives and subsidies, integrating resource efficiency criteria in procurement policies and practices, and enabling industrial symbiosis;
- (ii) develop mechanisms, which may be either voluntary or binding, to mainstream circularity in business models through the promotion of design and material re-use standards, certification schemes, labeling requirements, and extended producer responsibility;
- (iii) provide institutional support to circular business models through developing indicators and targets for resource efficiency, harmonizing waste and material use regulations, and facilitating partnerships between key resource users;
- (iv) enable a behavioral shift among consumers through consumer awareness and education programmes, feedback mechanisms, and peer-based nudges.

Relevant G20 decisions or statements (interpretation rather than listing)

[Six Proposals for Future Policies towards Circular Economy and Society](#)

T20 Policy Brief: G20 Japan

Yasuhiko Hotta (Institute for Global Environmental Strategies [IGES])
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It is estimated that extraction and consumption of natural resources will double by 2060 compared to 2011 levels (OECD 2019). In addition, there has been a recent decline in resource productivity both in G20 countries and around the world (UNEP/IRP 2016, 2018). Continuous expansion of resource use and consumption due to globalisation and economic development will result in ever-increasing amounts of waste, and accompanying environmental impacts. For example, marine plastic waste pollution is estimated to cause economic damages of USD 13 billion a year (UNEP 2014). To achieve the Sustainable Development Goals (SDGs) within planetary boundaries (Steffen et al. 2015), it is crucial to control the ever-expanding consumption of natural resources, and to expand the use of secondary resources, as well as to aim for increased use of a service-based economy; i.e. transition to “circular economy and society”.

Proposal 1: G20 countries need to capture the momentum of public attention on marine plastic pollution not as an isolated issue but as an opportunity to raise political and social priorities for circular economy and society Rationale

Proposal 2: G20 member countries should raise the ambition of policies incorporating Extended Producer Responsibility (EPR) by envisioning phasing out of single-use items and difficult-to-process products.

Proposal 3: G20 member countries should provide policy support for a business model for circular economy and society.

Proposal 4: G20 member countries should facilitate local/community-based initiatives of circular economy and society (Regional Circulating and Ecological Spheres) to rebuild social capital to help revitalize local areas.

Proposal 5: G20 member countries should encourage international mechanism development for policy coordination and harmonisation for circular economy and society.

Proposal 6: G20 member countries need to adopt a new measurement of wealth and development by incorporating planetary boundaries into the policy concept of circular economy and society.

[The contribution G20 governments can make to support the circular economy](#)

T20 Policy Brief: G20 Germany

Vasileios Rizos (Centre for European Policy Studies [CEPS])

Arno Behrens (CEPS)

Eleanor Drabik (CEPS)

In recent years the circular economy has received increasing attention worldwide due to, inter alia, the recognition that the security of supply of resources and environmental sustainability are crucial for the prosperity of countries and businesses. G20 countries should consider developing frameworks that enhance circular economies and create more sustainable production and consumption modes.

Recommendations:

- Integrate the circular economy into discussions about implementing the 2030 Agenda for Sustainable Development and the Paris Agreement.
- Encourage demand for circular economy products and services.
- Work towards agreed terminologies for circular products and processes

(In light of this issue, the G20 should collaboratively work towards agreed terminologies for products and processes relevant to the circular economy (e.g. remanufacturing, refurbishment, product life extension, etc.) with the aim of facilitating knowledge sharing among countries, reducing the risk of green-washing, and increasing opportunities for investing in circular economy projects and trading goods that can be considered ‘circular’ and are not hazardous. Most importantly, this would also support the use of a common framework of indicators for a circular economy that would help in monitoring the circular economy performance of countries and companies worldwide.) Support transparency across global supply chains.

(Companies increasingly participate in an international marketplace and are involved in global supply chains involving multiple companies and actors. In such complex supply chains, closing material loops would require improved transparency throughout the supply chains regarding the origins and content of circular products and materials. Improved transparency would furthermore facilitate collaboration among different industries and companies along the supply chains (World Economic Forum et al., 2014; Vanner et al., 2014). In this context, the introduction of standards, developed in collaboration between governments and companies, can ensure the quality of circular products and processes and support greater transparency along the supply chain). Facilitate financing for establishing circular supply chains. Proactively address transition issues.

[Circular economy measures to keep plastics and their value in the economy, avoid waste and reduce marine litter](#)

T20 Policy Brief: G20 Germany

Patrick ten Brink (Institute for European Environmental Policy [IEEP])

François Galgani (Ifremer)

Heather Leslie (Vrije Universiteit Amsterdam)

Michiel De Smet (Ellen MacArthur Foundation)

Jean-Pierre Schweitzer (IEEP) Emma Watkins (IEEP)

Plastic remains a key material in the global economy, but low rates of collection, reuse and recycling, emissions of microplastic from product wear and tear, and often insufficient disposal measures are leading to far-reaching environmental, health, social and economic impacts. Measures that enable a transition to a circular economy can avoid waste and reduce marine litter, and contribute to keeping plastics and their value in the economy.

Recommendations:

- Create a global impetus for action on plastics and marine litter by encouraging the implementation of existing commitments.
- Encourage a framework of circular economy measures to promote change across governance levels.
- Develop and commit to a global roadmap for action on plastics and marine litter.
- Ensure collaboration and coherence with other processes such as the United Nations Sustainable Development Goals (SDGs)

[Better products by design](#)

T20 Policy Brief: G20 Germany

Dustin Benton (Green Alliance)

Simon Wilson (Green Alliance)

Our analysis of three products reveals how simple problems that frustrate consumers and waste resources could be easily fixed with new product standards for reparability and

durability. None of the solutions require new technology or business models, just market rules that keep manufacturers competing over quality. Leading economies should set ecodesign standards to deliver better products. The G20 can build on its approach to Energy Efficiency to promote resource efficiency and the circular economy, including measures to encourage better design.

Recommendations:

- Develop a G20 resource efficiency action plan.
- Promote better products by design.
- Include exchanges on ecodesign principles within a G20 resource efficiency action plan.

[Biodiversity – A Key Source of Technological Innovation](#)

T20 Policy Brief: G20 Japan

Anke Fischer (The James Hutton Institute)

Jeanette Lim (Biomimicry Institute)

André Mader (Institute for Global Environmental Strategies (IGES))

Alexandra Ralevski (Biomimicry Institute)

Biodiversity – the variety of life on Earth – provides a virtually infinite source of inspiration for technological innovation. Thousands of designs and strategies from thousands of unique species and ecosystems are being uncovered and mimicked for applications as diverse as surgery and space exploration. At the same time, however, unique species and ecosystems with unknown potential are being lost at an unprecedented rate due to human activities. G20 members will benefit from valuing biodiversity as an indispensable resource for technology. By fairly and equitably sharing those benefits among their populace, G20 members also set a global precedent for achieving many of the sustainable development goals.

4. T20 Task Force on Climate Change and Environment (T20 Saudi Arabia 2020)

Task Force Description

Climate change is an urgent global challenge. Scientific evidence suggests that man-made greenhouse gas emissions have already contributed to 1 degree Celsius (°C) of global warming above pre-industrial levels over the past 150 years. Global warming is likely to reach 1.5°C above pre-industrial levels between 2030 and 2052 if it continues to increase at the current rate. The Paris Agreement and Sustainable Development Goal (SDG) #13 (Climate Action) recognize the importance of collective mitigation and adaptation actions by developed and developing countries in tackling climate change at various levels.

Since the Paris Agreement came into effect in 2016, Parties to the Agreement have submitted nationally determined contributions (NDCs), setting out their climate mitigation and adaptation ambitions, and have made progress in developing climate policies. The challenge now is to translate these ambitions into actions and raise the ambition of NDCs on a five-year cyclical basis starting from 2020. Importantly, without ratcheting up NDC ambitions, current NDCs will not collectively achieve the Agreement's aim to keep the average global temperature rise to below 2°C above pre-industrial levels, let alone its aspirational target of limiting this rise to 1.5°C.

Indeed, Parties are challenged by their unique socioeconomic and environmental contexts, which necessitate different climate mitigation and adaptation approaches. It is important to acknowledge equity and common but differentiated responsibility as the key drivers of global climate change action. It is also important to recognize the spillover and negative impacts of response measures to climate change on developing countries. These countries – especially those vulnerable to climate change – shall focus on adaptation as a priority and enhance their resilience to climate change impacts. They will also contribute to climate change mitigation if adequate finance, technology and capacity building are provided.

The concept of a circular carbon economy has emerged in the climate policy debate as a way to balance economic development and environmental sustainability. T20 Saudi Arabia presents an opportunity to communicate pressing global issues to the G20. The work of this task force will therefore contribute toward speeding up nations' climate actions while ensuring environmental protection and economic growth.

Task Force Priorities

- Managing the dual challenges of climate change and economic growth
- Promoting the circular carbon economy
- Policy and technology options for global waste management
- Promoting high-impact green finance programs
- Enhancing the role of the private sector
- Empowering youth for climate action
- Coastline water challenges
- Preserving biodiversity
- The challenges of a climate-constrained world

Lead Co-Chair

Noura Mansouri, KAPSARC

ANNEX

G20 commitments

* to be completed *

Hamburg, Germany, July 2017

G20 Leaders' Declaration:

We remain collectively committed to mitigate greenhouse gas emissions through, among others, increased innovation on sustainable and clean energies and energy efficiency, and work towards low greenhouse-gas emission energy systems

(We take note of the decision of the United States of America to withdraw from the Paris Agreement)

The Leaders of the other G20 members ... reaffirm our strong commitment to the Paris Agreement, moving swiftly towards its full implementation in accordance with the principle of common but differentiated responsibilities and respective capabilities, in the light of different national circumstances and, to this end, we agree to the G20 Hamburg Climate and Energy Action Plan for Growth as set out in the Annex.

G20 Hamburg Climate and Energy Action Plan for Growth

Our action will be guided by the Sustainable Development Goals (SDGs) and the Paris Agreement's aim to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by holding the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels; by increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience; and by making finance flows consistent with a pathway towards low greenhouse gas emissions and climate resilient development. Our actions pursuant to the implementation of the Paris Agreement will reflect equity and the principle of common but differentiated responsibilities and respective capabilities, in the light of different national circumstances.

We join our efforts in implementing this G20 Action Plan on Climate and Energy for Growth, whilst not duplicating other processes.

We move forward to implementing our current and future Nationally Determined Contributions (NDCs) in line with the Paris Agreement. We will increase cooperation among ourselves and with non-G20 countries to facilitate mutual learning, good practice sharing and capacity-building, including through existing fora, inter alia, such as the NDC Partnership.

Those G20 countries who provide development assistance will strengthen their efforts to support partner countries in NDC implementation

FINANCE FLOWS: As spurring investments in low-emission and climate resilient development is key, we as G20 governments will strive to create an enabling environment that is conducive to making public and private investments consistent with the goals of the Paris

Agreement as well as with the national sustainable development priorities and economic growth. We recognise those private actors that have already started to better align their portfolios with the Paris Agreement as well as related Sustainable Development Goals and encourage similar initiatives.

We invite the OECD, UNEP and the World Bank to compile ongoing public and private activities within the G20 for making finance flows consistent with the Paris goals and, building on this, to analyse potential opportunities for strengthening these efforts and present this analysis in 2018.

SUBSIDIES: We reaffirm our commitment to rationalise and phase out, over the medium-term, inefficient fossil fuel subsidies that encourage wasteful consumption, recognising the need to support the poor and we will endeavour to make further progress in moving forward this commitment.

G20 Action Plan on Marine Litter

G20 Resource Efficiency Dialogue

Buenos Aires, Argentina, December 2018

G20 Leaders' Declaration:

Signatories to the Paris Agreement, who have also joined the Hamburg Action Plan, reaffirm that the Paris Agreement is irreversible and commit to its full implementation, reflecting common but differentiated responsibilities and respective capabilities, in light of different national circumstances. We will continue to tackle climate change, while promoting sustainable development and economic growth. The United States reiterates its decision to withdraw from the Paris Agreement, and affirms its strong commitment to economic growth and energy access and security, utilizing all energy sources and technologies, while protecting the environment.

G20 ENERGY MINISTERS COMMUNIQUÉ 15 June 2018, Bariloche, Argentina

We emphasise our commitments to work towards low greenhouse-gas (GHG) emissions through, among others, increased innovation on sustainable and cleaner energy systems. As highlighted by the Energy Transitions Working Group (ETWG), we recognise that energy transitions are an essential element of long-term development strategies that should combine economic growth with decreasing GHG emissions. We acknowledge the importance of energy transitions to achieve emissions reductions and for those countries that are determined to implement the Paris Agreement; and we note the linkage between country-driven energy transitions that provide affordable and reliable energy and the important role of energy markets and innovation in providing energy security, economic growth, and a cleaner environment.

Osaka, Japan, June 2019

Local communities, resilient societies

Circular economy, resources

G20 Implementation Framework for Actions on Marine Plastic Litter

Prior commitments

Green recovery: We agreed to make the best possible use of investment funded by fiscal stimulus programmes towards the goal of building a resilient, sustainable, and green recovery (2009)

Climate finance: Support for Green Climate Fund and mobilisation of funds (2010-2014)

UNFCCC: General support for UNFCCC process, for finding agreement in Copenhagen, support for Copenhagen Accord by those who have associated with it, consistency with UNFCCC in pursuing i.a. sustainable development or business environments (2009-2014)

Green growth: support for green growth and sustainable development (2010-2012)