



EUROPEAN
COMMISSION

Brussels, 25.2.2015
SWD(2015) 17 final

COMMISSION STAFF WORKING DOCUMENT
Accompanying the document

**COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN
PARLIAMENT AND THE COUNCIL**

The Paris Protocol - a blueprint for tackling global climate change beyond 2020

{COM(2015) 81 final}

The Paris Protocol – a blueprint for tackling global climate change beyond 2020

Commission Staff Working Document

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A. Keeping global temperature increase below 2° C: a global mitigation scenario

Ambitious EU action

The 2030 Policy Framework¹ confirms the EU's firm commitment to lead by example in tackling climate change. It sets out a binding, economy-wide domestic reduction target of at least 40% greenhouse gas (GHG) emissions below 1990 in 2030. This goal is ambitious and in line with a cost-efficient pathway to achieve 80% emission reductions domestically in 2050. The EU's long term vision is aiming for an emission reduction in the range of 80% to 95% by 2050 below 1990 levels, in the context of comparable reductions by other regions, as this would secure a likely chance of staying below 2°C according to the findings of the IPCC. Moreover, the EU's target can be considered as fair in terms of GHG intensity and per capita emissions:

- The EU has already become the most GHG emission efficient major economy in the world. The 2030 target will further improve the GHG intensity of EU economy by around another 50%. This will require significant additional investments as the EU will already undertake significant mitigation until 2020.
- The at least 40% domestic reduction target means significant emission reductions in per capita terms. In 1990, the EU emitted 9 tonnes of CO₂ per capita. In 2012, it only emitted around 7.3 tonnes per capita. With full implementation of the 2030 package, GHG emissions per capita are expected to go further down to at most 6 tonnes per capita by 2030. By taking further policy measures in line with the EU's long-term vision they could decrease to at most 2 tonnes per capita or less by 2050.
- The EU's target is complemented by a renewable energy target of at least 27% which could increase the EU's share of electricity produced from renewable energy from around 22% today to at least 45% by 2030.
- EU GHG emissions have peaked as early as 1979².

Greater global action is needed delay could be costly

Taking into account the pledges and policies made in 2010 by over 90 countries covering the period to 2020, global emissions are estimated to rise to 56-59 gigatonnes of CO₂ equivalent (GtCO₂e) by 2030. This is well above the level of 30-44 GtCO₂e that is required to maintain a likely chance of staying within a 2°C limit³. In fact, the most recent IPCC assessment report estimates that without further climate action global temperatures are likely to rise to 3.7°C – 4.8°C in 2100 compared to pre-industrial levels. Further action is therefore urgently required at global level. A scenario of 'no further action' would have negative impacts on sustainable growth, particularly for vulnerable groups and ecosystems in all regions of the world⁴. Furthermore, delaying action would lead to significant additional mitigation and adaptation costs (see Figure 1). This section presents analysis illustrating that global action, with differentiated regional commitments, can reduce GHG emissions to a level consistent with keeping global temperature increase below 2°C while maintaining economic growth.

¹ European Council (23 and 24 October 2014) – Conclusions (EUCO 169/14)

² For more information, see Impact Assessment of the Communication on 'A policy framework for climate and energy in the period from 2020 up to 2030', SWD(2014) 15 final.

³ UNEP (2014). The emissions gap report 2014. A UNEP Synthesis Report.

⁴ World Bank (2012). Turn Down the Heat: Why a 4°C Warmer World Must Be Avoided.

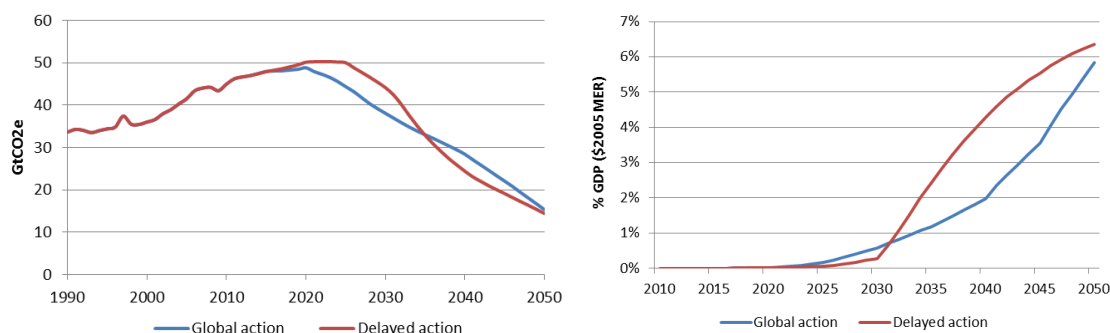


Fig 1– GHG emission profiles and additional global abatement costs from delaying global action in line with staying below 2°C by only 5 years, source: JRC analysis, POLES modelling

With global mitigation action a below 2°C target can be met

Under the Baseline, with only existing pre-2020 commitments, emissions would accumulate to levels leading to rise in temperatures above 2°C (see Figure 2).

In order to limit global warming to within the below 2°C objective, the Global Mitigation scenario illustrated in this section and on Figure 2 delivers a reduction in global emissions by 50% compared to 1990 by 2050. This will require appropriate and ambitious participation by all parties.

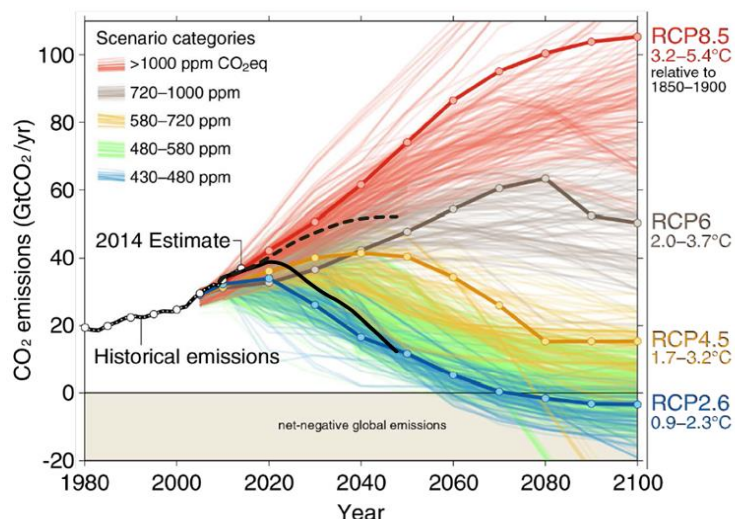


Fig. 2 - With global climate action (solid black line), the world is on track to stay below 2°C with a likely chance. Without global climate action (dotted black line) higher temperature rise is likely. Source: Global Carbon Project, JRC Analysis, POLES modelling

Over the last two decades, emissions growth has been largest in emerging economies. Under current pledges, and with no additional action, it is projected that almost all of the future global emissions growth would come from this group of countries.

Table 1: GHG emission profiles of the EU and other G20 members (historic and projected under current policies) as well as historic changes in per capita CO₂ emissions and GDP per capita.

	Greenhouse gas emissions					per capita CO ₂ emissions		GDP/capita, PPP	
	Historic levels (EDGAR, UNFCCC) ⁵			Projections (UNEP) ⁶	Projections (POLES) ⁷	Historic levels (EDGAR) ⁸		Historic levels (World Bank) ⁹	
	1990 levels	2012 levels	2012 share	2020 levels with pledges	2030 shares, in Baseline	1990	2013	1990	2013
	MtCO ₂ e		%	MtCO ₂ e	%	tCO ₂ /cap		constant 2011 \$	
World total or average	36244	49793	100%	53766	100%	4.3	4.9	8.7	14.0
EU-28	5368	4241	8,5%	4500	6,5%	9.2	7.3	24.0	33.0
US	5402	5546	11,1%	5145	9,2%	20.0	17.0	37.0	51.0
China	3893	12455	25,0%	14500	30%	2.1	7.4	1.5	12.0
India	1387	3003	6,0%	3815	7,1%	0.8	1.7	1.8	5.2
Japan	1168	1268	2,5%	1300	1,9%	9.5	11.0	30.0	36.0
Russian Fed.	3532	1755	3,5%	2515	4,1%	17.0	13.0	19.0	24.0
Brazil	1606	2989	6,0%	2070	2,5%	1.5	2.6	10.0	15.0
Rep. Korea	301	669	1,3%	545	1,2%	5.9	13.0	12.0	33.0
Mexico	494	663	1,3%	670	1,7%	3.6	3.9	13.0	16.0
Canada	520	739	1,5%	610	1,4%	16.0	16.0	31.0	42.0
Indonesia ¹⁰	1165	1171	2,4%	2185	4,5%	0.9	2.0	4.3	9.3
Turkey	144	380	0,8%	n.a.	1,0%	2.8	4.4	11.0	19.0
Australia	545	559	1,1%	555	n.a.	16.0	17.0	29.0	43.0
Argentina	267	380	0,8%	n.a.	n.a.	3.3	4.5	n.a.	n.a.
Saudi Arabia	205	549	1,1%	n.a.	n.a.	10.0	17.0	35.0	52.0
South Africa	349	451	0,9%	585	1,0%	7.3	6.2	9.9	12.0
G20 aggregate	26347	36819	74%	n.a.		n.a.	n.a.	n.a.	n.a.

⁵ Historical emissions data from European Commission Joint Research Centre, Emissions Database for Global Atmospheric Research (EDGAR), <http://edgar.jrc.ec.europa.eu> except for those country listed in **Table 1** that report inventories data to the UNFCCC (http://unfccc.int/national_reports/); scope: all GHG emission sources and sinks where available, excl. forest and peat fires, using GWP100 metric of UNFCCC (IPCC, 1996).

⁶ UNEP Gap report 2014 - <http://www.unep.org/publications/ebooks/emissionsgapreport2014>, UNEP assumptions: use of official projections, include all gases and sectors, i.e. including LULUCF except for EU and Russian Fed., not considering the use of offsets.

⁷ JRC analysis based on POLES, JRC for all GHG emission sources, incl. LULUCF sources, excl. LULUCF sinks, under Baseline scenario (see forthcoming JRC publication *Global Energy and Climate Outlook: Road to Paris - Assessment of Low Emission Levels under World Action Integrating National Contributions*).

⁸ Historical emissions data from JRC-EDGAR, scope: CO₂ emissions of fossil fuel use and industrial processes; not including: CO₂ emissions from specific biomass burning (agricultural waste burning, forest fires).

⁹ World Bank, <http://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD> - GDP per capita, PPP (Data are in constant 2011 international dollars)

¹⁰ Historical emissions data for 2012 not available for Indonesia, using the latest available figure JRC-EDGAR.

Under the Global Mitigation scenario, the EU takes action consistent with the 2030 Climate and Energy Policy Framework¹¹ and high income nations and emerging economies also achieve comparably ambitious post-2020 reductions. Only Least Developed Countries (LDCs) contribute with actions that are less stringent.

Each region's level of ambition is driven by the carbon value¹², representing the cost per tonne of CO₂e required to incentivise actions. After 2020, the carbon value increases and gradually converges to meet the required reductions in high income and emerging economies. However, in low income regions, including sub-Saharan Africa, India and Least Developed Countries, the carbon value continues to climb less steeply and converges later with the rest of the world. An example of such a differentiated ambition is illustrated in Figure 3.

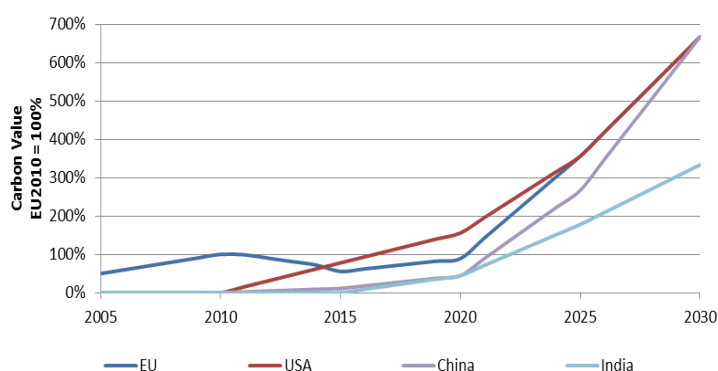


Fig. 3 – Gradual convergence of ambition (represented by regional carbon value) across regions, consistent with staying below 2°C. Lower income regions like India, Sub-Saharan Africa or LDCs face a 2030 carbon value of only 50% of the other regions'. Source: JRC Analysis, POLES modelling

Under this Global Mitigation scenario, the EU28 would respect its 2030 objective of at least -40% (compared to 1990). Similarly G20 countries would need to significantly reinforce their policies and mitigation goals by 2030, e.g. the US reducing emissions by 43% compared to 2005, while China decreasing CO₂ intensity of GDP by over 70% compared to 2005. This would cut emissions below business as usual and unlock low-emission growth in all regions (see country-specific emission profiles in figure 4 below).

¹¹ European Council (23 and 24 October 2014). Conclusions on 2030 Climate and Energy Policy Framework

¹² Carbon value is the price placed on CO₂ emissions for the purposes of modelling. In reality, the same level of ambition could be represented by a range of different policy instruments which is notable in the period up to 2020 where GHG reductions are strongly driven by other policy assumptions included in the baseline.

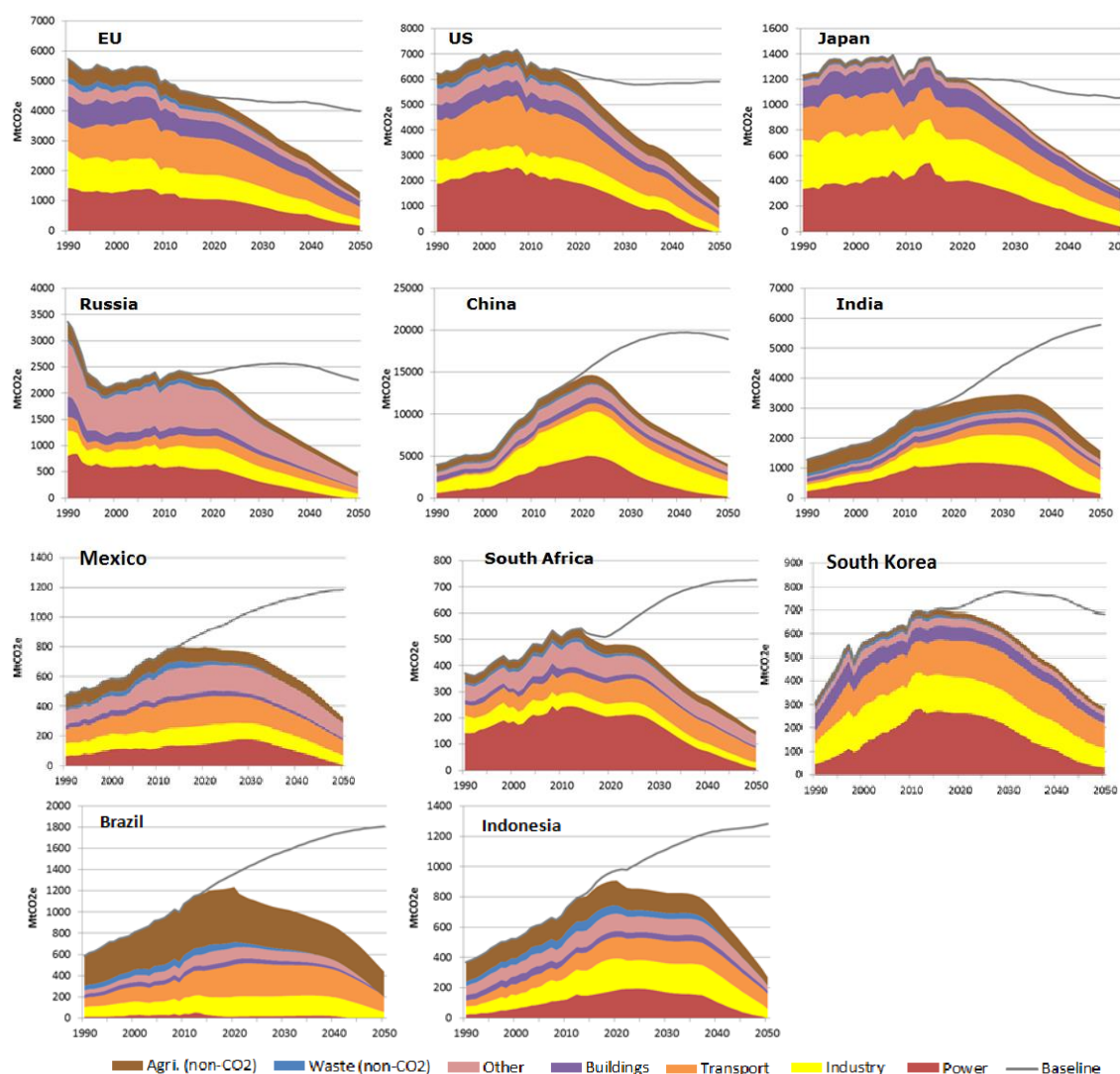
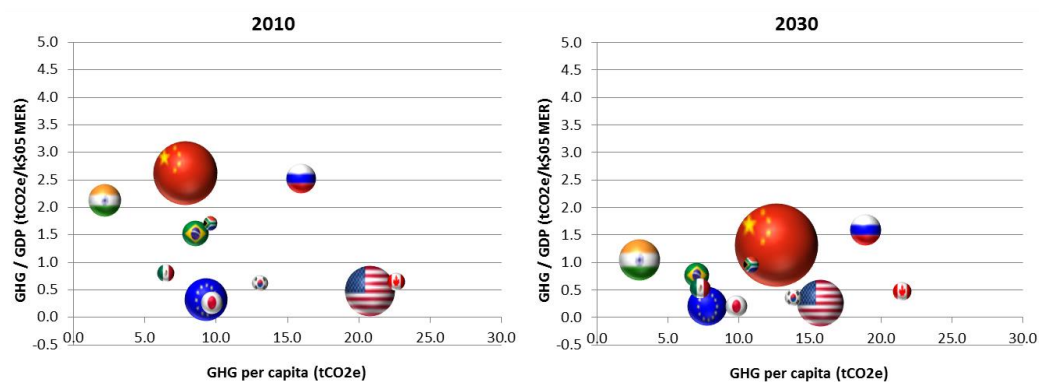


Fig. 4 – Global Mitigation scenario profiles for G20 countries, excluding land use. Further projections for Argentina, Australia, Saudi Arabia in regional projections. Source: JRC analysis, POLES modelling

Emissions per capita and GHG intensity of GDP would converge substantially by 2050 in the Global Mitigation scenario. All regions' emissions would be below 5 tCO₂e per capita by 2050 (see Figure 5).

GHG emission intensity vs. per capita, major economies, 2010-2030 Baseline



GHG intensity vs. per capita, major economies, Global Action scenario 2030-2050

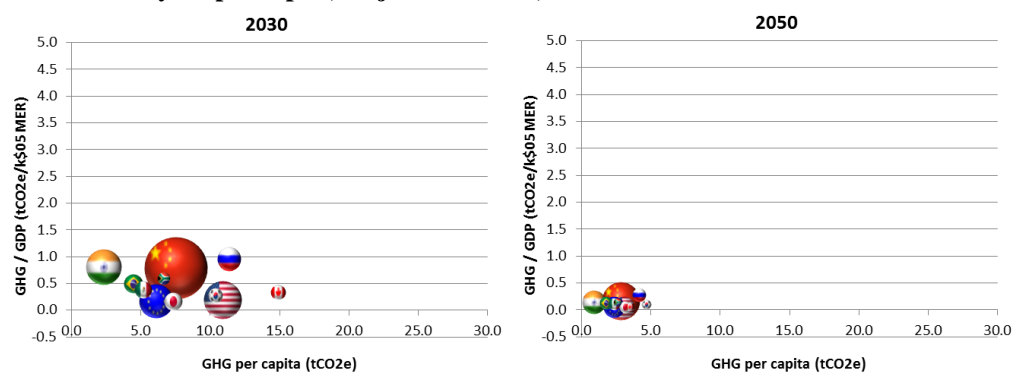


Fig. 5 – Baseline (top) and Global Mitigation scenario (bottom): gradual convergence of GHG emissions per unit of GDP (vertical axis) and per capita (horizontal axis) by 2050. Size of the circles indicates overall emissions size. Source: JRC Analysis, POLES modelling

Economic growth is maintained, especially with smart policies

If all regions take action under the Global Mitigation scenario, and not taking costs of adaptation or climate damage into account, the rate of economic growth across the world would only fall marginally (see Table 2 left and middle columns). The growth rates of fast-emerging economies and of lowest-income countries would remain high.

The impact of mitigation policies on GDP growth can be lowered even further when combined with smart fiscal policies. For instance, economies can benefit from the use of revenues from carbon pricing to reduce other distorting taxes, reducing the negative impact of mitigation on global GDP growth by almost one third. Greater gains from tax recycling are seen in regions such as Sub-Saharan Africa, India and South Asia (Table 2, middle and right columns).

Table 2: In the year 2030, the global economic impact of global action is limited, especially if smart revenue recycling options are implemented.

<i>Tax recycling:</i>	<i>Yearly growth rate (%) of GDP (2020-2030)</i>		
	<i>Baseline</i>	<i>Action in Line with 2°C - Carbon Pricing</i>	
	<i>n/a</i>	<i>Lump sum</i>	<i>Lab. Tax / Indirect Tax (*)</i>
<i>World</i>	3	2.87	2.91
EU28	2.01	1.93	1.96
US	2.01	1.9	1.91
Canada	2.12	1.98	1.99
Japan	1.01	0.96	0.97
Australia	2.96	2.89	2.89
New Zealand	2.32	2.29	2.29
Rep. Korea	3.16	3.07	3.09
Mexico*	3.57	3.49	3.5
Russian Fed.	2.79	2.35	2.5
Brazil*	3.34	3.17	3.34
Saudi Arabia*	3.53	3.12	3.29
Medit. Middle East*	3.18	2.95	3.03
China*	5.02	4.82	4.91
India*	6.45	6.31	6.37
Indonesia*	5.17	4.96	5.07
South Africa*	4.96	4.81	4.87
SubSaharan Africa*	6.31	6.06	6.2
South East Asia*	3.42	3.26	3.37
Rest of Asia Pacific*	6.62	6.51	6.57

* indicates that the revenue is recycled via a reduction in indirect taxes on consumption and investment in this region.
Lab. Tax = Labour tax

Source: JRC Analysis, GEM-E3 modelling

By 2050, the Global Mitigation scenario would halve global emissions compared to 1990 levels. Most cost efficient reductions would be realised in the energy sector, particularly demand side reduction, renewables and CCS (see Figure 6).

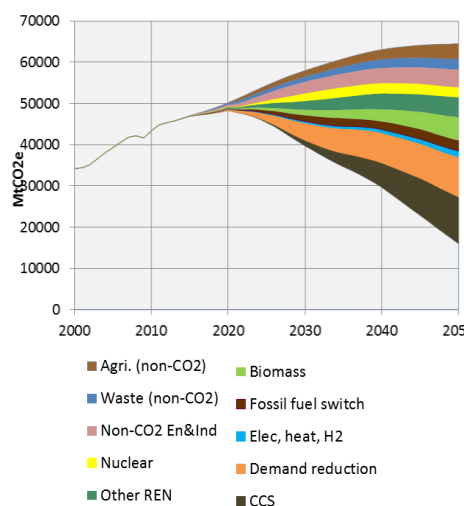


Fig. 6 (left) Key mitigation opportunities at global level for all sectors, excluding land-use sinks protection and improvements.

Source: JRC Analysis, POLES modelling

Climate stabilisation will also require healthy oceans and terrestrial ecosystems to absorb and balance residual anthropogenic emissions. Agriculture, forestry and other land uses currently represent 24% of net anthropogenic GHG emissions¹³. The emissions from the land use sector can be significantly reduced, and enhanced sinks could compensate residual global emissions. In addition, tropical forests could remove a significant share of other emissions, for instance if REDD+ would become fully effective.

Global Mitigation action requires substantial redirection of investment in the power sector towards low emission sources. However, the total investment needed is only 10-20% higher than investments needed in the Baseline (see Figure 7).

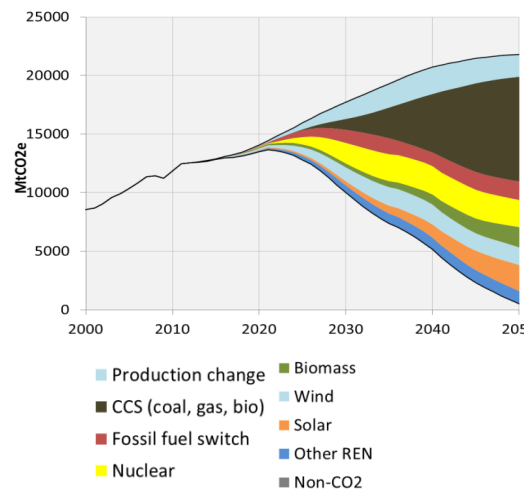


Fig. 6 (right) Key mitigation opportunities at global level to decarbonise the power sector.

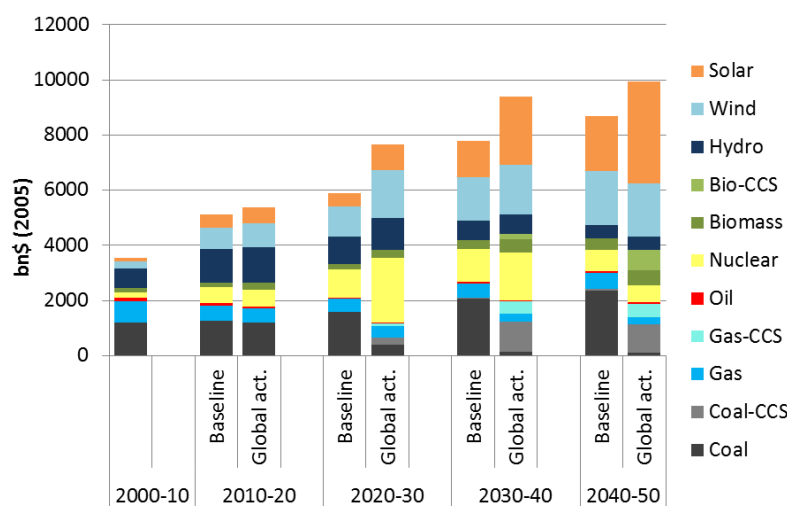


Fig. 7 Investment in the power sector to realise the transition to low-emission development, worldwide

Source: JRC Analysis, POLES modelling

¹³ Source: The New Climate Economy Report, 2014. <http://newclimateeconomy.report/>

B. Designing a dynamic Protocol

The Protocol should be designed to last. It should commit Parties to pursue a level of climate action that responds dynamically to new scientific, technological, economic and political developments, while avoiding the need for Parties to regularly negotiate and ratify new binding instruments. A dynamic Protocol will have enduring institutions, principles, and objectives that build upon the foundations of the UNFCCC, along with processes that allow commitments to evolve over time.

Mitigation

With regard to mitigation, the Protocol and accompanying COP decisions in Paris should set out a process for the regular review and strengthening of mitigation commitments in light of the below 2°C objective. This process should learn from and improve upon the pre-Paris process on INDCs. Subsequent mitigation commitments resulting from this process will be nationally determined and will contribute towards achieving the objective of the Convention.

As a starting point, the Protocol will require each Party to have and maintain a mitigation commitment at all times. The mitigation commitments finalised in Paris will be formalised when each Party submits its instrument of ratification, and enter into force by 2020. Each Party is expected to set a mitigation commitment in Paris that extends either to 2025 or to 2030.

There should be comprehensive coverage of sectors and GHGs: Parties' commitments must create strong incentives for all actors to further reduce and limit global emissions. The Protocol should require GHG emissions reductions from all sectors, including international aviation and shipping as well as fluorinated gases. The International Civil Aviation Organisation (ICAO), the International Maritime Organisation (IMO) and the Montreal Protocol should act to effectively regulate GHG emissions from international aviation and shipping and fluorinated gases before the end of 2016.

The Protocol will set out a process for reviewing and strengthening mitigation commitments that will apply to all Parties. (See figure 8, below) The first such process after Paris should begin in early 2019 and conclude at the end of 2020, in time for any new commitments to enter into force by 2025. Parties with commitments out to 2030 will participate fully in this review and, as a result, may decide to strengthen their commitments. Subsequent reviews will take place at five year intervals, and subsequent commitments should be set and synchronised for five or ten year periods.

The process for reviewing and strengthening mitigation commitments will be facilitative, non-intrusive and respect Parties' sovereignty. Each "cycle" of the process should encourage Parties to: (i) if necessary, raise the level of existing mitigation ambition and (ii) formulate ambitious subsequent commitments. The process should be simple, efficient, and avoid duplication of other processes.

The process for reviewing and strengthening mitigation commitments should be guided by a global aggregate assessment of the adequacy of Parties' existing commitments in light of:

- the most recent scientific analysis of emissions reduction pathways that are both necessary and achievable, including the most recent Assessment Report of the Intergovernmental Panel on Climate Change;
- results from the reviews of Parties' individual and aggregate performance during the existing commitment period; and
- a review of the effectiveness of Parties in mobilising investment and support for the implementation of their commitments under the UNFCCC.

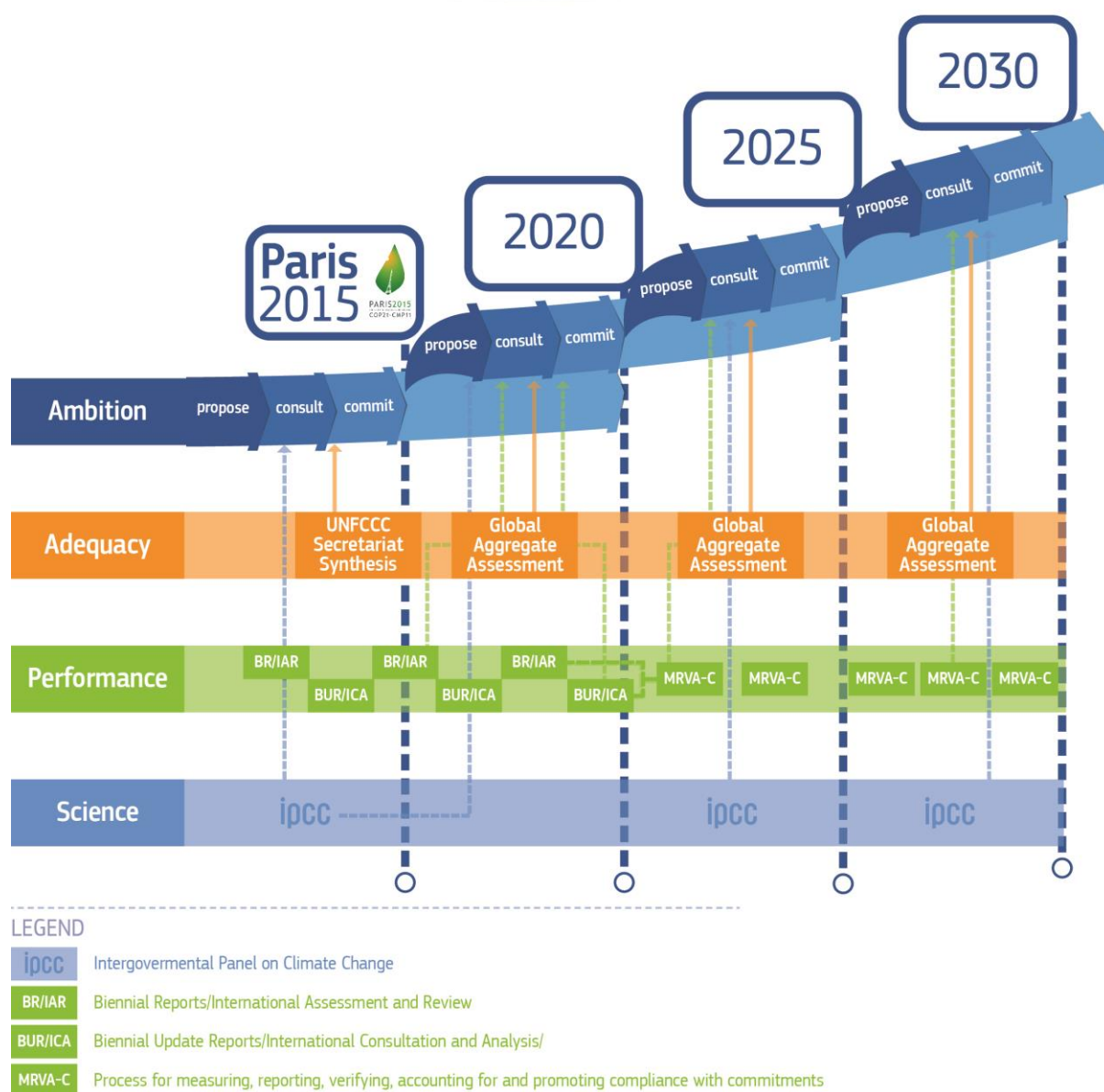
In the context of this global aggregate assessment, each Party will come forward with a proposed commitment that represents a progression beyond its current commitment. These commitments shall have the same legal force for all Parties to the new Protocol. In describing its commitment, each Party will follow the methodologies and assumptions with regard to quantifying and accounting for emissions reductions as most recently agreed by the COP. Each Party will set out any other upfront information necessary to ensure full transparency, clarity and understanding of its proposed commitment. Each Party will also describe why it considers its commitment is an ambitious and fair contribution to reaching the below 2°C objective.

The Protocol will contain a simplified procedure to allow finalisation and entry into force of subsequent mitigation commitments, or strengthening of existing commitments, in a timely manner and without the need for further formal ratification.

An accompanying COP21 decision will set out the details on the modalities of the process. This would allow the process to be easily strengthened over time if necessary. More specifically the decision should set out the terms of reference for the global aggregate assessment described above and call on Parties, the operating entities of the financial mechanism and any other organisations in a position to do so, to provide support to eligible Parties for the preparation of new commitments.

Figure 8

The Mitigation Ambition Cycle under the Paris Protocol & Related UNFCCC Processes



Adaptation

The Protocol and accompanying COP decisions will also help ensure that the UNFCCC continues to support Parties in preparing for the adverse effects of climate change in a dynamic manner. Building on the institutions and work programmes established under the Convention, including the Cancun Adaptation Framework and the Nairobi Work Programme, decisions taken in Paris will enable Parties to regularly revise and strengthen their approaches to adaptation over time.

As already highlighted in the Communication, the Protocol should emphasise the need to achieve climate resilient sustainable development of all Parties to the Protocol. The Protocol therefore should reinforce the commitments of all Parties to undertake measures to facilitate adequate adaptation and to communicate these through their national communications.

The Protocol should recognise the need to go beyond standalone one-off adaptation plans towards dynamic long-term planning processes, including mainstreaming of climate change into all planning processes at all levels. This new commitment should be implemented flexibly and should not place new burdens on poor and vulnerable countries.

Therefore, an accompanying COP decision could set out specific milestones that provide further guidance for Parties in improving the effectiveness of national adaptation action, including through enhanced international cooperation over time. These milestones should include:

- facilitating joint learning to enable better monitoring and evaluation of the effectiveness and outcomes of adaptation action;
- sharing of good practices and lessons learned relevant to/for assessment of climate and disaster risks, planning for adaptation, management of climate risks;,
- providing guidance to facilitate integration of climate and disaster risks into national plans and strategies with an aim to achieving climate resilience of their sustainable development; and
- setting timelines for Parties to achieve certain milestones such as integration of climate and disaster risk assessments into national development planning.

In addition, the Protocol should call on Parties to provide for support to the efforts of developing countries, especially those particularly vulnerable to the adverse effects of climate change. In this context, accompanying COP decisions should welcome that the Green Climate Fund has decided to aim for a 50:50 balance between mitigation and adaptation over time; with a floor of at least half of the adaptation allocation for particularly vulnerable countries, including LDCs, Small Island Developing States (SIDS) and African States.

Means of Implementation

The Protocol will also need to be dynamic in mobilising means of implementation for eligible Parties, particular for those with the least capabilities. The Convention's financial mechanism, the Standing Committee on Finance, and the Technology Executive Committee and Climate Technology Centre and Network, under the guidance of the COP, provide durable institutions for regularly assessing and improving the adequacy and effectiveness of the means of implementation mobilised by these and other relevant institutions.

The Green Climate Fund (GCF) and the Global Environment Facility (GEF) will be central institutions deploying climate finance under the Convention and the new Protocol. While the COP will continue to maintain an overview of these institutions, the fundamental processes for reviewing and strengthening each of these institutions will take place through their individual governance structures. Furthermore, it will remain essential that the GCF and the GEF coordinate closely with other multilateral and bilateral financing institutions in order to maximise leverage of public finance on overall climate relevant finance flows and investments.

The GCF and GEF will be supported by regular replenishment cycles for the GCF and the GEF. The EU expects that the resources available through these funds will continue to grow in response to demand and their ability to demonstrate their effectiveness in delivering results and leveraging public and private sector resources. It can be expected that ambitious climate policies and good enabling environments will attract increasing amounts of domestic and international climate finance. By the end of 2017, the GCF and the GEF should identify ways on how best to support the effective and efficient implementation of climate actions under the new Protocol. The EU also expects that both funds will continue to broaden their base of contributors as more Parties that are in a position to do so, should make contributions to climate finance.

In practical terms, the established process of biennial submission of strategies and approaches for scaling up the mobilisation of climate finance could be continued beyond 2020 and be extended to all Parties in a position to provide international climate finance.

C. Transparency and accountability

An international legally-binding measurement, reporting, verification (MRV) and accounting system and a compliance process to hold each Party accountable for the achievement of its commitments should feature prominently in the Protocol. Such "top-down" rules are the only way to achieve transparency and accountability and create trust in a new regime based on "bottom-up" commitments.

As the technical details of the MRV framework will need to be flexible and adapt to new or changing requirements over time, they should be laid down in decisions rather than in the Protocol. Parties have taken a similar approach in the past, both under the Convention and its Kyoto Protocol.

The core principles and obligations of the transparency and accountability system, to be enshrined in the Protocol, should frame the development of the system and be the focus of Parties in 2015. Such key elements should apply to all Parties and address the most significant issues with regard to understanding the level of effort implied by the commitments. The accompanying decision to be agreed at COP 21 should further frame the work programmes for the elaboration of technical rules by 2017.

Measurement, Reporting, Verification and Accounting

The key elements for the MRV framework should serve the shared interest:

The Protocol should have at its core the determination and reporting of robust and comparable GHG inventories by all Parties. Robust information on emissions is key in order to understand the global emission trends, to design credible nationally determined contributions and also to demonstrate the results achieved in the implementation of such commitments. Hence, GHG inventories are central to the objective of the Convention as they give a concrete picture of emissions over time and provide each Party with the information necessary to formulate appropriate domestic policies. Parties should submit by the time of ratification the most recent set of annual emission inventories from 2010 onwards covering the period until 2015.

The information to be reported in addition to the GHG inventory should derive from the type of commitment chosen. For example if a commitment is based on data other than that included in the GHG emissions inventory, e.g. GDP or energy intensity, Parties should also clearly and regularly report this information, to be based on official and published sources.

All the information reported should be transparent, comparable and enable assessment by independent experts with respect to common guidelines to be developed after COP21.

In order to facilitate this process domestically, the Protocol should require Parties to establish an appropriate institutional and administrative environment for accurate measurement and reporting while providing Parties with sufficient flexibility. The process can facilitate this by developing appropriate guidance to the GEF and by building the necessary technical capacity.

The Protocol must draw on the strengths of the existing system. The MRV and Accounting framework should build on experience gained under the Convention and its instruments, streamlining and enhancing the modalities where necessary. Though the current reporting system was recently enhanced and will continue to apply under the Convention, it should undergo a process of further improvement. The Protocol should maintain and, where necessary, strengthen the MRV of GHG

emissions and other information relevant to the implementation of the commitments, in particular for those Parties with the greatest responsibility and capability, while providing for flexibilities to take into account different national circumstances.

The existing MRV system established under the Convention requires different countries to follow separate guidelines which reflect the complexity rather than the nature of the obligations. Both developed and developing countries are reporting GHG inventories while the frequency of reporting and the details are different. There are two verification systems (the International Assessment and Review (IAR) and the International Consultation and Analysis (ICA)) which are very similar in their substance. This leads to an overcomplicated system with similar parallel systems applying to Parties according to the static Annexes of the Convention. The Protocol should simplify and streamline the current system by setting up a MRV and accounting framework applicable to all Parties.

The transparency and accountability system should more realistically reflect different capabilities and circumstances by including more common obligations while allowing for differentiation in their application. Such differentiation, taking into account responsibility, capability and different national circumstances, can be specified through guidance related to the technical implementation of the MRV and Accounting system and should make full use of, and potentially expand upon, flexibilities in the IPCC guidelines which are already applied by all Parties. For instance, Parties with little capacity could fully rely on the default values (tier 1) provided by the IPCC guidelines to estimate GHG emissions. In this way, Parties do not have to expend the resources necessary to develop country specific data. Also, Parties could focus reporting on the most significant source categories and may not be required to report detailed information for small and less significant categories. The Protocol should take into consideration the special circumstances of LDCs and for SIDS.

Common rules should be proportional and should not add unnecessary administrative burden. At the same time, the reported information, timing and frequency must be robust and sufficient to ensure that Parties can legitimately demonstrate the implementation of commitments. The creation of additional reports should be avoided especially where such an obligation creates excessive administrative burden.

In addition to the core obligations for transparency, fundamental accounting principles establish the integrity of the commitments. These provide Parties and the broader international community with collective assurance that the commitments undertaken are real and their implementation is legitimate:

- Reported accounting data must reflect reality and not be the result of changes in the way of calculations that have been applied, i.e. there must be full methodological consistency between the calculations used when a commitment is defined and the calculations used to report on their implementation.
- Once a gas, sector, category, activity area of land or pool is accounted towards a commitment, it should continue to be accounted for in the future.
- The accounting system should include all significant sources and sinks and be increasingly comprehensive over time.

Key Principles and Obligations of the MRV and Accounting System in the Protocol:

The Protocol should build on obligations under the Convention and require all Parties to report, at least biennially, information necessary to quantify, define and track the achievement of its commitment in a transparent and verifiable manner according to common guidelines which reflect different national capability and circumstance.

A requirement for all Parties to report a consistent time series of GHG emissions in their GHG inventory ensures that crucial information on GHG emissions is provided and that any reductions reported are real and not simply achieved through methodological changes applied only in the most recent year(s). The Protocol should encourage Parties, especially those with the greatest responsibilities and capabilities, to move towards annual reporting of GHG inventories. Parties that already report annually should continue to do so.

Guidance developed for the MRV and accounting system should be based on the latest science according to the IPCC and agreed by the Parties. In order to ensure that the commitments are comparable and can be aggregated towards the below 2°C objective, Parties must use common metrics (GWP-100) and IPCC methodologies when measuring and reporting their GHG emissions.

The verification system should address all the information necessary to assess progress towards the commitments and it should build on the lessons learned from ICA, and IAR and the expert reviews of GHG inventories. Reporting by all Parties should be detailed enough to enable technical verification by experts. The reported information should include not only the total emissions for the Party but also the information disaggregated at category level and the activity data and emissions factors used for the calculation of GHG emissions. In order to ensure that the verification of the GHG inventories is a valuable exercise, the technical experts should be given the possibility to propose technical corrections of the emissions data if they find gaps or significant errors in the application of agreed methodologies.

Agriculture, Forestry and Other Land Use

The multiple objectives of agriculture, forestry and other land use should be acknowledged, as well as the need to ensure coherence between inter alia food security and climate change objectives. The EU encourages climate friendly and resilient food production, while optimising the sector's contribution to greenhouse gas mitigation and sequestration.

The land use sector is part of the EU's economy wide commitment. The EU accounting approach for the land use sector under the Protocol will build upon existing accounting approaches under the Convention and its instruments, streamlining rules established for the second commitment period of the Kyoto Protocol to minimise complexity and administrative burden. The EU approach will include cropland and grazing land management from 2020, thereby increasing the scope and integrity compared to pre-2020 commitments. EU policy on how to include this sector in its commitment will be established before 2020, well in advance of the implementation of the Protocol.

The key principles and obligations captured in the Protocol and in an accompanying decision should limit uncertainties and maximise transparency, verifiability and thereby environmental integrity while providing Parties with sufficient flexibility to implement a robust accounting regime. Party's

accounting approach for the land use sector must incorporate the fundamental accounting principles of the Protocol (once in always in, no cherry picking, significant sources are covered), and maintain or represent a progression in scope and robustness relative to approaches applied pre-2020. In addition, the Protocol should ensure environmental integrity through rules related to the establishment of realistic and meaningful reference levels (in particular projected reference levels for forest management) and rules excluding non-anthropogenic actions from accounting.

Parties should report their accounting approaches for the land use sector in a transparent and verifiable manner consistent with the principles in the Protocol and building upon those existing under the Convention and its instruments. Such principles limit the number of approaches that Parties can use, limit uncertainty and maintain the integrity of commitments. Parties must work towards a common streamlined, harmonised and consistent accounting framework for the whole land use sector over time.

The Role of Market Mechanisms

Market based instruments are important tools in delivering ambitious mitigation both domestically and internationally. Carbon pricing and markets can engage and harness private sector investment and ingenuity in developing and implementing low carbon alternatives and reduce the costs of a given level of mitigation. While domestic carbon markets remain the domain of sovereign Parties, the Protocol should encourage carbon pricing, and facilitate and recognise international links between carbon markets, which can broaden their reach and enhance their effectiveness. This should be done by:

- enabling outcomes generated under a commitment in one Party to be claimed towards the commitment of another Party through robust accounting rules;
- providing for a market mechanism or mechanisms for the certification of emission reductions for use towards commitments in Parties choosing to use such a mechanism.

The need for rules is particularly acute, as the potential to claim effort across boundaries in respect of multiple commitments could undermine integrity of commitments, with significant risk of double counting.

It will be important to ensure that cross-border use of markets does not undermine the overall and individual contributions to mitigation by Parties, however they are expressed. As a result, rules on accounting of cross-border use of markets will need to be tailored to the type of commitments undertaken, in particular whether and how commitments are quantified, and whether robust MRV of emissions and use of outcomes is in place. Parties have already agreed that mitigation outcomes shall deliver real, permanent, additional and verified mitigation outcomes, avoid double counting of effort, and achieve a net decrease and/or avoidance of greenhouse gas emissions.

Cross-border use of markets should be facilitated by requiring that countries have: a mitigation commitment in place; a system in place to deliver MRV requirements; submitted the most recently required inventory; and submitted additional information that enables transparent accounting for the net transfer, acquisition and use of mitigation outcomes.

Parties would be able to use outcomes towards their commitments that are generated within the scope of others commitments, only where they are both quantified in tonnes of CO₂e, on the basis of

additions and corresponding subtractions from their quantified totals. In the case of an absolute cap on emissions over a period, the necessary accounting would be relatively simple, and could be done on a net basis at the end of a commitment period. In the case of other quantified commitments, accounting may be more complex and particular rules will have to be defined.

Where commitments are not quantified or the outcomes to be claimed fall outside the scope of a quantified commitment, Parties would need to quantify their commitment. A procedure should be provided to facilitate this. Or as an alternative, such a Party might, on the basis of participation requirements, have outcomes certified through a mechanism. In this case, contribution to mitigation would be ensured through appropriately tailored baselines, and Parties would need to reflect the impact of any international use of these outcomes in reporting on progress towards its commitment.

In order to mitigate the risk that weak commitments could be exported through the use of carbon markets, specific rules limiting the international use of markets with reference to actual emissions could be considered.

Decisions at COP21 on the cross-border use of carbon markets should frame the elaboration of the accounting rules and set out a work programme for their further elaboration; frame the elaboration of the rules and procedures for a market mechanism(s); and set out a work programme for their further elaboration.

Compliance

It will be important to provide the Protocol with a compliance regime which promotes and facilitates timely and effective implementation by all Parties, enhances trust and confidence that all Parties are doing their share and ensures legal certainty and predictability. While taking experiences made under the Kyoto Protocol and other multilateral environmental agreements into account, the new Protocol's compliance regime must be tailor-made for the purpose of a climate change regime applicable to all. In particular, it must be well designed to fulfil the above objectives.

From an institutional perspective, the Protocol should provide for the establishment of a permanent standing body mandated with the compliance assessment. This compliance body should be non-political, in order to allow for an objective, effective compliance assessment. This means that a multilateral setting or a mere Party-to-Party process would be neither appropriate nor sufficiently effective for the assessment of compliance. Instead, the compliance body to be established by the Protocol should be constituted of individuals, nominated according to technical expertise and acting in their personal capacity.

Next to the establishment of the compliance body, the legal basis for the compliance regime in the Protocol should also define the scope of the compliance body's mandate. This scope must include an assessment of compliance with mitigation commitments as well as MRV/accounting obligations, the power of the compliance body to issue a finding of (non)compliance and to address non-compliance with adequate consequences.

In addition, the Protocol needs to contain a mandate for the elaboration of further detail until the first session after entry into force as well as key governing principles guiding the elaboration of such more detailed rules for the compliance regime. These principles include the equal treatment of all Parties in the compliance assessment, the combination of a facilitative and a review function by the compliance

body, adequacy and proportionality of consequences in cases of non-compliance as well as the transparent nature of compliance proceedings.

D. The Paris Protocol

In accordance with what all Parties agreed in Durban the Protocol should be:

- ambitious, sufficient to put the world on track to achieve the below 2°C objective;
- applicable to all, meaning that all Parties must do their fair share;
- comprehensive, by addressing mitigation, adaptation, means of implementation, and transparency of action and support;
- legally binding at the international level; and
- be adopted by 2015 at the latest and enter into force by 2020.

It should also: be concise; focus on essential elements; build on existing institutions and processes; avoid inefficient duplication of efforts; and be flexible, dynamic and robust so as to endure well beyond 2020. COP decisions should elaborate in further detail the provisions set out in the Protocol.

The table below sets out a suggested structure for Protocol and identifies elements of some of the key provisions, as well as further details to be set out in COP decisions.

	Provision in the Paris Protocol	Supporting decision(s) at or after COP 21
Preamble	<ul style="list-style-type: none"> • Recalling the objective of the Convention as set out in its Article 2 • Recalling decisions 1/CP.17, 2/CP.18, 1/CP.19 and 1/CP.20 • Reiterating that the provisions of the Paris Protocol shall be guided by the principles of the Convention, • Acknowledging that the principles of common but differentiated responsibilities and respective capabilities must be applied in a dynamic way in the light of evolving, responsibilities, capabilities and different national circumstances • Acknowledging the urgency of action needed to ensure aggregate emission pathways consistent with having a likely chance of holding the increase in global average temperature to below 2 °C above pre-industrial levels • Recognise that economy-wide emission reduction targets provide the highest level of clarity, predictability and environmental integrity • Acknowledge that carbon pricing is a key approach for cost-effectiveness of the cuts in global greenhouse gas emissions 	

	Provision in the Paris Protocol	Supporting decision(s) at or after COP 21
Long term goal	<ul style="list-style-type: none"> Reduce global emissions of GHGs by at least 60 % below 2010 levels by 2050. 	
Mitigation	<ul style="list-style-type: none"> All Parties to the Protocol must at all times maintain a mitigation commitment. 	
Ambition Mechanism	<ul style="list-style-type: none"> Establish process to regularly review overall emissions and whether Parties are collectively on track with the global levels of emissions indicated by IPCC as consistent with achieving the below 2°C objective. Specify that the review should: <ul style="list-style-type: none"> aim to progressively and significantly increase the level of mitigation ambition – this should represent a progression from previous levels of ambition and scope over time. be based on the latest science, apply to all Parties and be facilitative Set out a simplified procedure to allow finalisation of mitigation commitments, or adjustments of existing commitments, in a timely manner and without the need for further formal ratification. Only the Party concerned may propose a change in its mitigation commitment or the ambition of its subsequent mitigation commitments. 	<ul style="list-style-type: none"> Specify that the review should take place every five years, starting in 2020. Set out the specific modalities for the review. Devise a work programme to raise mitigation action in close collaboration with the Technology and Financial Mechanism and other bilateral and multilateral international financial institutions starting in 2016.
Transparency & Accountability	<ul style="list-style-type: none"> Each Party shall ensure consistency between the methodologies used to quantify its commitment and those used to demonstrate the implementation of its commitment; account for all significant anthropogenic emissions by sources and removals by sinks of greenhouse gases and be increasingly comprehensive over time; Once a Party accounts for a gas, sector, category, activity, area of land or pool towards its commitment, it shall continue to do so in the future; Common Metrics and methodologies 	<ul style="list-style-type: none"> Frame the work programmes for the elaboration of technical rules and procedures and institutions necessary for operationalisation including the timing of reporting and review cycles, the role of expert review teams and the role of the UNFCCC Secretariat; Establish common metrics and methodologies; Elaborate a common set of guidelines for the measurement, reporting and verification of all information necessary to demonstrate the implementation of commitments building on experience under the

	Provision in the Paris Protocol	Supporting decision(s) at or after COP 21
	<p>shall be agreed, and may be revised over time. Any revisions shall apply for subsequent periods for all Parties; metrics and methodologies shall be those adopted by the IPCC.</p> <ul style="list-style-type: none"> Each Party, in accordance with agreed guidelines, shall: biennially report national GHG Inventories with consistent time series of anthropogenic greenhouse gas emissions by sources and removals by sinks, methodologies and assumptions used to frame their commitments, and all other information necessary to assess the implementation of commitments; establish and maintain a national system for this purpose. A common set of guidelines shall be elaborated for the verification of reported information specifying necessary information by commitment type and identifying linkages to reporting under the Convention which build on experience gained under the Convention and its instruments and take into account different national circumstances. 	<p>Convention and its instruments and taking into account different national circumstances;</p>
	<p><i>Further modalities</i> Parties to agree on relevant modalities and procedures within a given timeframe.</p>	
	<p><i>The land use sector</i></p> <ul style="list-style-type: none"> Each Party shall account for net changes in GHG emissions from anthropogenic removals by sinks and emissions by sources relative to realistic and meaningful reference values for relevant land use categories or activities included in its commitment in a transparent and verifiable manner. Each Party shall transparently report accounting approaches for the land-use sector in a transparent and verifiable manner based upon those existing under the Convention and its instruments. 	<ul style="list-style-type: none"> Parties shall decide upon common modalities for accounting for the land use sector. The modalities shall recognise the social, environmental and economic aspects of the land use sector (including adaptation, biodiversity and food security) and address risks of reversals, natural disturbance and leakage in order to ensure sustainability and environmental integrity and taking into account uncertainties, transparency in reporting, verifiability, the methodological work of the IPCC, and decisions taken by the COP and CMP.
	<p><i>Market mechanisms</i></p> <ul style="list-style-type: none"> Parties may account for the cross border use of market mechanisms 	<ul style="list-style-type: none"> A decision elaborating on principles for accounting and how integrity of commitments will be maintained and

	Provision in the Paris Protocol	Supporting decision(s) at or after COP 21
	<p>towards their commitments, subject to the application of robust accounting rules which ensure that the integrity of mitigation commitments is maintained and double counting is avoided.</p> <ul style="list-style-type: none"> Parties may use a UNFCCC defined market mechanism or mechanisms for the certification of mitigation outcomes, where the mechanism ensures a contribution to global mitigation, that the integrity of mitigation commitments are maintained and double counting is avoided. 	<p>double counting avoided.</p> <ul style="list-style-type: none"> A decision elaborating on modalities and procedures for a mechanism(s), how a contribution to global mitigation effort will be ensured, integrity of commitments will be maintained and double counting avoided.
Adaptation	<ul style="list-style-type: none"> Recognise the importance to achieve climate resilient sustainable development for all Parties Reinforce the commitments of all Parties to: <ul style="list-style-type: none"> continue to formulate, plan and implement measures to facilitate adaptation in the context of increasing the climate-resilience of their national sustainable development and to integrate it in relevant national and regional planning processes; communicate these through their National Communications. Call to assist the efforts of those countries that need it and are particularly vulnerable to the adverse effects of climate change, including through provision of financial and technical support (including for capacity building) 	<ul style="list-style-type: none"> Build on and strengthen the Cancun Adaptation Framework, as well as the Nairobi Work Programme, in order to <ul style="list-style-type: none"> provide further guidance to Parties to improve the effectiveness of national adaptation action, to facilitate enhanced cooperation in preparing and implementing adaptation measures. Strengthen the Monitoring and Reporting provisions to enable better understanding of the effectiveness of measures undertaken to facilitate further enhanced adaptation action to be undertaken by Parties.
Finance	<ul style="list-style-type: none"> Confirm climate finance as a means to achieve the below 2°C objective and to support adaptation. All Parties shall take action, differentiated according to their evolving respective responsibilities and capabilities, to mobilise public and private finance flows, domestic and international. All parties shall take action to improve enabling environments and policy frameworks for low GHG and climate resilient investment, including for the 	<ul style="list-style-type: none"> Confirm that financing climate action will evolve in close synergy with the proposed INDCs and national adaptation planning processes. Elaborate the range of action that can be supported including from improving domestic enabling environments for facilitating climate-proof investments, to integrate climate objectives into all policies, or mobilising international climate finance. Not all Parties shall take the same action, and some Parties may

	Provision in the Paris Protocol	Supporting decision(s) at or after COP 21
	<p>domestic private sector.</p> <ul style="list-style-type: none"> • All parties shall integrate climate objectives into public and private investments, , national policies, and development strategies, in order to shift investment patterns towards low-GHG and climate resilient economies and societies • All Parties in a position to do so shall contribute to international climate finance. • The Green Climate Fund and the Global Environment Facility shall serve as the operating entities of the Financial Mechanism of the Protocol • The Standing Committee on Finance shall assist the governing body of the Paris Protocol. • Parties shall periodically report on the level and range of climate finance flows, the efforts that contribute to the mobilisation of climate finance. 	<p>need support.</p> <ul style="list-style-type: none"> • Incentivise the mobilisation of climate finance from a variety of sources, and confirm the role of public climate finance, recognise the role of public finance together with public policy measures to catalyse private finance, and use of innovative financial instruments, recognise the role of development banks, international financial institutions and the private sector as key sources in scaling up climate finance and encourage them to further mainstream climate change objectives into their lending portfolios. • Stimulate voluntary commitments and public- private partnerships, including local private sector, and more systematic exchange of best practises on shifting private capital toward low carbon investments. • Set out additional rules of the Financial Mechanism and other funding mechanisms, such as the Adaptation Fund. Such rules shall in particular include complementarity. Parties to the Paris Protocol shall be eligibility for a priority window of the Green Climate Fund and the Global Environment Facility. Priority shall be given to countries taking ambitious action in mitigation, adaptation and capacity building, and for the poorest and most vulnerable countries to climate change. • Frame the detailed reporting requirements, by building on existing reporting systems and include specific guidance for reporting. Formulate clear definitions of climate finance.
Technology development & transfer	<ul style="list-style-type: none"> • A country-driven process to develop the legal, organisational, fiscal, political and educational framework for successful technology transfer projects. • Incentivising private sector involvement and leveraging funding 	

	Provision in the Paris Protocol	Supporting decision(s) at or after COP 21
	<p>through private partnerships and transnational innovation programmes is the key for up-scaling technology transfer.</p> <ul style="list-style-type: none"> • Ensuring that intellectual property rights are not weakened. • Anchoring the existing institutions (TEC & CTCN) and their attributed functions • Enhancing the linkages of technology transfer institutions – on the national, regional and international level - with finance and capacity building efforts 	
Capacity Building	<ul style="list-style-type: none"> • Recognition of cross cutting nature of capacity building and the need to integrate into relevant areas • Recognition that Capacity building is case-specific and needs to be tailored to needs 	<ul style="list-style-type: none"> • Agree to assist those countries that need it to build sufficient capacity to become a Party to the new Protocol. This could include setting up emission inventories, building fully functional MRV systems, developing low emission and climate-resilient development strategies, as well as policy planning and designing enabling environments providing the right incentive structure for climate action on mitigation and adaptation. • Existing arrangements under the Convention could be strengthened: <ul style="list-style-type: none"> ○ the Durban Forum on Capacity Building would remain the appropriate space for discussions, ○ the Capacity Building Frameworks would continue to guide capacity building activities and be updated if needed.
Compliance	<ul style="list-style-type: none"> • Establish a permanent, non-political standing institution to act as the compliance body and define the scope of its mandate. The mandate of the compliance body should encompass: <ul style="list-style-type: none"> ○ The assessment of compliance with mitigation commitments, at least once (at the end of its time period) ○ The assessment of compliance with MRV and accounting obligations ○ The assessment of compliance with a 'no 	<ul style="list-style-type: none"> • Elaboration of detailed rules governing the work of the compliance body, including its composition, process etc.

	Provision in the Paris Protocol	Supporting decision(s) at or after COP 21
	<ul style="list-style-type: none"> backsliding' requirement <ul style="list-style-type: none"> ○ Facilitation by the compliance body to support Parties in achieving compliance ○ Issuance of a finding of (non-)compliance by the compliance body, recommendation to the COP of adequate measures as a consequence of non-compliance (e.g. loss of eligibility for market or financial mechanisms following infringements of MRV/accounting requirements, suspension of decision-making rights for failing to maintain a mitigation commitment or breaching the 'no backsliding' requirement) • Provide for a mandate to elaborate the detailed rules governing the work of the compliance body, in accordance with key governing principles laid down in the Paris Protocol, for adoption by the supreme decision-making body by its first session. These principles include the equal treatment of all Parties as regards the compliance assessment, the non-political nature and independence of the compliance body, a transparent process combining both facilitative and review functions, adequacy and proportionality of consequences. 	
Collective delivery of targets	<ul style="list-style-type: none"> • The Protocol should recognise that some Parties will deliver their commitments collectively. 	To the extent that the collective delivery of targets requires specific provisions/specific treatment in the transparency and accountability framework defined through detailed rules in decisions after COP21, this must be taken into account in the elaboration of those rules (see above).
Entry into force	<ul style="list-style-type: none"> • When depositing the instrument of ratification, Parties should also submit the most recent set of annual emissions inventories, covering at least the 	

	Provision in the Paris Protocol	Supporting decision(s) at or after COP 21
	<p>period 2010 – 2015.</p> <ul style="list-style-type: none"> • The Protocol should enter into force as soon as the mitigation commitments inscribed in the Paris Protocol by Parties who have already ratified cover at least 40 GtCO₂ equivalent of GHG emissions in 2015. • Possibility of prompt start by countries that have ratified pending entry into force. 	
Institutional issues	<ul style="list-style-type: none"> • The Protocol will have to provide for legal bases establishing its permanent bodies, in particular its new supreme decision-making body, subsidiary bodies, secretariat and compliance body. It should establish that the supreme decision-making body may establish further ad-hoc bodies to act in the implementation of the Paris Protocol. • It should also establish that the COP, Subsidiary Bodies and Secretariat to the Convention may act in the capacity of these new institutions established by the Paris Protocol. 	<ul style="list-style-type: none"> • When adopting the Paris Protocol, Parties also need to decide, at COP21, on the body/ies responsible for the elaboration of detailed rules, institutional governance etc. in the transition until entry into force, i.e. for preparing decisions to be endorsed and adopted by the new supreme decision-making body at its first session.
Standard clauses	<p>Including provisions on:</p> <ul style="list-style-type: none"> • Signature, ratification, accession, approval, entry into force • Authentic texts, depositary • General principles of decision-making and a legal basis for the elaboration and adoption of rules of procedure by the supreme decision-making body of the Protocol • Amendment procedure of the agreement and its annexes; simplified procedure for renewing and reviewing mitigation commitments • Standard provisions addressing the specific situation of REIOs and their members (requirement to make a declaration on the competence distribution; assurance that the implementation of the agreement does not interfere with the internal competence distribution; exercise of voting rights • Withdrawal, at the earliest after 	

	Provision in the Paris Protocol	Supporting decision(s) at or after COP 21
	expiration of at least one contribution's target horizon.	
Annex	Mitigation commitments listed alphabetically by Party, indicating which Parties intend to fulfil their commitment individually, and which will achieve the emission reduction collectively.	