United Nations

FCCC/SBI/2018/INF.8

Framework Convention on Climate Change

Distr.: General
22 November 2018

English only

Subsidiary Body for Implementation
Forty-ninth session
Katowice, 2–8 December 2018

Item 3(b) of the provisional agenda
Reporting from and review of Parties included in Annex I to the Convention
Compilations and syntheses of second and third biennial reports from Parties included in Annex I to the Convention

Compilation and synthesis of third biennial reports of Parties included in Annex I to the Convention

Executive summary

Report by the secretariat

Summary

This document contains a summary of the compilation and synthesis of the third biennial reports submitted to the secretariat by Parties included in Annex I to the Convention. The summary highlights key findings in relation to quantified economy-wide emission reduction targets; progress towards the achievement of those targets, including information on mitigation actions and their effects, estimates of emission reductions and removals and the use of units from market-based mechanisms and land use, land-use change and forestry activities; greenhouse gas emission trends and projections; and the provision of financial, technological and capacity-building support to developing country Parties.

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Abbreviations and acronyms

Annex I Party	Party included in Annex I to the Convention
Annex II Party	Party included in Annex II to the Convention
BR	biennial report
COP	Conference of the Parties
CO_2 eq	carbon dioxide equivalent
EIT Parties	Parties with economies in transition
GDP	gross domestic product
GHG	greenhouse gas
LULUCF	land use, land-use change and forestry
MBM	market-based mechanism
MRV	measurement, reporting and verification
NDC	nationally determined contribution
non-EIT Parties	Parties that do not have economies in transition
PaMs	policies and measures
PPP	purchasing power parity
REDD-plus	In decision 1/CP.16, paragraph 70, the Conference of the Parties encouraged developing country Parties to contribute to mitigation actions in the forest sector by undertaking the following activities: reducing emissions from deforestation; reducing emissions from forest degradation; conservation of forest carbon stocks; sustainable management of forests; and enhancement of forest carbon stocks

I. Mandate and approach

1. COP 17 decided that developed country Parties should submit their BRs two years after the due date of a full national communication.[1] BR3s were due for submission on 1 January 2018. The COP also decided that developed country Parties should use the "UNFCCC biennial reporting guidelines for developed country Parties" and the common tabular format for those guidelines for the preparation of their BRs.[2]

2. In addition, COP 17 requested the secretariat to prepare compilation and synthesis reports on the BRs.[3] The latest report is contained in document FCCC/SBI/2018/INF.8/Add.1 and provides a compilation and synthesis of the information provided in the submitted BR3s.[4] This document is an executive summary of that information.

II. Key messages from the compilation and synthesis of third biennial reports

3. **Annex I Parties are increasingly implementing mitigation PaMs that bring them closer to their 2020 targets.** The impact of these PaMs is manifested in the flattening of GHG emission trends by 2020 and beyond. Increasing levels of financial support provided by Annex II Parties to non-Annex I Parties could provide an incentive for a shift towards a low-emission and climate-resilient development pathway.

4. **The total GHG emissions of Annex I Parties have continued to decrease.** The emission trend shows that their total emissions have been on a relatively steady reduction pathway: excluding LULUCF they decreased by 13.0 per cent from 1990 to 2016 and by 4.4 per cent more recently, from 2010 to 2016. During the 1990–2016 reporting period, the total GHG emissions of Annex I Parties were highest in 1990; after 1990, a deep decrease in the emissions of EIT Parties more than offset the slow growth in the emissions of non-EIT Parties, which peaked in 2007. This was followed by a steep decline in Annex I Parties' total emissions in the period 2008–2009, reflecting the impact of the global economic and financial crisis, and a subsequent rebound in emissions in 2010.

5. **GHG emissions relative to economic output and population have also declined, which signals a continued decarbonization of societies and economies.** GHG emissions per unit of GDP using PPP have continued to decline at the same rate since 2010 for EIT and non-EIT Parties, following a period in which emissions per unit of GDP in EIT Parties declined more rapidly. GHG emissions per capita of EIT and non-EIT Parties converged in 2012 and have since stayed on a similar declining path.

6. **The total GHG emissions are projected to be roughly at the same level in 2020 as in 2016.** Compared with the 1990 level, a 11.4 per cent decrease in total GHG emissions excluding LULUCF and a 17.9 per cent decrease including LULUCF are projected for 2020 under the 'with existing measures' scenario, which takes into account implemented and adopted PaMs. The projections from 2016 (the latest available reporting year for GHG inventories) to 2020 show emissions increasing by 1.9 per cent, but this increase might be attributed in part to the fact that the projections reported in the BR3s are modelled using emission data for 2015 or earlier. The overall decline in GHG emissions since 1990 reflects primarily the impact of the economic transformation of EIT Parties in the 1990s and the strengthening of climate change mitigation actions by all Parties in the second half of the 2000s and in the 2010s.

7. **Annex I Parties are progressing towards their 2020 targets but gaps remain.** Individual Parties have made varying progress towards their 2020 targets: most Parties' emission levels are already below their 2020 targets; some Parties must make further efforts to meet their targets by strengthening implementation of their existing PaMs and using units from MBMs, if needed, and the contribution from LULUCF, if applicable; other Parties'

[1] Decision 2/CP.17, paragraph 13.
[2] Decisions 2/CP.17, paragraph 13, and 19/CP.18, paragraph 1.
[3] Decision 2/CP.17, paragraph 21.
[4] Information on the status of submission of BR3s is contained in document FCCC/SBI/2018/INF.14.

emissions remained above their base-year level, owing mainly to inadequacy of domestic PaMs, high marginal mitigation costs or energy system constraints – they indicated that the use of units from MBMs and, if applicable, the contribution from LULUCF are expected to make a sizable contribution towards achieving their targets.

8. **Climate-related legal, institutional and policy frameworks are being strengthened, reflecting lessons learned and responding to the requirement to prepare for the implementation of the Paris Agreement.** There is evidence in the BR3s that Parties are strengthening their institutional and policy frameworks, which should not only enable implementation of existing PaMs and achievement of quantified economy-wide emission reduction targets for 2020 but also pave the way for implementation of post-2020 NDCs under the Paris Agreement. Parties are treating climate change mitigation as a core issue on their national policy agenda and have developed substantial policy capacity with legal, institutional and policy frameworks, including top-level interministerial coordinating groups and other inter-institutional mechanisms.

9. **The portfolio of PaMs continues to expand thanks to strong political commitment.** The BR3s show a continuation of the trend observed from previous BRs of a growing, strengthening and diversifying portfolio of mitigation PaMs towards achieving the 2020 targets, which is now also being shaped by the increased ambition of the midterm targets communicated in NDCs under the Paris Agreement. The portfolio of Annex I Parties' PaMs is dynamic and, in many cases, reflects lessons learned from previous implementation cycles. Economic and fiscal instruments that attach a price to carbon, such as emissions trading and carbon and energy taxes, are delivering by far the most significant emission reductions. More Parties are starting to adopt carbon and energy taxes as they provide a price signal to businesses and consumers and help to support both climate mitigation and adaptation action through carbon revenue recycling. PaMs are driving innovation through policy instruments, such as multi-year carbon budgets, and competitive tendering for new renewable energy projects, rather than feed-in tariffs. A growing number of PaMs are focused on the electrification of transport and space heating, which has significant potential to reduce emissions when paired with low-carbon electricity generation and to increase energy efficiency. Parties are largely maintaining rather than increasing their use of regulatory measures and voluntary agreements.

10. **Transformational change towards low- and zero-carbon economies is on its way but the overall pace remains slow.** The BR3s are the first submissions since the entry into force of the Paris Agreement, and for the first time some Parties reported on both mid-term and long-term emission reduction goals. Emission reduction targets for 2020 are increasingly being seen not as an end point but as a waypoint on the trajectory towards the midterm and long-term targets under the Paris Agreement (NDCs for 2030 and carbon neutrality or net-zero emission targets, respectively). Parties reported in their BR3s mitigation actions primarily aimed at meeting their 2020 targets, but considerable attention was also given to actions aimed at meeting climate goals in 2030 and beyond. In the near term, however, the overall results demonstrate a clear need for additional action, as emission trajectories to 2020 and 2030 are projected to remain relatively flat, rather than to continue to decline, owing to other factors counteracting the impact of existing PaMs.

11. **Financial support is increasing year on year.** Total financial support provided by Annex II Parties increased by 13.3 per cent from 2013–2014 to 2015–2016, amounting to USD 49.4 billion in 2016. Although the overall impact of financial support provided by Annex II Parties on emissions trends and resilience is difficult to estimate, the trend in support provided may suggest the beginning of an urgently needed shift towards low-emission and climate-resilient development – away from carbon-intensive infrastructure investments. The largest share of the total financial support reported in the BR3s was categorized as climate-specific support, the bulk of it being financial support through bilateral, regional and other channels. Mitigation finance represented about two thirds of the climate-specific support, with the bulk of the rest being adaptation finance and cross-cutting (mitigation and adaption) finance. The share of core or general support (support provided to multilateral institutions that Parties cannot specify as being climate-specific support) reported in the BR3s is lower than that of support reported in the BR2s. The BR3s highlight the growing the role of private finance, with 13 Annex II Parties providing quantitative information in various degrees of

detail. In terms of sectoral distribution, the information provided suggests that the largest amount of funding was provided to the energy sector, followed by transport, agriculture, forestry, industry, and water and sanitation.

12. **Support for technology transfer activities has remained stable.** In the BR3s, Annex II Parties reported on a similar number of activities for the provision of technological support to developing countries to that reported in the BR2s. A number of EIT Parties also provided information on their voluntary support activities. The level of support reported as provided for adaptation technology activities remained similar to that reported in the BR2s. Asia has become the predominant recipient of technology transfer. It was also noted that more than 45 per cent of projects covered the least developed countries and more than 45 per cent small island developing States. Most activities continued to be focused on mitigation in the energy sector and adaptation in the agriculture sector, and were predominantly related to the transfer or deployment of mature climate technologies.

13. **Capacity-building is increasingly being geared towards adaptation and addresses multiple sectors.** Of the capacity-building activities reported, twice as many are aiming to build capacity for adaptation as for mitigation. In addition, numerous activities address capacity-building in multiple sectors, and a minority are focusing on technology development and transfer. A number of Annex I Parties highlighted that capacity-building support is often delivered together with climate finance support. The largest share of capacity-building activities in 2015–2016 took place in Africa, Eastern Europe and, to a lesser degree, Latin America and the Caribbean, which saw increases in their share of the reported activities in 2015–2016 compared with 2013–2014, while the proportions of multiregional or global activities and activities in Asia-Pacific decreased. Areas receiving increased support include REDD-plus, readiness for and access to climate finance, NDC implementation, and transparency.

14. **While technology transfer, together with capacity-building support, is focusing on the needs of developing countries in the lead-up to 2020, it is also helping to create and strengthen their institutional and policy frameworks for action after 2020.** The Paris Agreement has led to a stronger international focus on technology transfer and capacity-building for mitigation and adaptation, including providing the institutional and systemic support developing countries need to establish the frameworks and policies for the implementation of their post-2020 NDCs and to develop an MRV system that can properly assess the effectiveness of their mitigation actions. The BR3s show that the pre-2020 period is essential for building capacity for transparency through support for international programmes and partnerships that deliver soft technology transfer, often in combination with capacity-building. Such support is also helping to create and strengthen the institutional and policy frameworks of developing countries so as to enable them to take action after 2020 as well.

15. **The quality of biennial reporting under the Convention has continued to improve.** The completeness and transparency of the information reported in the BR3s has improved compared with the BR2s.[5] To a large extent, the improvements are a result of the effective functioning of the MRV system under the Convention and, in particular, the technical review of BRs. Parties addressed many of the recommendations of expert review teams and reported more information in greater detail on their mitigation actions and provision of financial, technological and capacity-building support. In addition, Parties have deepened their understanding of how their climate policies are performing over time and how they affect emission trends, which was reflected in the enhanced reporting. Also, many Parties not included in Annex II to the Convention (mostly EIT Parties) have gone beyond the mandatory requirements of the Convention and have started to report on a voluntary basis finance, technology transfer and capacity-building support to developing countries. Overall, the improved quality of the reported information suggests that Parties are increasingly moving towards data-driven policymaking on climate change at the national level (e.g. on emissions trading) and are enhancing the transparency of the information that they share at

[5] Conclusion based on a comparison of the number of recommendations of expert review teams on the completeness and transparency of information provided in the BR2s and BR3s of 16 Parties whose technical review reports were published by 31 October 2018.

the international level on their efforts to mitigate emissions and support developing country Parties' action on climate change. Notwithstanding such improvements, reporting quantitative estimates of the mitigation impact of individual PaMs continues to be a major challenge for most Parties.

III. Executive summary

A. Quantified economy-wide emission reduction targets

16. All Annex I Parties, except Turkey, have communicated their quantified economy-wide emission reduction targets for 2020[6] and reported these targets in their BR3s. Each target is stipulated as a percentage reduction in absolute GHG emissions from the base-year level to be achieved by 2020 and is supported by information on assumptions and conditions, base year, coverage of gases and sectors, the role of LULUCF, if included in the target, and the use of units from MBMs, if envisaged.

17. Although Parties are required to report ex post information relevant to assessing progress towards their targets, including total annual GHG emissions and the contribution from LULUCF and MBMs, there is no specific guidance outside the Kyoto Protocol rules on accounting for such emissions and contributions to demonstrate the achievement of the 2020 targets, which would ensure, for instance, the avoidance of double counting of units from MBMs across Parties.

18. Most Parties have taken on multiple targets: one that is unconditional (independent of future circumstances) and one that is more ambitious but conditional (contingent on certain conditions, such as treaty provisions or pledges made by other Parties). Parties did not report in their BR3s whether any of the conditions for an increase in their ambition, attached to their conditional targets, had been met so far.

19. Many Parties reported in their BR3s information on the post-2020 targets communicated in their NDCs under the Paris Agreement. Several Parties also reported on their long-term mitigation goals, typically for 2050, highlighting that the 2020 targets are part of their national climate policies setting medium- to long-term trajectories towards more substantial emission cuts and the transition to low- or zero-carbon economies.

20. An overview of Parties' base years and unconditional and conditional targets for 2020, 2030 and 2050 is provided in the table below.

Annex I Parties' greenhouse gas emission reduction targets

	Quantified economy-wide emission reduction target for 2020 (reduction from base-year emission level)			*GHG emission reduction target for 2030 as communicated in NDC under the Paris Agreement unless otherwise noted (reduction from base-year emission level)*			*GHG emission reduction long-term target or objective (reduction from base-year emission level)*	
Party	*Base year*	*Unconditional*	*Conditional*	*Base year*	*Unconditional*	*Conditional*	*Base year*	*Target/objective*
Australia	2000	5%	15–25%	2005		26–28%		
Belarus	1990		5–10%	1990	At least 28%			
Canada	2005		17%	2005	30%		2005	At least 80%
European Union	1990	20%	30%	1990	At least 40%		1990	80–95% by 2050
Iceland	1990	20%	30%	1990	40%			
Japan	2005	At least 3.8%		2013	26%		2010	At least 70% by 2050

[6] Contained in document FCCC/SBSTA/2014/INF.6.

	Quantified economy-wide emission reduction target for 2020 (reduction from base-year emission level)			*GHG emission reduction target for 2030 as communicated in NDC under the Paris Agreement unless otherwise noted (reduction from base-year emission level)*			*GHG emission reduction long-term target or objective (reduction from base-year emission level)*	
Party	*Base year*	*Unconditional*	*Conditional*	*Base year*	*Unconditional*	*Conditional*	*Base year*	*Target/objective*
Kazakhstan	1990	15%		990	15%	25%	1990	25% by 2050
Liechtenstein	1990	20%	30%	1990	40%			
Monaco	1990	30%		1990	50%		1990	80% and carbon neutral by 2050
New Zealand	1990	5%	10–20%	2005	30%		1990	50% by 2050
Norway	1990	30%	40%	1990	40%		1990	80–95% by 2050 and carbon neutral by 2030
Russian Federation	1990		15–25%	1990		70–75%		
Switzerland	1990	20%	30%	1990	50%		1990	70–85% by 2050
Turkey	No target for 2020			Up to 21% reduction from 'business as usual'				
Ukraine	1990		20%	1990	40%			Low-emission 2050 development strategy to support 2 °C target
United States	2005	In the range of 17%		2005	26–28% by 2025		2005	80% or more by 2050

B. Progress in achieving the quantified economy-wide emission reduction targets and use of units from market-based mechanisms

21. Parties reported on progress in achieving their targets in terms of both mitigation actions and the results achieved as reflected in their GHG emission trends and use of units from MBMs and contributions from LULUCF activities.

1. Greenhouse gas emission trends

22. For all Annex I Parties,[7] total aggregate GHG emissions decreased over the period 1990–2016 by 13.0 per cent excluding LULUCF and by 18.5 per cent including LULUCF. Over the same time period, emissions of EIT Parties decreased by 37.6 per cent without LULUCF and by 49.6 per cent with LULUCF, while emissions of non-EIT Parties decreased by 1.3 per cent without LULUCF and by 2.5 per cent with LULUCF.

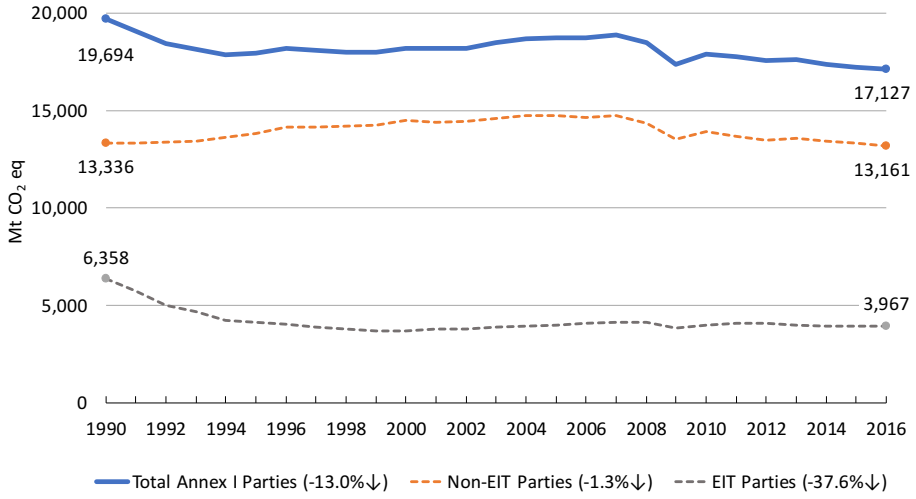
23. Figure 1 shows that in the 1990–2016 reporting period, total emissions of Annex I Parties were highest in 1990, mostly thanks to the high level of emissions of EIT Parties at that time. After 1990, a deep decrease in the emissions of EIT Parties more than offset the slow growth in the emissions of non-EIT Parties, which peaked in 2007. This was followed by a steep decline in Annex I Parties' total emissions in the period 2008–2009, reflecting the impact of the global economic and financial crisis, and a subsequent rebound in emissions in 2010.

[7] Latest available GHG emission data taken from the 2018 annual inventory submissions received as at 27 May 2018, including for the Annex I Parties that had not yet submitted their BR3s (Belarus, Ukraine and United States).

24. For all Annex I Parties, total aggregate GHG emissions decreased over the period 2010–2016 by 4.4 per cent excluding LULUCF and by 4.8 per cent including LULUCF. Over the same period, emissions excluding LULUCF for non-EIT Parties fell by 5.3 per cent, while those of EIT Parties decreased by 1.2 per cent.

Figure 1

Greenhouse gas emissions without land use, land-use change and forestry for Annex I Parties, 1990–2016



2. Progress towards targets

25. The assessment of Parties' individual progress in achieving their quantified economy-wide emission reduction targets is based on a comparison of the latest levels of GHG emissions reported by Parties, including the contribution of LULUCF, if included in the target, and the use of units from MBMs, where applicable and available, with the base-year emission level and the targeted emission level for 2020.

26. In this context, and given that all Parties' 2020 targets require a degree of emission reduction below the base-year level, the latest emission levels reported in the BR3s for 2015 can be placed into on the following categories:

(a) Below both the 2020 targeted emission level and the base-year emission level, which implies that the 2020 target is likely to be achieved, assuming emissions don't increase in the lead-up to 2020;

(b) Between the base-year emission level and the 2020 targeted emission level, which implies that progress towards the 2020 target has been made but that further efforts are required to achieve it;

(c) Above the base-year emission level, which means that current emission trends diverge from the trajectory towards achieving the 2020 target. This could result from the inadequacy of domestic PaMs in reducing emissions and high marginal mitigation costs. It could also result from system constraints, such as almost carbon-free electricity production since the base year, leaving little room for improvement through decarbonization of the power generation mix, or dependence for economic and energy security reasons on carbon intensive domestic energy supply. Several Parties from this category indicated that they intend to use MBMs to meet their 2020 targets.

27. Taking into account emission levels up to 2015 and reported contributions from LULUCF as well as units from MBMs, individual Parties have made progress towards their 2020 targets to varying degrees:

(a) The emission levels of Australia, the EU, Japan, Kazakhstan and the Russian Federation were already lower than their respective 2020 targeted emission levels;

(b) The emissions levels in 2015 combined with the contributions from LULUCF and/or units from MBMs, where applicable, of Monaco and Switzerland indicate that while these Parties had made a good deal of the emission reductions needed to attain their 2020 targets, further efforts are needed to achieve those targets. Canada and Liechtenstein reported information that indicates that while they have made progress towards their targets, the bulk of the reductions needed to achieve their 2020 targets remain to be made;

(c) The 2015 emissions of Iceland, New Zealand and Norway were above their base year levels. These Parties intend to use contributions from LULUCF and units from MBMs to meet their respective targets.

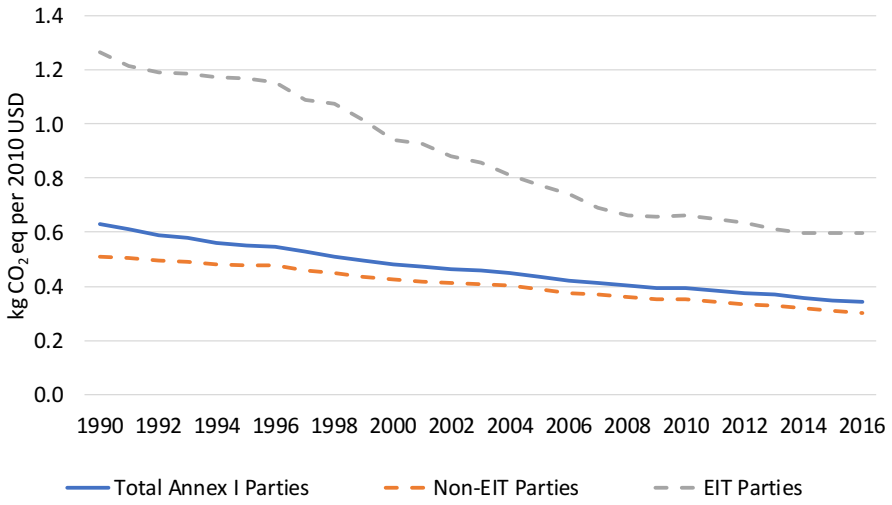
28. For 2014–2016, more than half of Parties reported increases in their GHG emissions (see figures 1 and 2 in the annex). Observed inter-annual deviations from long-term emission trends could have been be caused by weather conditions, fuel prices, economic circumstances and other factors. Given the relatively short time between now and 2020, it is important that Parties closely assess such deviations to ensure that they are only temporary and not an inflection point (see the changes in Annex I Parties' total GHG emissions for the entire period 1990–2016 in figures 3 and 4 in the annex).

29. Further insight into the trends in Annex I Parties' decarbonization of their societies and economies is provided by two aggregate indicators that combine emissions and additional statistical data: the level of GHG emissions per capita and the level of GHG emissions per unit of GDP using PPP, an economic comparison that accounts for the difference in the cost of living among countries. These indicators are useful for comparing emission levels among Parties and for evaluating trends.

30. In general, the emission trends have been influenced by a combination of demographic, economy-wide and sector-specific drivers, including, but not limited to, population changes (see para. 31 below), structural changes in Annex I Parties' economies (i.e. the shift in the ratio of manufacturing to services, which was particularly pronounced in EIT Parties); technological improvements in production processes and the shift to less carbon-intensive fossil fuels (i.e. from coal to natural gas); the increased share of renewable energy sources in electricity and heat generation; and increased energy efficiency.

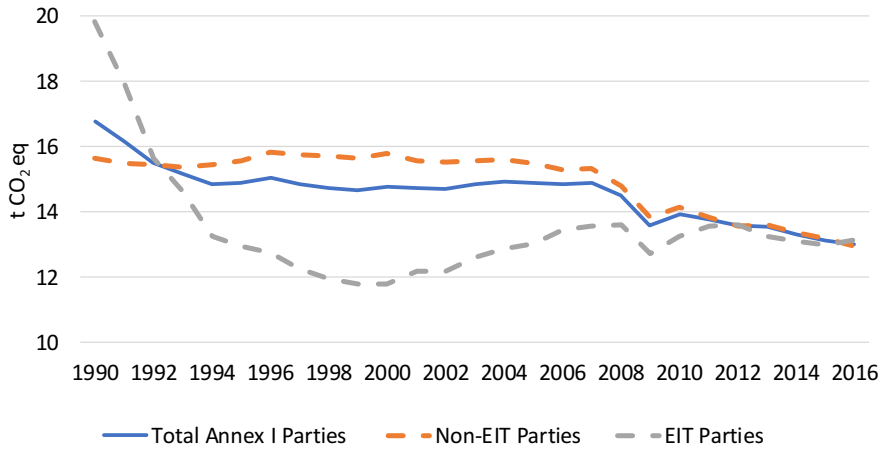
31. Annex I Party GHG emissions per unit of GDP using PPP dropped by 46 per cent between 1990 and 2016, and by 5 per cent between 2014 and 2016. This demonstrates the continued decoupling of emissions from economic growth due to improvements in energy efficiency, the increasing use of low-carbon and carbon-free energy sources and the increase in lower-emission economic activity (services). The gap in GHG emissions per unit of GDP using PPP between EIT and non-EIT Parties has narrowed since 1990; in EIT Parties they declined more rapidly than in non-EIT Parties until 2010 and at approximately the same rate as in non-EIT Parties since then (see figure 2).

Figure 2
Greenhouse gas emissions per unit of gross domestic product using purchasing power parity of Annex I Parties, 1990–2016



32. From 1990 to 2016, GHG emissions per capita of Annex I Parties dropped by 22.5 per cent. Between 2000 to 2012, GHG emissions per capita of non-EIT and EIT Parties converged, while between 2012 and 2016 they remained roughly the same (see figure 3). The 1990–2016 demographic context is important here: the population of Annex I Parties increased by 12 per cent – that of EIT Parties decreased by 6 per cent, and that of non-EIT Parties increased by 19 per cent – meaning that growth in population was not matched by a proportional increase in GHG emissions.

Figure 3
Greenhouse gas emissions per capita of Annex I Parties, 1990–2016



C. Mitigation actions

33. Overall, the BR3s show a continuation of the trend from previous BRs of a growing, strengthening and diversifying portfolio of mitigation PaMs for achieving the 2020 targets, which is now also being shaped by the increased ambition of the midterm targets communicated in NDCs under the Paris Agreement.

34. Most Parties treat climate change mitigation as a core top-level issue on their national policy agenda and have developed substantial policy capacity with legal and institutional

frameworks, including top-level inter-ministerial coordinating groups or other inter-institutional coordination mechanisms.

35. PaMs are being implemented not just at the national level but also at the regional, provincial, state and, increasingly, city level. In many cases, higher levels of government initiate the efforts and devolve responsibilities to lower levels of government. In other cases, provincial or state governments act independently, on their own initiative, which could encourage replication or stronger action at higher levels of government.

36. An effective national or regional portfolio of PaMs has several fundamental elements: top-level political commitment and strong policy capacity; quantified reduction targets and midterm and long-term strategies; a comprehensive set of PaMs targeting all sectors; and a rigorous and comprehensive system of MRV of emissions and the performance of PaMs.

37. The portfolio of Parties' PaMs is dynamic and, in many cases, reflects lessons learned from previous implementation cycles. The introduction of innovative instruments, the inclusion of new technologies, the broader adoption of PaMs proven effective elsewhere, the reformulation of existing PaMs and the abandonment of older, less effective PaMs have yielded an increasingly effective portfolio.

38. The dynamic nature of the PaMs reflects policymakers' evolving priorities and recognition of the need to further reduce emissions in line with the Paris Agreement, cut costs, diminish the administrative burden and address non-climate objectives and benefits (e.g. energy security; job creation; economic competitiveness; air, water and soil quality) as lessons are learned and market and technological conditions evolve.

39. At a strategic level, Parties are seeking to mitigate emissions using a combination of the following categories of instrument:

(a) Economic and fiscal instruments that introduce carbon pricing through energy and carbon taxes, emissions trading systems and competitive tendering of emission reductions from accredited projects, and other fiscal incentives;

(b) Framework targets and burden-sharing commitments that establish either legally binding (i.e. mandatory) or indicative (i.e. voluntary) goals for direct or indirect reduction of GHG emissions across sectors (e.g. national emission limitation or reduction targets, multi-year carbon budgets, renewable energy share in final energy consumption, energy efficiency improvement targets);

(c) Sector-specific regulations (e.g. emission, fuel or performance standards, use of best available techniques, management practices);

(d) Voluntary actions, information and education programmes, and research and development.

40. Economic and fiscal instruments that attach a price to carbon, such as emissions trading and carbon and energy taxes, are delivering by far the most significant emission reductions. The use of carbon or energy taxes has been on the rise in recent years, with 10 Annex I Parties using carbon pricing in conjunction with a carbon revenue system and some recycling the revenue into specific climate mitigation and adaptation measures.

41. Sector-specific regulatory policies have also proven effective in many sectors and are continuing to be developed and strengthened. Many Parties are increasingly adopting or expanding PaMs relying on economic or fiscal instruments and framework targets that impact a wide range of sectors. Framework targets capture broader climate and energy goals and set overarching strategies. While they have been used most commonly by the European Union, other Parties have also started using them to define targets such as net-zero emissions by 2050 or long-term renewable energy goals. A less common approach, but one slowly gaining traction, is multi-year carbon budgets setting GHG emission limits over specific time periods.

42. Voluntary actions are being undertaken by public or private sector organizations to directly or indirectly reduce GHG emissions, for instance energy efficiency improvements in industry and public buildings, development and distribution of low-carbon products or services, substitution of fluorinated gases in cooling and heating equipment, ecodesign schemes and green public procurement. A large array of information and education activities,

mostly on the demand or consumer side, are promoting, for instance, sustainable transport, renewable energy sources, energy savings, and waste prevention and reuse. Research activities have been focused on the energy and agriculture sectors.

43. Some 79 per cent of the reported PaMs are based on a single instrument type: 33 per cent use only regulatory instruments, 24 per cent economic instruments, 7 per cent fiscal instruments, 7 per cent information instruments and 4 per cent voluntary agreements.

44. The PaM profile varies widely among Parties, for example with regard to the sectors and gases targeted, the instruments involved and the scale of their estimated mitigation impacts. Of the 2,012 PaMs reported in the BR3s, about half target only the energy sector (30 per cent) or only transport (20 per cent). Considerably fewer are aimed at the other sectors: waste management or waste (8 per cent), agriculture (8 per cent), LULUCF (5 per cent) and industry or industrial processes (5 per cent).

45. PaMs focused on the energy sector are delivering the greatest emission savings and are directly or indirectly addressing the need to increase the efficiency of energy end use and decrease the carbon intensity of energy supply by deploying renewable energy capacity and shifting to less carbon-intensive fossil fuels (i.e. from coal to natural gas).

46. The transport sector, in which reducing GHG emissions has been a challenge in the past, is experiencing some innovation, particularly around electric vehicles and the related infrastructure. PaMs targeting the transport sector are projected to contribute 5 per cent of the total emission reductions resulting from mitigation actions by 2020. Increasingly innovative transport PaMs are having a positive impact.

47. PaMs directed at forestry and LULUCF seek to reduce emissions from sources and enhance removals from sinks through programmes promoting afforestation, reforestation and sustainable management of forests, grassland, wetlands and cropland. There are also programmes to prevent forest fires, protect against natural disturbances, protect carbon soil and increase green urban areas.

48. Institutional frameworks, such as a rigorous and comprehensive national or regional system of MRV of emissions and performance of PaMs, are necessary to maximize the relevance, effectiveness, efficiency and sustainability of the PaM portfolio. An effective MRV system has a dual role. First, it helps to ensure and promote progress towards, compliance with and responsibility or accountability for meeting commitments and complying with regulations. This is especially important as more governments (at all levels) and private sector organizations take on formal responsibilities and commitments for mitigating climate change. Second, it alerts to the need for possible mid-course revision or strengthening of PaMs if the results differ from the expected performance.

D. Greenhouse gas emission projections

49. Annex I Parties' aggregate GHG emissions without LULUCF, including the effect of implemented and adopted PaMs, are projected to be 11.4 per cent lower in 2020 than in 1990. For the 40 Parties that reported emission projections with LULUCF, emissions in 2020 are forecast to be 17.9 per cent lower than in 1990. The projected trend from 2016 (the latest reported year) to 2020 shows emissions increasing by 1.9 per cent. It should be noted that this increase could be attributed in part to the fact that the projections reported in the BR3s are modelled using emission data for 2015 or earlier.[8]

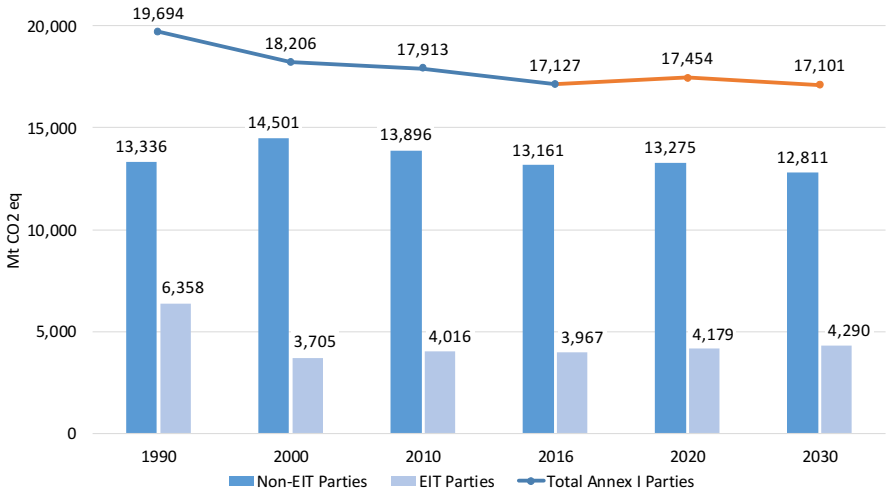
50. Emissions in 2030 are projected to be 13.2 per cent lower than in 1990 owing to a further 2.1 per cent drop in emissions after 2020, reflecting in part the effects of the increasing scope and strengthening of PaMs. For the 40 Parties that reported emission projections with LULUCF, emissions in 2030 are forecast to be 18.9 per cent lower than in 1990.

51. Figure 4 presents projected emissions for 2020 and 2030 under the 'with measures' scenario for both EIT and non-EIT Annex I Parties.

[8] For the three Parties that had not yet submitted their BR3s, projections from their latest available BRs were used, which are based on data for 2013 or earlier.

Figure 4

Historical trends and projected greenhouse gas emissions without land use, land-use change and forestry in 2020 and 2030 under the 'with measures' scenario for Annex I Parties



52. Emissions from all sectors except industrial processes are projected to be lower in 2030 than in 1990. Notably, emissions from transport are also projected to be lower by both 2020 and 2030, a break from the past near-continuous emission growth in the sector in the past. Net removals from the LULUCF sector in 2030 are projected to be below the 2020 projected level but still well above the 1990 level.

53. GHG emissions from international bunker fuel use are projected to increase significantly – by 50.5 per cent from 1990 to 2020 and a further 11.4 per cent between 2020 and 2030, according to the data reported by 25 Parties.

54. While Parties used different approaches to project their GHG emissions, all reported on the key drivers and assumptions behind their projections.

55. All Parties provided a 'with existing measures' scenario, but not all Parties provided a 'with additional measures' or 'without measures' scenario. For the Parties that supplied a 'with additional measures' scenario, emissions are projected to be 3.2 and 9.3 per cent lower than under the 'with existing measures' scenario in 2020 and 2030, respectively. Significant additional emission reduction measures are therefore being considered by Parties that have determined that they might not attain their 2020 targets with existing PaMs alone or by Parties that have identified policy infrastructure needed to deliver further emission reductions after 2020.

E. Provision of financial, technological and capacity-building support to developing country Parties

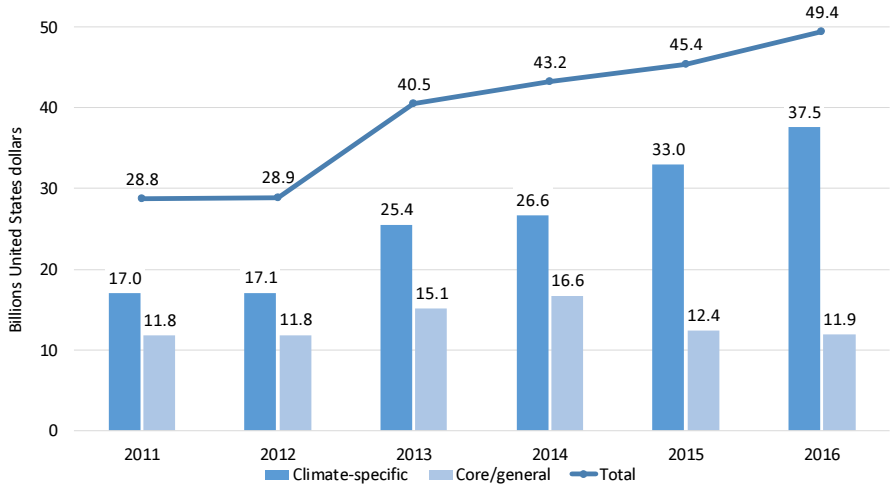
1. Financial support

56. The total financial contributions reported in the BR3s consist of climate-specific contributions (for mitigation or adaptation, cross-cutting or other) and core or general contributions (support provided to multilateral institutions that Parties cannot specify as being climate-specific support).

57. Annex I Parties reported a clear and significant year-on-year increase in their provision of financial support from 2013–2014 to 2015–2016, with 62 and 74 per cent, respectively, on average being climate-specific support (see figure 5). The total financial support provided by Annex II Parties saw an increase of 13.3 per cent from 2013–2014 to 2015–2016, amounting to USD 49.4 billion in 2016.

Figure 5

Financial contributions and their thematic distribution reported by Annex I Parties in biennial report common tabular format table 7 for 2011–2016



58. On average, the thematic distribution of climate-specific support reported in the BR3s is as follows: support for mitigation, 67 per cent; support for adaptation, 15 per cent, cross-cutting support (mitigation and adaptation finance), 14 per cent; and the remaining 4 per cent classified as other.

59. The largest portion of climate-specific funding still comes through bilateral, regional and other channels, with a moderate increase in climate-specific funding reported as coming through multilateral channels. A number of Annex I Parties also included quantitative information on climate-related private finance in their BR3s.

2. Technological support

60. Annex I Parties have continued to provide technological support to developing country Parties primarily in reducing GHG emissions through renewable energy and energy efficiency technologies. The transfer of adaptation technology, which is less of a focus, targets adaptation planning and support for disaster risk reduction.

61. More than half of all reported technology activities were for the transfer of mature climate technologies, reflecting a pattern similar to that observed in the BR1s and BR2s.

62. The majority of activities reported focused on soft technology transfer through cooperation programmes and innovation centres, highlighting the significant training and capacity-building elements of technology transfer.

63. The Asia-Pacific received the greatest number of the reported technology activities, reflecting a new trend since the BR2s, when it was the case for Africa.

3. Capacity-building support

64. Capacity-building activities focused on adaptation were more frequently reported than those for mitigation. However, some new and emerging areas of capacity-building were reported on, such as REDD-plus, readiness for and access to climate finance, NDC implementation, and transparency. Numerous activities address capacity-building in multiple sectors.

65. The largest share of capacity-building activities reported in the BR3s took place in Africa, while the shares of the reported capacity-building taking place in Eastern Europe and, to a lesser degree, in Latin America and the Caribbean, increased since the BR2s.

66. It is clear from the BR3s that the pre-2020 period is essential for building capacity for transparency-related activities by providing support for establishing the institutional frameworks and policies needed to implement NDCs and to develop an effective MRV

system for post-2020 international programmes and partnerships such as the Capacity-building Initiative for Transparency.

67. Meanwhile, an increasing number of EIT Parties are starting to voluntarily report on the level of finance, technology transfer and capacity-building support they have provided to both developing countries and other EIT Parties.

Annex

Changes in individual Annex I Parties' greenhouse gas emissions

Figure 1

Changes in total emissions without land use, land-use change and forestry of individual Annex I Parties, 2014–2016

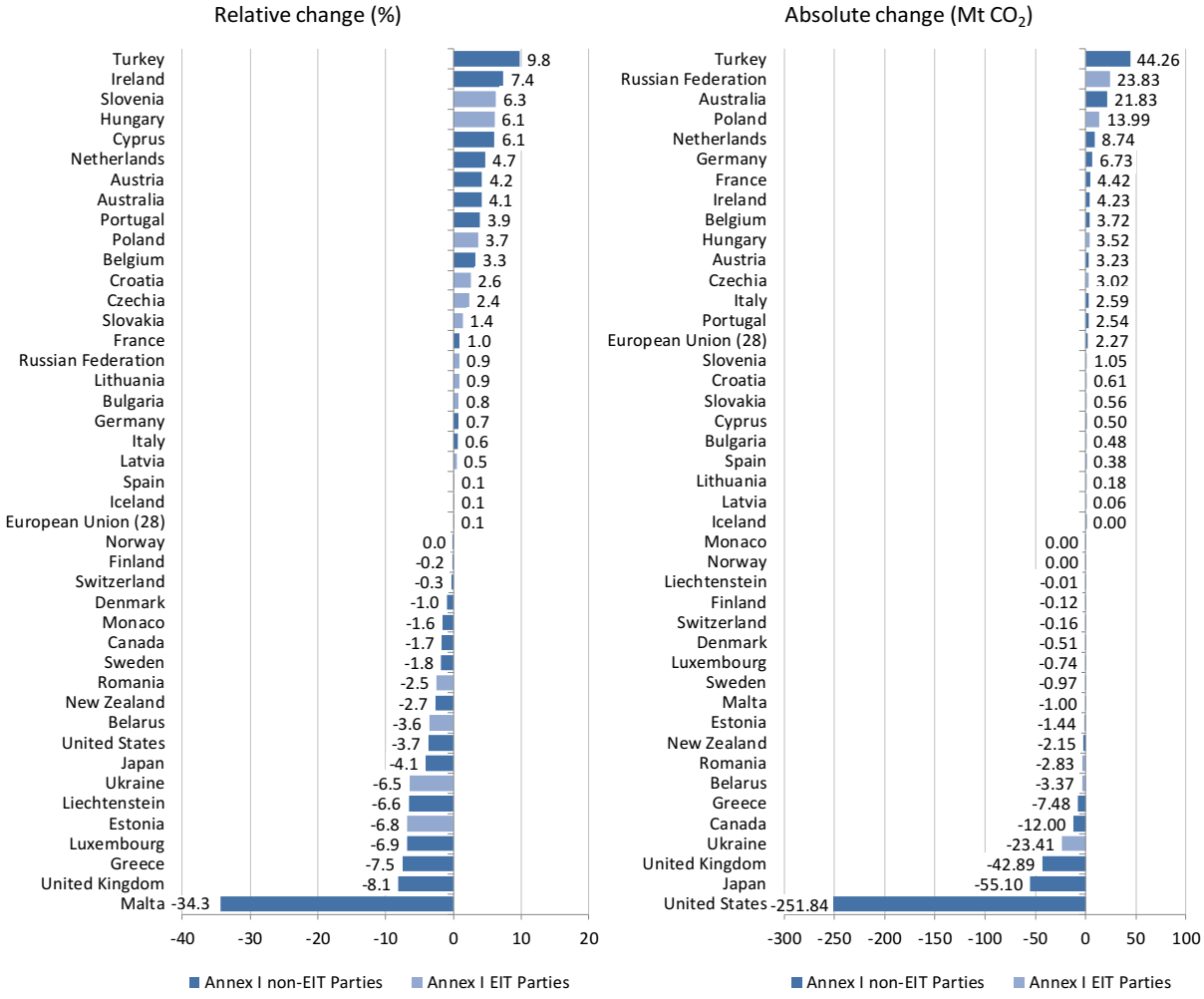


Figure 2

Changes in total emissions with land use, land-use change and forestry of individual Annex I Parties, 2014–2016

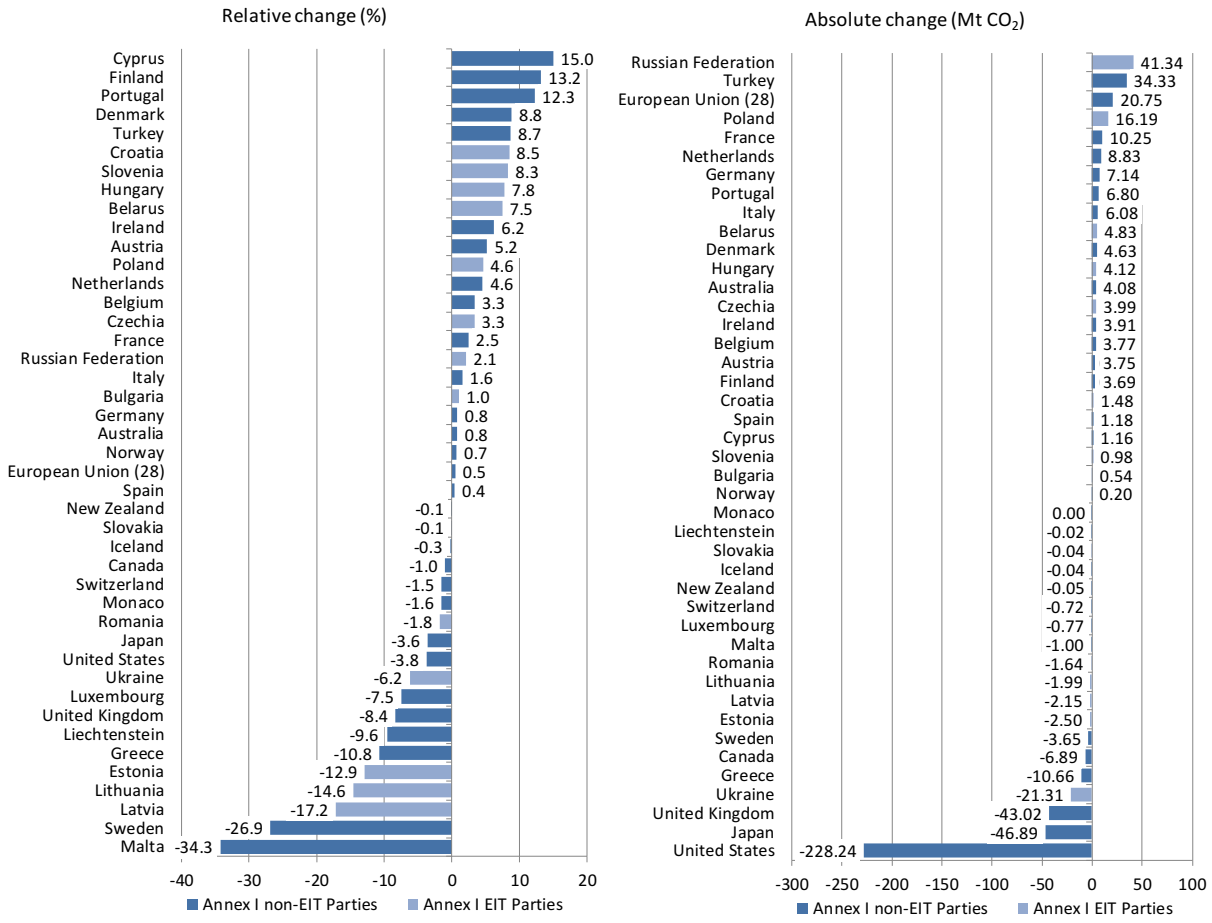


Figure 3

Changes in total emissions without land use, land-use change and forestry of individual Annex I Parties, 1990–2016

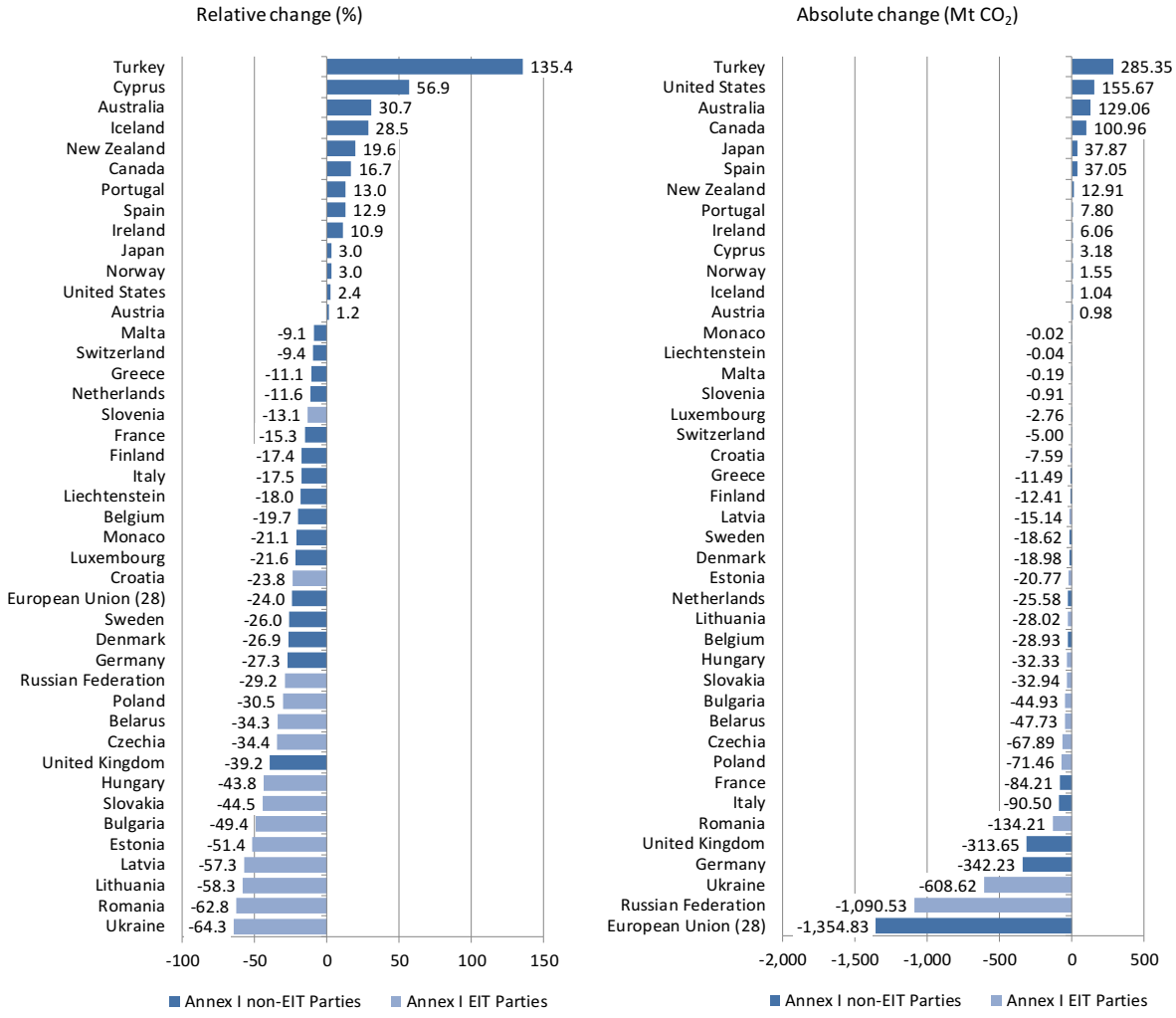


Figure 4

Changes in total emissions with land use, land-use change and forestry of individual Annex I Parties, 1990–2016