



Katowice Committee of Experts on the Impacts of the Implementation of Response Measures

Fourth meeting

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**Enhancing the capacity and understanding of Parties,
through collaboration and input from stakeholders, on the
assessment and analysis of the impacts of the implementation
of response measures to facilitate the undertaking of
economic diversification and transformation and just
transition**

Draft technical paper

Work in progress by the Working Group as of 25th May 2021

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I. Introduction

A. Background

1. Response measures are policies and actions taken to respond to climate change. Under the Convention, the term “response measure” is usually associated with social, economic and environmental impacts of implementing climate change mitigation policies.
2. To facilitate Parties’ discussions on this issue the forum on the impacts of the implementation of response measures, was established under the Convention at COP 16. The forum continues to serve the Paris Agreement. At COP 24, Parties also established the KCI to provide technical support to the work of the forum. The forum and the KCI cover the work of the COP, the CMP and the CMA¹ on all matters relating to the impact of the implementation of response measures.²
3. One of the functions of the forum is to provide concrete examples, case studies and practices to enhance the capacity of Parties, in particular developing country Parties, to deal with the impact of the implementation of response measures.³ COP 25 mandated the KCI to prepare a technical paper to enhance the capacity and understanding of Parties, through collaboration and input from stakeholders, on the assessment and analysis of the impacts of the implementation of response measures to facilitate the undertaking of economic diversification and transformation and just transition.⁴
4. In the Paris agreement all Parties have agreed to aim to reach global peaking of greenhouse gas emissions as soon as possible, recognizing that peaking will take longer for developing country Parties, and to undertake rapid reductions thereafter in accordance with best available science, so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century, on the basis of equity, and in the context of sustainable development and efforts to eradicate poverty. This implies a transformation of all Parties to low emission societies.
5. In discussions on response measures, economic diversification and transformation is regarded as one of the strategies to be implemented by countries and regions that are dependent on of a narrow range of products for which there is clear evidence that they are impacted by measures taken to respond to climate change. To facilitate economic diversification and transformation, countries introduce, for example, regulations, and fiscal measures to promote the development of alternative low-emission sectors, green technologies, and so on, while transiting to low-emission economies (UNFCCC 2017).
6. Another strategy that Parties have implemented is just transition of the workforce and creation of decent and quality jobs, often referred to as ‘just transition’. Just transition refers to a set of policies and measures put in place by countries to safeguard jobs and livelihoods along with the implementation of actions to combat climate change. Although the concept of just transition is more often linked to the workforce and was included in the Paris Agreement to take into account the imperatives of a just transition of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities, it has wider application. Just transition seeks to enable mitigation measures and mitigate the potential impacts of these on workers and communities, while enhancing access to the jobs, markets and other opportunities that emerge from the transition. It is also applicable to firms, businesses and sectors and their employees and communities that need to change their ways of operating as a result of stringent climate change policies. It is a concept that addresses issues concerning communities, including local communities and indigenous peoples, that are specifically impacted during the transition process.
7. This technical paper builds on previous work done by the forum, such as the existing guidance document on the assessment of the impacts of response measures (UNFCCC

³ Decision 7/CMA.1, annex, para. 1(c).

⁴ Decision 4/CP.25.

2016a). In addition, it draws on existing work from academic and other research papers, including on good practices and case studies. It presents information on how assessment and analysis can be undertaken to understand impacts arising from the implementation of response measures with a view to facilitate economic diversification and transformation and just transition. It also explains how capacity of Parties can be increased in this area through collaboration and inputs from stakeholders.

B. Objectives of the paper

8. The objectives of the paper are to:

(a) Understand ways of assessing and analysing the impacts of the implementation of response measures to facilitate the undertaking of economic diversification and transformation and just transition;

(b) Understand the work and role of relevant international organizations in assessing the impacts of mitigation policies to facilitate the undertaking of economic diversification and transformation and just transition and identify organizations that are actively involved in providing capacity-building in this area;

(c) Summarize the methodologies being used by Parties and other stakeholders to assess the impacts of mitigation policies to facilitate the undertaking of economic diversification and transformation and just transition;

(d) Identify possible actions and means to enhance the capacity and understanding of Parties, including collaboration with identified organizations, in the assessment and analysis of the impacts of the implementation of response measures to facilitate the undertaking of economic diversification and transformation and just transition.

II. Ways of assessing and analysing the impacts of the implementation of response measures to facilitate the undertaking of economic diversification and transformation and just transition

To facilitate the assessment and analysis of the impacts of the implementation of mitigation policies and actions that can inform the undertaking of economic diversification and transformation, two important and related aspects of these need to be examined, namely

- 1) Mitigation policies and actions. This section will describe type of mitigation policies and actions and map their possible social, environmental and economic impacts and links with just transition and economic diversification
- 2) Overview of different methodologies, used by Parties and stakeholders, of assessing and analysing the impacts of the implementation of response measures that can facilitate economic diversification and just transition

A. Understanding mitigation policies and actions

9. All measures taken by humans to limit and prevent the release of GHG emissions to the atmosphere and/or to remove GHG emissions from the atmosphere are referred to as mitigation policies and actions (IPCC 2018a). Policy instruments are most commonly classified as being market-based and non-market-based. Market-based policies are also referred to as economic instruments or fiscal policies because they increase prices in order to incentivize polluters to reduce the level of pollution (Hofmann 2016; Stavins 1998). These policies include a range of taxes, subsidy reforms and emissions trading schemes. Taxes and subsidies are known as price instruments since they do not directly target quantities, while emissions trading schemes, especially cap-and-trade schemes, are known as quantity

instruments. Government spending and investments (e.g. green bonds, guarantees and concessional loans) can be also classified as price instruments.

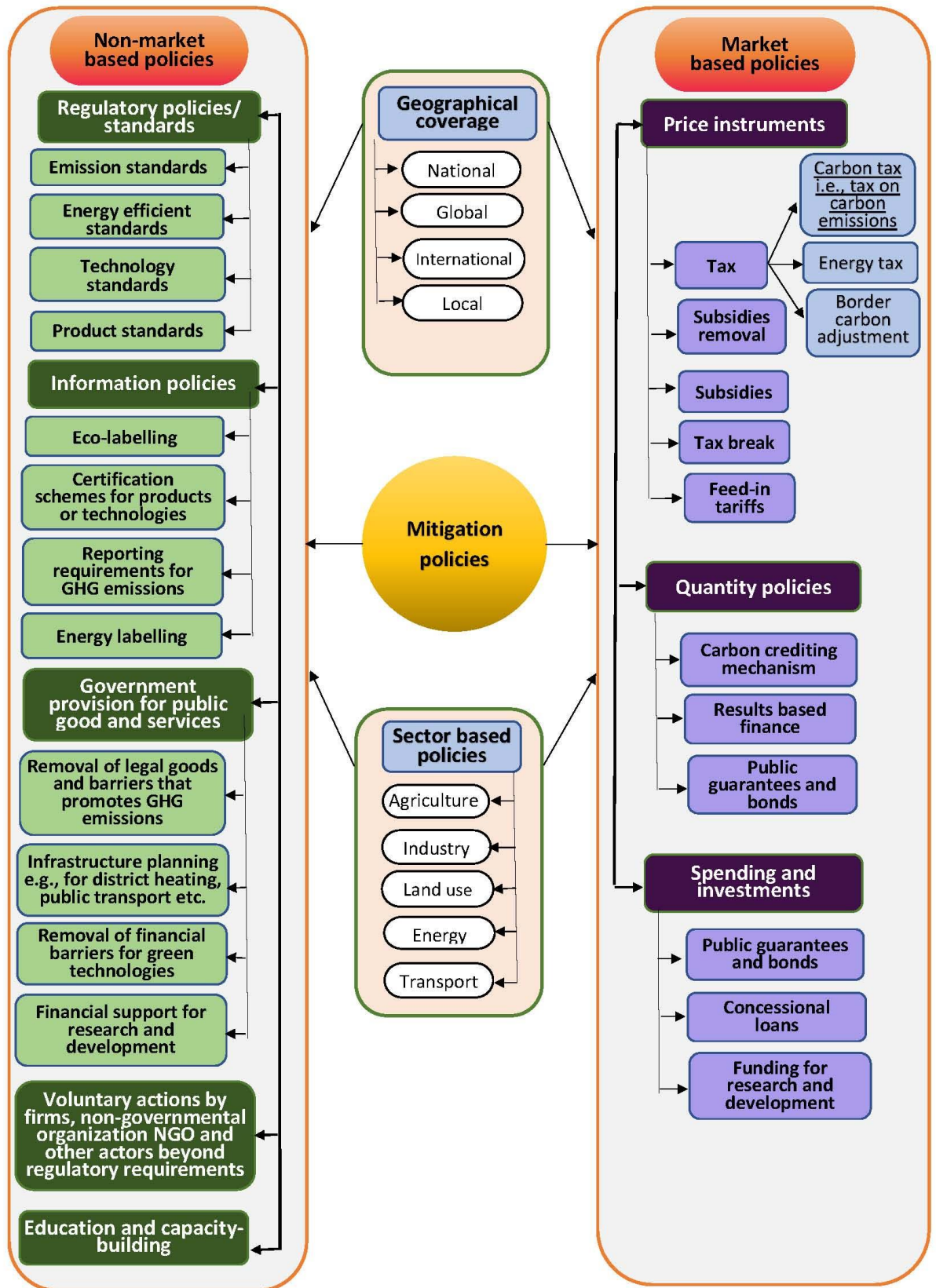
10. Non-market-based policies and measures impose non-monetary incentives to achieve the desired behavioural changes. These include regulatory and information policies, voluntary approaches and government provisions for public goods and services. Examples include standards and labelling

11. Generally, a mix of market and non-market-based instruments are implemented for a particular sector and can be classified as sectoral policies, such as for the energy, agriculture, forestry and land use, transport, and industry sectors. For example, energy sector policies may include energy efficiency policies for buildings and energy generation, feed-in tariffs, renewable energy deployment policies, or switching to the use of low-carbon fuels. Waste sector policies may include waste management or flue gas regulation, while transport sector policies may include vehicle energy efficiency improvements, vehicle emission regulations, or switching to the use of electric and fuel cell vehicles.

12. When policies are designed with a geographical or territorial focus in mind, they are also classified as global, bilateral, multilateral, regional, national and local policies (Heidrich et al. 2016) (see Figure 1).

13. In addressing the impacts of the implementation of response measures, consideration is often given to mitigation policies and actions that have potential positive or negative consequences.

Figure 1 Schematic representation of mitigation policies



14. It is important to note that although this classification simplifies the understanding of policy instruments, each policy type could include an element of another type and, as a

consequence, most countries implement a mix of these policies in order to, among other things, enhance their appeal to citizens and lower their cost and increase environmental effectiveness.

15. Under the Convention, Parties report the following types of policy actions and measures: regulatory, economic, fiscal, research, information and education instruments and voluntary agreements. Over the four reporting cycles for biennial reports (2014–2019), the clear focus, when taking into account both the total number of measures and the number of measures with a reported quantified impact, has been on economic, fiscal and regulatory instruments, voluntary agreements, or combinations thereof (UNFCCC 2020).

16. Just transition and economic diversification measures seek to enable the climate policies discussed above by creating opportunities and mitigating the potential negative impacts of the low carbon transition.

B. Understanding the social, environmental and economic impacts of implementation of mitigation policies and actions

17. Response measures are implemented with the objective of mitigating GHG emissions in a country or region, or for a specific sector. They usually have associated direct and/or indirect, intended and/or unintended, short, medium and/or long term impacts. These impacts can be felt in the implementing and/or in other countries (cross-border impacts).

18. These impacts can be positive and/or negative and are also related to the achievement of the SDGs (Markkanen and Anger-Kraavi 2019). Therefore, to effectively measure, assess, analyse and understand these impacts, a holistic approach is required that covers and analyses as wide range of impacts as possible and establishes measures to address potential negative impacts and enhance potential positive impacts of implementation of response measures.

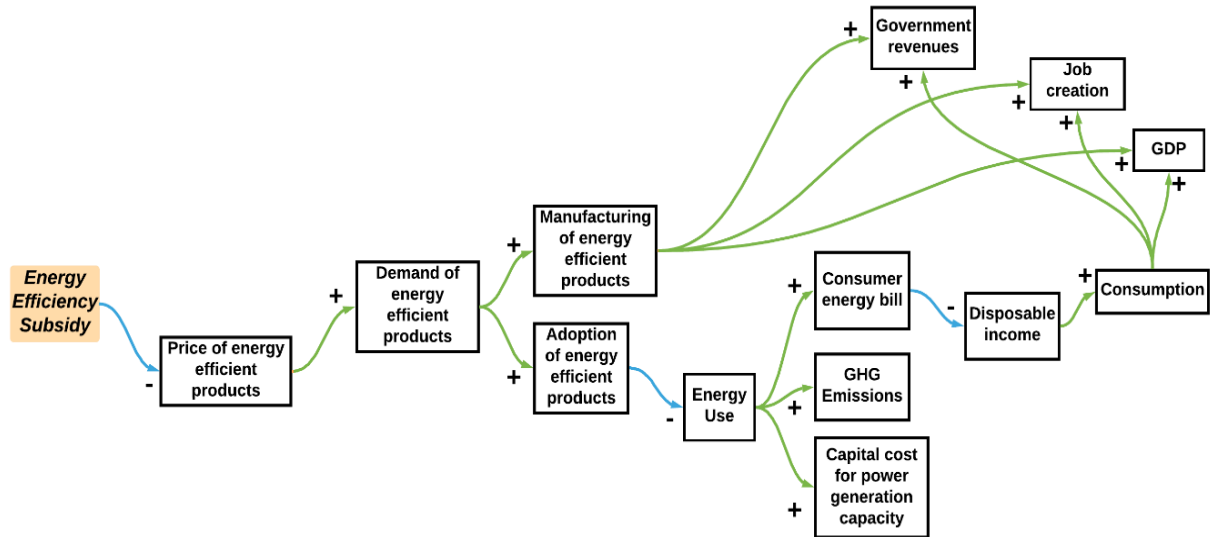
19. The extent and magnitude of the potential negative impacts arising from the implementation of response measures varies from region to region, country to country, although it can be particularly pronounced for developing countries, and thus attention should be given to assist developing countries (UNFCCC 2008). When planning and implementing mitigation policies and actions, it is good practice to take steps to ensure that an integrated and coherent approach is applied that is consistent with sustainable development goals to enable countries to achieve their climate and other sustainable development objectives efficiently and jointly. In other words, policies must achieve their primary environmental objective, while at the same time considering measures minimizing or eliminating any adverse socioeconomic impacts, for example giving due consideration to any welfare concerns arising from the mitigation policy or action, and enhancing positive impacts.

20. The COVID-19 pandemic has helped increase understanding and appreciation of the linkages and connections between climate change mitigation policies and actions and their social and economic impacts, both at the national and international level. Social impacts are, for example, changes in peoples' living conditions, whether positive or negative, that occur in conjunction with the implementation of a new policy, programme or project and are experienced or felt at an individual, family or household, or institutional, communal or societal level. Economic impacts are effects of policies or actions on the level of economic activity in a given area and may be measured in terms of measurable output such as GDP, value added, wealth, personal income (wages), public income and expenditure, or employment level (Weisbrod Burton 1997). Environmental impacts are the changes that a policy or action creates in the environment regarding all three of its dimensions (i.e. soil, water and air).

21. The changes due to policy implementation are in addition to all other already existing factors and are viewed by those affected as significant social or economic events (Marvin E. Olsen 1978; Vanclay F 2002). In complex networks of interlinked policies and economic structures, it is often very difficult to fully attribute the effects, impacts or changes as being the direct outcome of a particular policy. Therefore, to understand the impacts of a policy, it is important to understand how the policy interacts within the economy and translates to social, economic and environmental impacts through its cause–effect chain. Figure 3 shows an example of the causal loop analysis of introduction of energy subsidy policy. After

implementation, the policy starts a cause–effect chain or results chain affecting business activities, people and the environment. The effects deepen with every link in the chain and need to be measured and managed.

Figure 3
Cause chain (causal loop) analysis for introduction of energy subsidy policy



Note: A link marked positive indicates a positive relation and a link marked negative indicates a negative relation. A positive causal link means the two nodes change in the same direction, i.e. if the node in which the link starts decreases, the other node also decreases. Similarly, if the node in which the link starts increases, the other node increases as well.

22. Environmental, social and economic impacts are assessed and analysed using specific methods. However, they are complementary and sometimes overlapping and are usually assessed together with a focus on a specific area (Commonwealth of Australia 2005). For example, the economic impact of a climate policy that results in changes to jobs or wages may lead to social impacts, such as migration and increasing inequality. It should also be noted that impacts on the workforce, including on job opportunities and wages, are often viewed as social impacts.

23. Other indicators that can be used for climate policy assessments include impacts on energy security, diversification of energy supply, job opportunities and their distribution, wages (individual or family income), income inequalities, poverty, economic opportunities for rural areas, cultural heritage, air quality, noise, gender inequality and disparity, impacts on indigenous peoples and local communities, as well as changes in the landscape, technological changes and potential displacement of communities. It is also important to note that indicators for a specific study on the impacts of a policy are usually designed and decided based on the policy or specific issue being assessed and the objective or scope of the study (e.g. indicators to assess the impacts of a policy on a rural population will be very different from those to assess the impacts on firms and business).

24. Table 1 provides examples of SDG indicators that can be used to measure and assess the economic and social impacts of a climate policy.

Table 1 Sustainable Development Goal indicators that can be used to assess the social and economic consequences of response measures

<i>SDG</i>	<i>Indicator</i>
Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	8.1.1 Annual growth rate of real GDP per capita
	8.2.1 Annual growth rate of real GDP per employed person
	8.4.2 Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP
	8.9.1 Tourism direct GDP as a proportion of total GDP and in growth rate
Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	9.2.1 Manufacturing value added as a proportion of GDP and per capita
	9.2.2 Manufacturing employment as a proportion of total employment
	9.4.1 CO2 emission per unit of value added
	9.b.1 Proportion of medium and high-tech industry value added in total value added
Goal 10: Reduce inequality within and among countries	10.1.1 Growth rates of household expenditure or income per capita among the bottom 40 per cent of the population and the total population
	10.2.1 Proportion of people living below 50 per cent of median income, by age, sex and persons with disabilities
	10.4.1 Labour share of GDP, comprising wages and social protection transfers
	10.7.1 Recruitment cost borne by employee as a proportion of yearly income earned in country of destination

25. To facilitate just transition and economic diversification the impacts of implementation of climate change response measures that should be assessed are mostly socioeconomic this can differ depending on the region or country that is analysed. Understanding the extent and magnitude of these impacts can facilitate choice of Just Transition measures and needs for economic diversification and transition.

26. **Table xx** Examples of indicators that can facilitate the undertaking of economic diversification and transformation and just transition

Type of economic indicator	Indicators for Just Transition	Indicators for Economic Diversification and Transformation
Economic	Jobs created Jobs lost Changes in income	Sectoral structure of regional or/and national economy Sectoral (incl exports) income National (incl exports) income
Social	Skills and training of the workforce Disaggregation of jobs by gender, ethnic group, age Income inequalities	Skills and training of the workforce Disaggregation of jobs by gender, ethnic group, age Income inequalities

A table with policies and measures and their possible impacts will be added

C. Overview of methodologies used by Parties and stakeholders for assessing and analysing the impacts that can facilitate economic diversification and just transition

27. The assessment and analysis of the impacts of the implementation of response measures that can facilitate economic diversification and transformation and just transition can be carried out using qualitative and quantitative methodologies.

28. Indicators described above can help stakeholders select which methodologies work best for assessing and analysing the impacts.

1. Types of methodologies

29. **A qualitative methodology** produces in many cases descriptive results and is used for understanding issues such as impacts on livelihoods for a particular group of society or behavioural changes resulting from the implementation of a specific policy. Qualitative relies on information collected in the form of words or descriptions and/or in figures and numbers. The results can be expressed, for example, in terms of the likelihood, magnitude and direction of the impact (positive or negative). Qualitative assessment methodologies include observations, surveys, interviews and focus group discussions. Desk reviews of published information are also sometimes used.

30. **A quantitative methodology** produces quantitative information on indicators that are relevant for assessing impacts of a policy using empirical modelling tools such as input–output analyses, as well as partial equilibrium, CGE, macroeconometric and system dynamics models. These models are mostly built on secondary data that is collected by national and regional statistical offices or other agencies and companies.

31. The elements of approaches to assessing impacts, including modelling tools used by stakeholders and Parties, have been compiled by UNFCCC with a view to providing guidance to developing country Parties (UNFCCC 2016a). KCI is preparing a Technical Paper updating this information and also the existing database of assessment methodologies

2. Selection of methodology

32. Both the qualitative and quantitative methodologies have advantages and disadvantages. Either type of methodology can be used for exploring the impacts of the implementation of response measures on indicators that are relevant for taking decisions about the need for implementing just transition measures or diversifying and transforming economy. Most of the time, it is adequate to combine the two types methodologies. **Box 1** provides some examples where qualitative and quantitative methodologies were used to assess the impacts of mitigation policies and actions.

Box 1

Examples of studies to assess the impacts of mitigation policies and actions using qualitative and quantitative methodologies

Most studies focus on assessing the potential impacts of a policy within the country implementing the policy. Some use qualitative methodologies to assess:

- (1) the implications of policies and projects on gender equality (Orlando 2018; Climate Investment Fund 2018; Kuriakose 2017);
- (2) the implications of hydro projects on community displacement and the challenges faced by communities during the resettlement process (Delang and Toro 2011);
- (3) the implications of policies on expenditure share and income distribution (Thomas F. Walker 2016);
- (4) the public perception of policy design and the policy implementation process; and
- (5) the impacts of retrofitting homes to increase energy efficiency on energy savings (Lauren Giandomenico 2020).

A large body of literature exists on using various quantitative methodologies to quantify social and economic impacts, such as:

- (1) an **input–output analysis** to assess impacts on green jobs (ILO 2017b) (ILO IDB 2020), clean energy investment (Markaki 2013), GHG emission reductions, GDP and employment, and the impacts of feed-in tariffs (Behrens et al., 2016);
- (2) a **cost–benefit analysis** to assess the benefits of improving air quality (Heger 2018; Alistair Hunt 2016; Narain 2016);
- (3) an **econometric analysis** to assess the effects of carbon taxes on employment (Yamazaki 2017) and industry competitiveness (Dechezleprêtre and Sato 2017);
- (6) a **global CGE model** to assess the cross-border impacts of mitigation actions implemented by other countries on the economy of Taiwan Province of China (Chai 2019);
- (8) an **energy systems model and macroeconometric model** to assess the short- and long-term impacts of energy subsidy reform on GDP, the consumer price index, household income distribution and CO₂ emissions (ADB 2016); and
- (9) an **integrated assessment model** to quantify the impacts of global mitigation actions on food security (Hasegawa et al. 2018) and water demand for food and energy (Mouratiadou et al. 2016).

A hybrid approach combining both a qualitative and quantitative assessment has been used to quantify the impacts of energy transition on gender equality in the EU (European Union 2019), the gender-related aspects of renewable energy policies and projects (IRENA 2019) and the social and environmental impacts of policies and projects (Orlando 2018) (World Bank ESMAP Olivier 2018)

3. **Process for assessing impacts of implementation of response measures that are relevant for facilitating the undertaking of economic diversification and transformation and just transition**

33. Implementation of a mitigation policy or action triggers a cause–effect chain resulting in intended and unintended social, environmental and economic benefits and negative consequences. It is important to assess and understand the type and extent of these impacts. [ICAT \(2020\)](#) provides guidance for conducting impact assessments.

34. Assessments of domestic and cross-border impacts of implementation of response measures that are relevant for facilitating the undertaking of economic diversification and transformation and just transition can be carried out following a step-by-step approach. Stakeholder (including decision makers) engagement is important in each of these steps.

- 1) The first step is to identify key stakeholders and collaborators who can support and provide inputs for carrying out the analysis and subsequently contribute to reviewing the results.
- 2) The second step is to identify the indicators of relevance to facilitate the undertaking of just transition and economic diversification and transformation,
- 3) The third step is to identify the causal relationships and hypothesize the potential direct and indirect national and cross-border impacts.
- 4) The fourth step involves identifying suitable impact assessment methodologies.
- 5) The fifth step is to implement any customization (such as data updates, development of interview questions) of methods that might be required.
- 6) The sixth step involves carrying out the assessment, as well as analysing the results
- 7) Lastly, the seventh step is to report the methodology used, present and discuss results, and draw conclusions.

35. These steps can be carried out either before a policy implementation (ex ante), where the goal is to anticipate the likely impacts, or during or after a policy change (ex post), where the goal is to identify impacts from empirical data.

III. Possible actions and means to enhance the capacity and understanding of Parties, including collaboration with identified organizations, on assessing and analysing the impacts of the implementation of response measures to facilitate the undertaking of economic diversification and transition and just transition

A. Mapping of relevant stakeholders and their work, including organizations working to develop relevant tools, build capacity on assessment methods and collect data

36. With respect to enhancing capacity on assessing and analysing the impacts of the implementation of mitigation policies and actions geared toward undertaking of economic diversification and transformation and just transition, the following stakeholders are of strategic relevance:

- Organizations that support data generation and maintain databases related to the indicators used to assess the impacts of policies;
- Organizations involved in developing methodologies and tools for impact assessment;
- Organizations that generate knowledge through technical or empirical studies, case studies, assessment guidance documents, good practice guides, etc.;
- Organizations that offer learning opportunities, including hands-on training on the assessment, analysis and use of tools to undertake assessments.

37. Most organizations operate in multiple dimensions and there is a huge overlap in the areas covered by any single organization. Further, there are a large number of research, consulting and academic organizations that are actively operating in the above-mentioned areas. However, the information in this section is limited to intergovernmental organizations and their relevant work.

1. Initiative for Climate Action Transparency

38. ICAT provides policymakers around the world with tools and support to measure and assess the impacts of their climate actions. It has developed several assessment guides providing methodologies for assessing the sustainable development and transformational impacts of policies and actions in an integrated and comprehensive manner across all levels of governance (ICAT 2021).

2. International Energy Agency

39. IEA is an intergovernmental organization which works with member countries on energy policies. It provides extensive data and analytics, including on energy efficiency, energy prices and supply, renewables, waste and CO₂ emissions. IEA also provides online and in-person trainings on energy-related issues and has developed the World Energy Model to analyse various energy scenarios and their implications on different regions. IEA also regularly hosts the International Energy Workshop on energy modelling.

3. International Labour Organization

40. The ILO Green Jobs Programme creates knowledge by documenting experiences, conducting global, regional and sectoral studies, and producing flagship reports and guidelines on the linkages between labour and environmental issues.

41. Through its Green Jobs Assessment Institutions Network, ILO assists its constituents in undertaking green jobs assessments based on national macroeconomic models. For this purpose, ILO has developed a standardized methodology to analyse labour-market implications under various policies and investment scenarios. In order to enhance

capacity on using the methodology, ILO organizes a series of webinars and has established a Network training hub in Africa for face-to-face training (ILO 2017a).

4. International Monetary Fund

42. IMF is an intergovernmental organization which focuses on providing support to countries on development, assessment and capacity-building related to fiscal policies. It provides advisory services to countries and in-country and online trainings, and undertakes technical studies on the impacts of fiscal policies, including mitigation policies, including in collaboration with other organizations such as the World Bank (Ter-Martirosyan 2016; IMF 2017; Parry et al. 2016; Farid et al. 2016; Parry, Mylonas, and Vernon 2018; IMF 2018, 2015, 2019a). IMF recently analysed the impacts of carbon pricing policies (IMF 2019b), including the impacts of carbon taxes, emissions trading systems, fuel taxes and various energy efficiency incentives on emissions, local air pollution, mortality rates, fiscal revenues and economic welfare across countries.

5. International Renewable Energy Agency

43. IRENA is an intergovernmental sustainable energy organization which develops policy, technology, data and knowledge products on renewable energy to promote widespread adoption of renewable energy technologies. These include annual reports discussing the widespread adoption of renewable energy technologies that create employment opportunities throughout the entire supply chain. It provides the latest available estimates and figures on employment in the renewable energy sector and continues to refine and improve related data and methodologies. IRENA provides regional trainings and capacity-building on the basics of statistics; data collection, validation and estimation methods; and analysis and reporting of renewable energy statistics. Its data platform provides statistics on energy balances, finance and investment, the cost and benefits of renewable energies and policies, renewable energy sources in NDCs, energy transition, innovation and technology, and an avoided emissions calculator.

6. Organisation for Economic Co-operation and Development

44. OECD is an intergovernmental economic organization which works on economic, social and environmental issues and provides relevant data and analytical advice. It has published technical papers on fossil fuel subsidies and carbon pricing and has developed a CGE model called “ENV-Linkages” which analyses the medium- to long-term impacts of environmental policies on macroeconomic indicators and across regions. The OECD database contains information on environmental taxes implemented in different sectors (OECD 2021).

7. United Nations Development Programme–United Nations Department of Economic and Social Affairs

45. UNDESA and UNDP have pioneered a series of modelling tools and provide demand-driven support to countries, in collaboration with their research partners, in devising policies for achieving sustainable development. UNDESA and UNDP use five quantitative modelling tools, mostly using open source software, namely the Climate, Land-use, Energy and Water Systems analysis and model, economy-wide models, socioeconomic microsimulations, energy system models and geospatial electrification access models. They provide support by building models to answer key policy questions, enhance countries’ capacities to run and interpret modelling scenarios and strengthen skills to communicate key results. They also maintain an open online resource for training and outreach (United Nations 2021).

8. World Bank Group

46. The World Bank Group runs various initiatives relating to climate policies, including in collaboration with other organizations and partners of the United Nations system, to achieve the respective objectives of the initiatives.

47. In order to improve the quality of microdata to better inform development policies, the World Bank Group Living Standards Measurement Study initiative focuses on strengthening household survey systems in its member countries (World Bank 2021a). Based on experience of household surveys gathered under the Living Standards Measurement Study over 15 years, the World Bank Group prepared detailed advice on designing multi-topic household surveys (World Bank 2010). It also maintains an open database on a wide range of aggregate social, economic, climate change and emission data.

48. To strengthen social impact assessment studies, the World Bank Group issued a user's guide to poverty and social impact analysis (World Bank 2003) and prepared a collection of case studies to illustrate the spectrum of sectors and policy reforms to which the analysis can be applied (World Bank 2006).

49. With support from its partners, the World Bank Group operates an open learning campus which provides a large number of training opportunities through various modes of learning in cross-cutting areas (World Bank 2021b).

50. The World Bank Group has also implemented various initiatives to address specific issues related to designing climate policies and their assessment, for example:

- The Energy Subsidy Reform Facility provides comprehensive guidance and technical support to countries in understanding, designing and implementing energy subsidy reform policies. It also provides analytical and advisory support in quantifying the amount of existing energy subsidies within the country, conducting poverty and competitiveness impact assessments, designing social protection measures to assist affected households and designing communication strategies;
- The Energy Subsidy Reform Assessment Framework is a comprehensive analytical toolkit and assessment framework to help countries identify and quantify energy subsidies, understand their impact and evaluate the enabling environment for reform. It contains useful practice notes to assist countries (Canpolat 2019; Kojima 2017);
- The Macroeconomics, Trade and Investment Global Practice leads dialogue and engagement with clients in the areas of macroeconomics, fiscal policy, trade, competition and investment;
- The Climate Action Peer Exchange provides a capacity-building forum for peer-to-peer knowledge-sharing and advisory support for finance ministries. The initiative brings together finance ministers, senior technical staff and other relevant stakeholders to design climate-smart macroeconomic policies, discuss fiscal policy measures for mitigating the impacts of climate change and develop financing strategies for implementing NDCs;
- The Carbon Pricing Leadership Coalition brings together government leaders, civil society, the private sector and academia to share knowledge and experience related to carbon pricing with the aim of enhancing the understanding of carbon pricing policies. The Coalition held a dialogue among business leaders to discover the evidence-based concerns of business and share experience and lessons learned in the design and implementation of carbon pricing policies in the context of competitiveness (World Bank 2019a) (World Bank 2017a);
- The Partnership for Market Readiness aims to build country capacity to understand, develop and implement carbon pricing instruments for GHG emission reductions and the implementation of NDCs through grant funding.

9. EBRD

The EBRD joined in 2020 the new international Platform in Support of Coal Regions in Transition in Western Balkans and [Ukraine](#). This platform is in partnership with the European Commission, the World Bank and the Energy Community Secretariat. There are five focus areas under this platform:

- Knowledge-sharing platform meetings (led by EC)

- EU-Western Balkans and Ukraine coal regions twinning (deeper information sharing and visits) with EU coal regions
- A Coal Regions Learning Academy to formally disseminate good practices and support transition (led by College of Europe in Natolin and World Bank)
- Technical assistance for pilot coal regions, supporting regions undertaking transition (led by World Bank, also EBRD)
- Coordinating financing approaches for transition projects and programmes (led by EBRD, with EC)

The Platform will have periodic meetings to discuss progress under each of the focus areas.

10. The MDB Paris Alignment Working Group BB4

The MDB Paris Alignment Working Group is working to advance MDB support for a just transition. At the UN Secretary General's Climate Action Summit in 2019, the MDBs issued a High-Level Statement where they committed to 'develop, by COP26, financing and policy strategies supporting a just transition'. Since then, the joint MDB work has included stakeholder engagement and peer learning with the objectives of developing Common Principles for MDB support for a Just Transition, advancing understanding of the MDB approaches, tools and instruments that can help support a just transition, and engaging relevant networks and partners, including the UNFCCC and ILO. The MDBs will present their progress by COP26.

B. Possible collaboration with stakeholders to enhance capacity on assessing and analysing the impacts to facilitate the undertaking of economic diversification and transformation and just transition

51. A review of the relevant work of intergovernmental organizations on assessing and analysing the impacts of the implementation of response measures to facilitate the undertaking of economic diversification and transformation and just transition demonstrates that most of them collaborate either with each other and/or with research or knowledge partners to create knowledge products and/or to build the capacity of developing countries. For example:

- The Open Learning Campus programme of the World Bank Group has nine partners: the Ministry of Finance of Australia, the Government of Canada through the Canadian International Development Agency, the Ministry of Foreign Affairs of Denmark, the Ministry of Foreign Affairs of Finland, the Ministry for Europe and Foreign Affairs of France, the Ministry of Finance of Luxembourg, the Ministry of Economy and Finance of the Republic of Korea, the Ministry of Finance of Slovakia and the Department for International Development of the United Kingdom of Great Britain and Northern Ireland;
- ICAT has issued various policy assessment guides in collaboration with technical working groups from a number of agencies such as the Bureau of Indian Standards, FAO, ICF International, the World Bank group and the World Resources Institute;
- The World Bank group has undertaken various technical studies in collaboration with organizations including FAO, IMF and UNDP;
- ILO has also developed many case studies and organized capacity-building events in collaboration with knowledge partners including the Green Jobs Assessment Institutions Network, IRENA, the Partnership for Action on Green Economy, UNFCCC and WWF.

52. Constituted bodies under the Convention, the Kyoto Protocol and the Paris Agreement have also collaborated with other organizations (annex II), for instance:

- The Consultative Group of Experts organizes regional hands-on training workshops in collaboration with FAO, UNDP and UNEP, which contribute to enhancing the technical knowledge of experts from Parties not included in Annex I to the Convention and enable the exchange of views, lessons learned and experience relating to the process and preparation of national communications, biennial update reports and national GHG inventories;

- The Facilitative Working Group (FWG) of the Local Communities and Indigenous Peoples Platform (LCIPP) convened a partnership-building dialogue and brought together representatives from various UN entities, civil society organizations and other stakeholders to forge collaborative partnerships and actions.
- The Facilitative Working Group (FWG) of the Local Communities and Indigenous Peoples Platform (LCIPP) have a partnership with Centre for International Environmental Law to map and report on existing policies and practices for the participation of indigenous peoples and local communities in climate change related bodies and processes under and outside the Convention to deliver a technical paper.
- The Least Developed Countries Expert Group, in collaboration with the secretariat of the Green Climate Fund (GEF), provides technical guidance on accessing funding from the Green Climate Fund for the process of formulating and implementing national adaptation plans;
- The PCCB regularly collaborates with stakeholders under and outside the Convention and Paris Agreement to advance its work on enhancing and coordination of capacity-building, identifying and addressing capacity-building gaps and needs, and promoting awareness-raising, knowledge- and information-sharing, and stakeholder engagement. Types of collaboration include events, workshops, knowledge sharing products such as newsletters, technical inputs to other bodies'/stakeholders' activities, etc.
- The Technology Executive Committee (TEC) and the Climate Technology Centre and Network (CTCN), in collaboration with the GEF, organized a thematic dialogue and have published technical reports and policy briefs to inform financiers and policymakers of existing opportunities for catalysing finance

53. As a constituted body, the KCI undertakes work with relevant organizations in order to enhance the capacity and understanding of Parties, through collaboration with and input from stakeholders, on the assessment and analysis of the impacts of the implementation of response measures to facilitate the undertaking of economic diversification and transformation and just transition. The stakeholders should be engaged on the basis of the issue being dealt with by the KCI, since organizations and experts at the national and international level vary in terms of their expertise on economic diversification, just transition, methodologies and tools to assess impacts, and capacity-building on the use of tools and methodologies, including modelling tools. Table 3 provides possible areas of collaboration for assessing and analysing the impacts of the implementation of response measures in support of just transition and economic diversification and associated capacity-building on the use of tools and methodologies under the constrained conditions of global deep decarbonization scenarios to meet the goals of the Paris Agreement.

Table 3

Possible areas of collaboration for assessing and analysing the impacts of the implementation of response measures

Areas of collaboration	Examples of /potential partners
Understanding just transition and economic diversification and preparing related guidelines and knowledge products for assessment and analysis	ICAT, ILO, UNDP, UNEP, European Bank for Reconstruction and Development (EBRD), IEA, MDB Paris Alignment Working Group BB4 WG on Just Transition Other knowledge partners: , IMF, IRENA, OECD, World Bank Group,
Raising awareness of existing tools and methodologies	ILO, IMF, UNDP, UNDESA, United Nations Research Institute for Social Development, World Bank Group Other knowledge partners: Climate Analytics, CoalExit Research Group, E3 Modelling, Energy Information Administration of the United States of America, Energy Research Institute of China, GTAP, Integrated Assessment Modelling

	Consortium, International Centre for Research on Environment and Development, International Institute for Applied Systems Analysis, Joint Global Change Research Institute, Massachusetts Institute of Technology, Netherlands Environmental Assessment Agency, NewClimate Institute, Potsdam Institute for Climate Impact Research, Stanford University, Technical University of Berlin, University of Maryland and Pacific Northwest National Laboratory , MDB Paris Alignment Working Group BB4 WG on Just Transition
Developing modelling tools and methodologies	Cambridge Econometrics, CGEmod, IEA, ILO, IMF, UNDP, UNDESA, World Bank Group
Facilitating country-level support, including by developing a training framework and accompanying modules for country-level training programmes	EBRD, Economic Commission for Latin America and the Caribbean (ECLAC), ILO, IMF, UNDP, UNEP, IEA, United Nations Economic Commission for Africa (UNECA), UNDESA, World Bank Group, MDB Paris Alignment Working Group BB4 WG on Just Transition
Promoting best practices for data gathering and processing for both qualitative and quantitative assessments and analyses	GTAP, IMF, UNECA, World Bank Group Other knowledge partners: EBRD, Enerdata, Energy Information Administration of the United States, E3 Modelling, IEA–Energy Technology Systems Analysis Program, IRENA, World Resources Institute, MDB Paris Alignment Working Group BB4 WG on Just Transition
Facilitating the establishment of regional training hubs	African Development Bank (AfDB), EBRD, ILO, IMF, UNDP, UNEP, World Bank Group, MDB Paris Alignment Working Group BB4 WG on Just Transition
Facilitating the development and exchange of regional-, country- and/or sector-specific case studies	EBRD, IEA, ILO, IMF, IRENA, UNDP, UNDESA, UNECA, UNEP, World Bank Group Other knowledge partners: Cambridge Econometrics, CGEmod, CoalExit Research Group, Technical University of Berlin, MDB Paris Alignment Working Group BB4 WG on Just Transition

IV. Conclusions

54. The KCI is the only constituted body under the Convention and Paris Agreement that deals with the impacts of the implementation of response measures. Together with forum on the impact of the implementation of response measures, it has the objective of enhancing the capacity and understanding of Parties on the assessment and analysis of the impacts of the implementation of response measures to facilitate the undertaking of economic diversification and transformation and just transition.

55. The issue of Response Measures under the Convention and its Paris Agreement is one of the key areas of intergovernmental climate change negotiations which deals with the social, environmental and economic impacts, both positive and negative, of the implementation of mitigation measures. Response measures cover a range of actions, policies and programmes taken to respond to climate change; when implementing these actions,

policies, and programmes, it is important to consider the concerns of Parties with economies most affected by the impacts of response measures, particularly developing country Parties.

56. In this context, Parties have identified economic diversification and transformation (to promote low-carbon sectors and green technologies), as well as just transition of the workforce and the creation of decent quality jobs, as the two main strategies to be implemented in order to increase the positive impacts and opportunities and reduce any possible negative impacts of the implementation of response measures. These two strategies also seek to enable climate mitigation measures by creating opportunities for people and the planet during the low carbon transition.

57. This paper also underlines the importance of just transition and economic diversification as two strategies that seek to enable climate mitigation measures by creating opportunities for people and the planet while mitigating the potential impacts of the low carbon transition.

58. Implementation of mitigation policies and actions can have direct and/or indirect, intended and/or unintended, short, medium and/or long-term impacts. These impacts can be felt in the implementing and/or in other countries (cross-border impacts).

To facilitate just transition and economic diversification and transformation, assessment and analysis of socioeconomic impacts of the implementation of mitigation policies and actions is crucial.

59. Several guidance documents are available on undertaking impact assessments; however, none of them provide specific guidance on assessing social and economic impacts with a view to undertaking economic diversification and/or just transition. Therefore, building the capacity of Parties and collaboration with stakeholders in this area is crucial.

60. At the same time, various organizations and stakeholders are engaged in a diverse range of activities linked to the assessment and analysis of impacts. The full range of capacities for assessment and analysis and development of tools and methodologies do not reside within one single institution or stakeholder group.

Annex I

Guidance on key features of existing tools for assessment and analysis of impacts of implementation of response measures

1. This section provides details of some tools used for assessment and analysis of response measures with a view to providing guidance to Parties with regard to scope, data needs as well as data availability and usage as part of a multi tool approach.

Table 4

Key features of existing tools for assessment and analysis of the impacts of the implementation of response measures

Method	Data source(s)	Data availability	Accessibility and typical users	Resources required	Use as part of a multi-tool approach
Delphi analysis	Expert practitioners and researchers	Delphi analysis is a data-collection method which requires thorough analysis of the current situation before execution	Highly accessible; the results provide an overview of expert opinions on specific questions or topics	Developing a Delphi questionnaire requires approximately 45 days; each round of questionnaires (four in total) has to be carefully prepared and analysed, as the answers from prior rounds feed into the questions for the next iteration. About two weeks required for participant to respond	Can be used in combination with other methods (receiving and providing inputs). It provides inputs to the formulation of scenarios and identification of suitable methods. It also supports the validation of model results
Decision tree	Expert elicitation or case study review	Data are generally available from other studies or historical databases. Depending on the size of the decision tree, additional research may be required to carry out validation	Qualitative decision trees are easily accessible by a wide range of audiences. They concern key questions or trade-offs, and typical users are policymakers and stakeholders involved in the decision-making process	Simple decision trees are usually created within 1-2 days through a multi-stakeholder workshop. Depending on its size, validation of the decision tree takes approximately one month. Most of the work can be done in-house	Can be used in combination with various other methods, using inputs from other modelling exercises and providing inputs for the identification of suitable methods and models
Causal loop diagram	Data for causal loop diagrams can be obtained from literature and experts, or during group model-building exercises	Data for model development (e.g. information on the local context) is generally available. Both qualitative and quantitative data can be used for developing a causal loop diagram	Highly accessible; results consist of a system map and underlying feedback loops; typical users range from researchers to decision makers	Very low time requirement; a causal loop diagram could be created in three hours (or up to two days) with a group of 20 to 30 stakeholders. Depending on the context, a whiteboard and marker pens, or a laptop with a projector and modelling software, are sufficient	Can directly support several other methods, either to formulate scenarios, identify policy impacts, or explore the dynamics and select appropriate quantitative methods
Household income and expenditure survey	Primary survey	The data are generally available through respondents. The quality and accuracy of the data depend on the clarity of the survey and the participants targeted	Household income and expenditure surveys are generally accessible and typically developed and maintained by the national	Creating a new survey, disseminating it and collecting the results takes on average between 6 and 12 months	It is the primary data source for household assessments to estimate impacts on consumption, expenditure and income. These

Method	Data source(s)	Data availability	Accessibility and typical users	Resources required	Use as part of a multi-tool approach
			government (e.g. ministry of finance)		outcomes can be used to customize and calibrate several models
Sectoral input–output	National and sectoral statistics	Although data from national statistics (at the country level) are generally available, sectoral data on material and energy flows may be lacking	Input–output tables are generally accessible and typically developed and maintained by the ministry of finance (for economic input–output tables), sectoral ministries (for biophysical input–output tables) and universities (for integrated and multi-country input–output tables)	Building a new input–output table is a labour- and resource-intensive process. The time required to develop a new table depends on the number of sectors considered, and can take between two months and one year	Can be used to parameterize and initialize other quantitative models. Can also provide an indication of ripple effects across sectors to understand short-term policy impacts
SAM	Input–output tables, system of national accounts, industrial statistics, consumption expenditure surveys and foreign trade statistics	High data requirements, but data are generally available (e.g. the GTAP database). Multipliers need to be derived ad hoc based on available data to ensure that results are obtained on the distribution of the impacts of specific policy interventions	Access is generally constrained to trained personnel, but most SAMs are developed in Excel, which reduces barriers. SAMs are commonly used for analysing how policy impacts are distributed over economic actors	Building and calibrating a new SAM is generally labour-intensive, but the time required depends on the level of detail of the SAM. The creation of a simple SAM from the system of national accounts may take one month, while a detailed SAM could require up to one year. Modifications to an existing SAM can be performed in the range of a few months (about two to four months)	SAMs are the main data input of CGE and macroeconomic models. As a static matrix, SAMs are used to provide information on short-term impacts and complement medium- to longer-term impact assessments
Partial equilibrium	Sectoral data, databases with technology parameters (e.g. cost, lifetime, efficiency) and potential adoption rates	Data are generally available from national and international databases	Specialized users, with depth of knowledge at the sectoral level. Commonly used in sectoral analyses at the country and regional level. Typically developed and maintained by line ministries and academia	Building and calibrating a new partial equilibrium model requires three to six months depending on the level of detail represented	Can be used in combination with a macroeconomic model to provide more realism using a bottom-up approach
Computable general equilibrium	Input–output table and/or SAM	Uses data from SAMs and/or input–output tables; data are therefore often dated. Additional data disaggregation may be required to fully assess the impact of specific policy interventions (e.g. removal of subsidies for certain fuels and income classes)	Highly specialized. Generally, very limited number of operational computable general equilibrium models in a country, typically developed and maintained by the ministry of finance, central bank, academia, or multilateral development banks	Building and calibrating a new computable general equilibrium model is a major undertaking, requiring about 12 months. Using an existing model is likely to require some changes. An experienced user would need on average three to four months	Can be used in combination with a SAM, which often has a more disaggregated data set and can be used to forecast short-term impacts. Can also be coupled with sectoral models (e.g. for the energy sector) for the addition of a bottom-up analysis (e.g. on technology)
Macroecometrics	Historical time series from the system of national accounts,	Uses data from the system of national accounts, which are available on an annual basis. It may include additional sectoral	Highly specialized. Generally, very limited number of operational macroeconomic models in a country. Often, these are	Building and calibrating a new macroeconomic model requires at least four to six months. Using an existing model is likely to require some	Can be used in combination with a SAM, especially for short-term assessments and for adding detail (e.g. disaggregation by income

Method	Data source(s)	Data availability	Accessibility and typical users	Resources required	Use as part of a multi-tool approach
	input–output table and/or SAM	statistics (e.g. energy demand), which are also available (at a high level of aggregation) on an annual basis. SAMs and/or input–output tables can also be used for model relationships across economic actors, but data are often dated	developed by international organizations, universities and consulting companies for specific policy assessments. At the country level, they are typically developed and maintained by the ministry of finance	changes to the model, which an experienced user could complete in one to two months	class). Can also be coupled with sectoral models (e.g. for the energy sector) for the addition of a bottom-up analysis (e.g. on technology)
System dynamics	Historical data obtained from national and international databases, or parameters can be obtained through econometric or other models	National-level data are generally available, since system dynamics models generally explore cross-sectoral linkages as opposed to sectoral detail. In the absence of quantitative data, information on causal relationships can be extracted from qualitative case studies and expert consultation	System dynamics models are developed to analyse a specific problem or policy, and the users are identified at an early stage. They are therefore easily accessible to the stakeholders that contribute to their development. Generally defined as ‘white boxes’, system dynamics models are very transparent and users range across sectors and institutions	Building and validating a new system dynamics simulation model takes on average between one and six months, depending on the size of the model and the extent to which stakeholders are actively involved in model development	It complements other approaches with a more systemic analysis. It can therefore be used in combination with input–output tables and macroeconomic and CGE models. In a multi-method approach, it is suited to providing strategic directions and identifying the emergence of possible side effects

Collaboration of constituted bodies under the Convention, Kyoto Protocol and Paris agreement with stakeholders

Table 5
Mapping a few collaborations of constituted bodies with stakeholders

Constituted body	Collaborating Organization	Purpose of collaboration	Output
Paris Committee on Capacity-building	Other constituted bodies, operating entities of the Financial Mechanism, Party and non-Party Stakeholders	Events, workshops, knowledge sharing products such as newsletters, technical inputs to other bodies'/stakeholders' activities, etc. to advance its work on enhancing and coordination of capacity-building, identifying and addressing capacity-building gaps and needs, and promoting awareness-raising, knowledge- and information-sharing, and stakeholder engagement.	Further details on past and ongoing collaborations, including outputs can be found in the PCCB's annual reports and other documents available at https://unfccc.int/process-and-meetings/bodies/constituted-bodies/paris-committee-on-capacity-building-pccb/documents-paris-committee-on-capacity-building
Facilitative Working Group (FWG) of the Local Communities and Indigenous Peoples Platform (LCIPP)	Relevant bodies and processes under the Convention	<p>Dialogue:</p> <ul style="list-style-type: none"> Convened informal open dialogues to bring together representatives of constituted bodies to explore synergies and collaborative opportunities around the three functions of the LCIPP. The three functions are knowledge, capacity for engagement, and climate change policies and actions. Convened a partnership-building dialogue in June 2019 and brought together representatives from various UN entities, civil society organizations and other stakeholders to forge collaborative partnerships and actions. 	<ul style="list-style-type: none"> The LCIPP informal open dialogue from June 2019; https://unfccc.int/LCIPP-activities#eq-1 The LCIPP informal open dialogue from December 2019; https://unfccc.int/topics/local-communities-and-indigenous-peoples-platform/events-meetings-and-workshops/informal-open-dialogue-between-representatives-of-constituted-bodies-on-the-three-functions-of-the#eq-1 The LCIPP partnership-building dialogue from June 2019; https://unfccc.int/LCIPP-activities#eq-2
	Adaptation Committee, Least Developed Countries Expert Group, and the Nairobi Work Programme	<p>Event:</p> <p>Organized a joint event exchange experiences and explore ways to enhance the integration of the knowledge of indigenous peoples and local knowledge systems into climate adaptation action.</p>	The multi-body joint event from December 2019; https://unfccc.int/topics/local-communities-and-indigenous-peoples-platform/events-meetings-and-workshops/joint-event-on-integrating-indigenous-and-local-knowledge-into-adaptation-action#eq-1

Constituted body	Collaborating Organization	Purpose of collaboration	Output
	Centre for International Environmental Law	Partnership: To map and report on existing policies and practices for the participation of indigenous peoples and local communities in climate change related bodies and processes under and outside the Convention.	Visit here to follow the implementation of this mapping exercise; The FWG, with the support of the secretariat, will publish a mandated technical paper on the mapping result.
	Party representatives, indigenous peoples, local communities, and other relevant stakeholders	To exchange experiences and best practices, build capacity for engagement, and enhance climate policy coherence through the meetings of the FWG, calls for submissions and implementation of the initial two-year workplan of the LCIPP.	<ul style="list-style-type: none"> Visit here to learn more about the collaborative work under the LCIPP; Visit here to view the meetings of the FWG; Visit here and search for LCIPP to view and respond to outstanding calls for submissions related to the work under the LCIPP.
Technology Executive Committee	22 organisations including representatives of BINGO, ENGO, RINGO, and YOUNGO nominated by their constituencies	TEC taskforces implement TEC rolling workplan 2019-2022 in five thematic areas. Members from participating organizations have equal opportunity as TEC members in providing inputs and giving direction to the particular tasks assigned to the taskforce. See the list: https://unfccc.int/ttclear/tec/members.html#Task	https://unfccc.int/ttclear/tec/impact.html
	CTCN – operational arm of the Technology Mechanism	Joint annual reports to COP and CMA, joint activities, joint events	https://unfccc.int/ttclear/tec/documents.html https://unfccc.int/ttclear/events/index.html
	Green Climate Fund	Collaboration on catalyzing finance for climate technology incubators and accelerators in developing countries. It aims to inform the Green Climate Fund as it develops a request for proposals on climate technology incubators and accelerators.	GCF is in the process of operationalizing a facility to support climate technology incubators and accelerators https://unfccc.int/ttclear/incubators/#summary
	UNOSSC	Analyzing potential of South-South and triangular cooperation on climate technologies for advancing implementation of NDCs and NAPs	https://unfccc.int/ttclear/tec/brief9.html
	WIM Excom	Technologies for averting, minimising and addressing loss and damage in coastal zones	https://unfccc.int/ttclear/coastalzones/
	Various organizations and NPS stakeholders in TEC events, including FAO, IUCN, GACSA, GlobalABC	Co-organization and active engagement during events	https://unfccc.int/ttclear/events/index.html

Constituted body	Collaborating Organization	Purpose of collaboration	Output
Climate Technology Centre and Network (CTCN)	The CTCN implemented this project with its Network member, Women Engage for a Common Future (WECF) and the UNFCCC Women and Gender Constituency	<p>Gender-Just Climate Solutions Awards and Mentoring programme: Creating awareness about 'women's experiences of climate change and highlighting the many efficient technical and transformational climate solutions implemented by women worldwide</p> <p>To capture the transformative outcomes achieved by award winners and capacity building participants, an impact review has recently been completed.</p>	<p>https://www.ctc-n.org/sites/www.ctc-n.org/files/resources/2019_gender_just_climate_solutions_english.pdf</p> <p>https://www.ctc-n.org/news/gender-just-climate-solutions-showcased-upscaled-through-ctcn-and-women-gender-constituency</p>
	CTCN network members	CTCN collaborates with a global network of more than 600 academic, civil society, finance, private sector, public and research entities in providing technical assistance, capacity building and knowledge sharing to developing countries.	https://www.ctc-n.org/network/network-members
	Technology Executive Committee	Technology Mechanism event at the UN Climate Dialogues: At this Climate Dialogues virtual event, panelists elaborated on how the Technology Mechanism can foster innovative approaches for a faster diffusion and upscaling of climate technologies and building back better climate resilient systems post COVID-19.	https://www.ctc-n.org/news/technology-mechanism-event-un-climate-dialogues-join-us
	Adaptation Fund	<p>The Adaptation Fund (AF) has funded and established a US\$ 10 million small grant aggregator programme to be implemented by the the United Nations Development Programme (UNDP) and United Nations Environment Programme (UNEP) working in conjunction with the Climate Technology Centre and Network (CTCN).</p> <p>The Adaptation Fund Climate Innovation Accelerator, or AFCIA, aims to foster innovation in climate change adaptation in developing countries. The programme targets a broad range of potential finance recipients, including governments, non-governmental organizations, community groups, entrepreneurs, young innovators and other groups.</p>	<p>Launch event Adaptation Fund Climate Innovation Accelerator</p> <p>https://www.adaptation-fund.org/apply-funding/innovation-grants/adaptation-fund-climate-innovation-accelerator-afcia/</p>

Constituted body	Collaborating Organization	Purpose of collaboration	Output
	Adaptation Fund, Paris Committee on Capacity Building	The three bodies jointly produce the quarterly Climate Change Adaptation Readiness and Capacity-Building Support Bulletin	
	YOUNGO, the UNFCCC Youth Constituency	The CTCN and YOUNGO have collaborated on knowledge sharing events such as COP25 event “When Youth Creates its Own Future” and the “Youth Climate Innovation Labs”	https://www.ctc-n.org/calendar/events/cop25-when-youth-creates-its-own-future-focus-climate-technology https://www.ctc-n.org/news/13-startups-africa-and-asia-are-tackling-climate-change-through-cleantech-innovation
	Green Climate Fund	Since 2017, the Green Climate Fund (GCF) and the CTCN have partnered under the GCF Readiness and Preparatory Support Programme through which the CTCN provides services and expertise in response to developing countries’ requests using GCF country resources.	https://www.greenclimate.fund/news/gcf-and-ctcn-strengthen-cooperation-on-technology-to-support-paris-agreement
	Cleantech Venture week	CTCN at the Cleantech Venture Week: The CTCN Advisory Board member Dr. Henrique Schneider, who represents Business and Industry at the Board, will be speaking at the Cleantech Venture Week. Discussions covered current cleantech trends and issues, with representatives from sector experts, corporates, investors and entrepreneurs; followed by pre-matched networking.	https://www.ctc-n.org/news/ctcn-cleantech-venture-week
	TEC; CTCN; and Regional Collaboration Centres	<p>Regional technical expert meetings on mitigation (TEM-M): “Climate smart cooling solutions for sustainable buildings” for the respective region.</p> <p>The event took place in virtual mode and will showcase viable business models and climate-friendly technology solutions for active and passive cooling systems in buildings in each region.</p>	Regional technical expert meetings on mitigation (TEM-M) for Latin America and the Caribbean , Asia and the Pacific , Africa , and Eastern Europe and West Asia
	Asia-Pacific Adaptation Network (APAN),	<p>CTCN at the 7th Asia-Pacific Adaptation Forum (APAN)</p> <p>The Climate Technology Centre and Network (CTCN) led the ‘Technologies & Practices’ session for the</p>	https://www.ctc-n.org/news/ctcn-7th-asia-pacific-adaptation-forum-apan-join-us

Constituted body	Collaborating Organization	Purpose of collaboration	Output
		Nature-based Resilience Stream at the 7th Asia-Pacific Adaptation Forum (APAN Forum).	
	GEF, the PSP regional pilot climate technology transfer and finance centres and the CTCN	<p>Virtual dialogue on experience and lessons learned from the pilot regional climate technology transfer and finance centres under the PSP</p> <p>The purpose of the event was to identify lessons learned and options for continuing the work of the centres in a collaborative manner. Stakeholders agreed on the need to strengthen linkages between the CTCN and the PSP centres; regularly exchange information on respective project pipelines; and draw on the CTCN as a resource for the PSP centres' capacity-building activities</p>	
	UNIDO; SIDS; SIDS DOCK; CTCN; GN-SEC	<p>Ocean Energy Technologies for Blue Economies in Small Islands and Low-lying Developing States (SIDS):</p> <p>The webinar's principal aim was to contribute to the envisaged Ocean Energy Platform for Blue Economies, advocated by UNIDO and SIDS DOCK, in close coordination with the Global Network of Regional Sustainable Energy Centers (GN-SEC). The goal of the platform is to build a bridge between the industry and research players, which need to test new solutions in various climates and contexts, and the interest of SIDS and coastal developing countries to get access to technology and expertise.</p>	<p>https://www.ctc-n.org/calendar/webinars/ocean-energy-technologies-blue-economies-small-islands-and-low-lying-developing</p>
	Global Carbon Capture and Storage Institute; CTCN	<p>Bioenergy and Carbon Capture and Storage: delivering negative emissions with bioenergy, biofuels and waste-to-energy:</p> <p>This webinar provided an overview of Bioenergy with Carbon Capture and Storage (BECCS) and covered a wide range of aspects of BECCS</p>	<p>https://www.ctc-n.org/calendar/webinars/webinar-bioenergy-and-carbon-capture-and-storage-delivering-negative-emissions</p>
	UNESCAPE; CTCN;	<p>CTCN/ Ocean Accounts webinar : Introduction on Ocean Accounting - Managing our impacts on the ocean</p>	<p>https://www.ctc-n.org/calendar/webinars/ctcn-ocean-accounts-webinar-introduction-ocean-accounting-managing-our-impacts</p>

Constituted body	Collaborating Organization	Purpose of collaboration	Output
		Webinar presenting the basic principles of environmental-economic accounting and how they have been applied to integrating data on the ocean. The benefit will be linking to a new community of practice on ocean accounting.	
	National Designated Entities (NDEs), Network Members and climate technology stakeholders	CTCN Virtual Regional NDE Meeting Series – Asia, Caribbean, Latin America, Francophone Africa, Annex I countries : a series of Regional Forums to provide opportunities for the National Designated Entities (NDEs), Network Members and climate technology stakeholders to meet and discuss some of the key issues of the CTCN and share experiences	https://www.ctc-n.org/calendar/webinars/ctcn-virtual-regional-meetings-forum-ndes-pacific-video
	The United Nations Environment Programme (UNEP) Regional Office for West Asia, in collaboration with the Climate Technology Centre and Network and the International Solid Waste Association (ISWA)	Covid 19: environmentally sound management of waste: webinar to share information on the environmentally sound management of healthcare waste, with a focus on two modes of waste disposal: landfills and incineration.	https://www.ctc-n.org/calendar/webinars/covid-19-environmentally-sound-management-waste
Executive Committee of the Warsaw International Mechanism for Loss and Damage	Different organizations engaged in the five expert groups,	Expert groups contributes to the implementation of the 5-year rolling workplan of the ExCom. They serve in an advisory role and report to the Executive Committee (ExCom). <ul style="list-style-type: none"> • Expert group on slow onset events; • Expert group on non-economic losses; • Technical Expert Group on Comprehensive Risk Management; • Task Force on Displacement; • Expert group on action and support. 	A Compendium of CRM approaches and policy brief , outputs from the 1 st phase of the Task Force on Displacement (TFD). The recommendations arising from the 1 st phase of the TFD are contained in Annex of decision 10/CP.24. This link provides events, workshops and meetings, organized, among others, by the expert groups and associated outputs
Adaptation Committee	Party and non-Party stakeholders	on most work products and activities under its workplan. The AC regularly issues calls for submissions to receive inputs from Parties and non-Party stakeholders on its work.	

Constituted body	Collaborating Organization	Purpose of collaboration	Output
		After each COP, the AC conducts a review of new decisions relevant to the topic of adaptation, monitors the workplans of relevant constituted bodies (examples from 2020 and 2021) and engages other bodies accordingly on specific activities in order to create synergetic outcomes and avoid duplication. Adaptation-related constituted bodies are invited to attend the official meetings of the AC.	Further details on past and ongoing collaborations, incl. their outputs, can be found in the AC's annual reports and publications .
	Other organizations	The SBSTA has given the AC an advisory function towards the Nairobi work programme with its 400+ partner organizations. The NWP provides technical knowledge support to the AC, the LEG and other constituted bodies and the AC relies on it for case studies, synthesis work and contributions to meetings and workshops	
Consultative Group of Experts	Constituted Bodies and Expert Groups	Events, workshops and webinars	Events, workshops and webinars CGE reports can be found here
	<ul style="list-style-type: none"> International Organizations: 	The IPCC and Global Support Programme of UNDP and UNEP are members of the CGE. As appropriate CGE invites the IPCC and GSP to collaborate on its activities. The CGE also invites relevant international organizations to participate in its event (workshops, webinars, informal forum, side-events).	
Least Developed Countries Expert Group	The GCF and GEF	as the operating entities of the financial mechanism of the Convention and the Paris Agreement, in supporting countries on NAPs and on implementing adaptation action	Events, workshops, joint papers/reports, technical guidance, outreach/conference, webinars; direct country support
	The support programmes and networks and the UN agencies and organizations supporting countries in the process to formulate and implement NAPs I.e. The NAP Global Support Programme, the NAP Global Network, the NAP Ag		More information on the LEG work and its collaboration with various stakeholders and actors are available in its meeting reports and recent publications .

Constituted body	Collaborating Organization	Purpose of collaboration	Output
	Support Programme and members of the NAP Technical Working Group		
	Other constituted bodies	For example AC, CGE, CTCN, WIM Excom, PCCB, SCF and TEC, on various elements of work on adaptation and in supporting the LDC work programme	
	The LDC Parties in its direct country support through the Open NAP initiative		
Standing Committee on Finance	SCF collaborates with a wide range of financial institutions, MDBs, Bilateral agencies, Operating entities of the Financial Mechanism, IGOs, UNFCCC bodies and representatives of the UNFCCC constituencies in delivering its workstreams:	Data providers and technical paper submissions as input to the flagship reports Technical papers, case studies, resource persons for Forum	https://unfccc.int/topics/climate-finance/resources/biennial-assessment-of-climate-finance https://unfccc.int/topics/climate-finance/workstreams/needs-report https://unfccc.int/topics/climate-finance/meetings-events/scf-forum

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