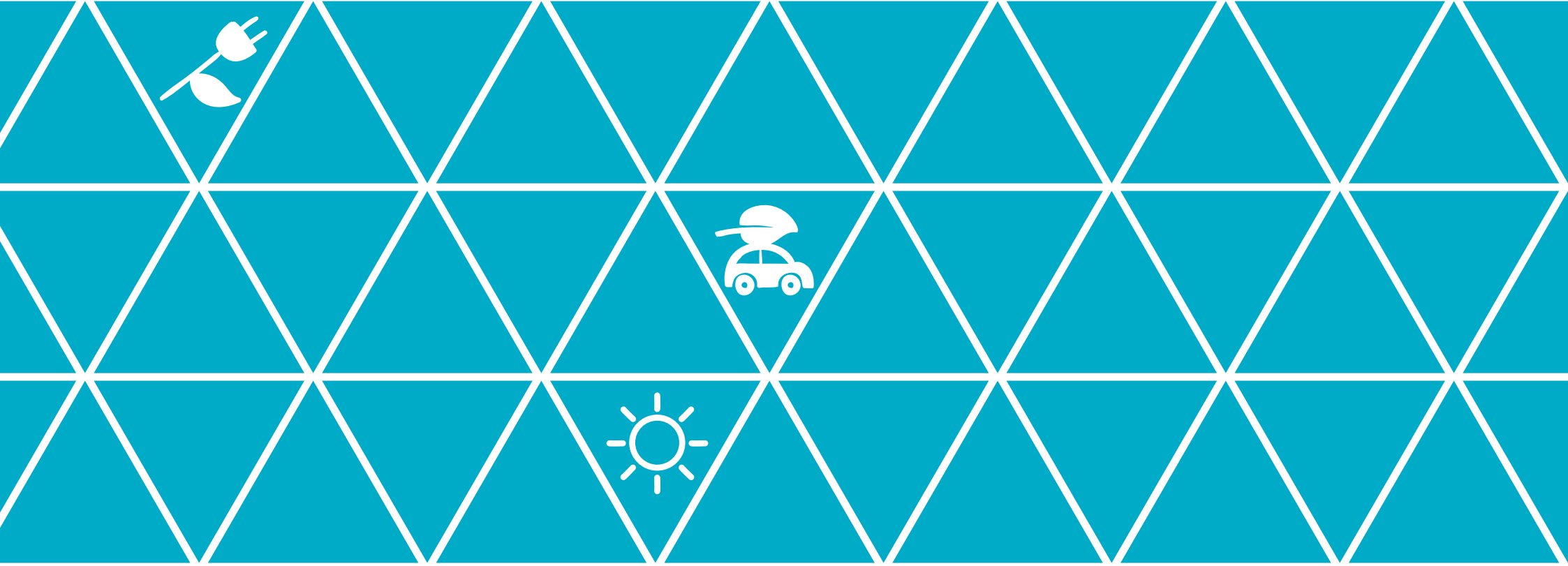




# Turkey's Third Biennial Report

under the United Nations  
Framework Convention  
on Climate Change

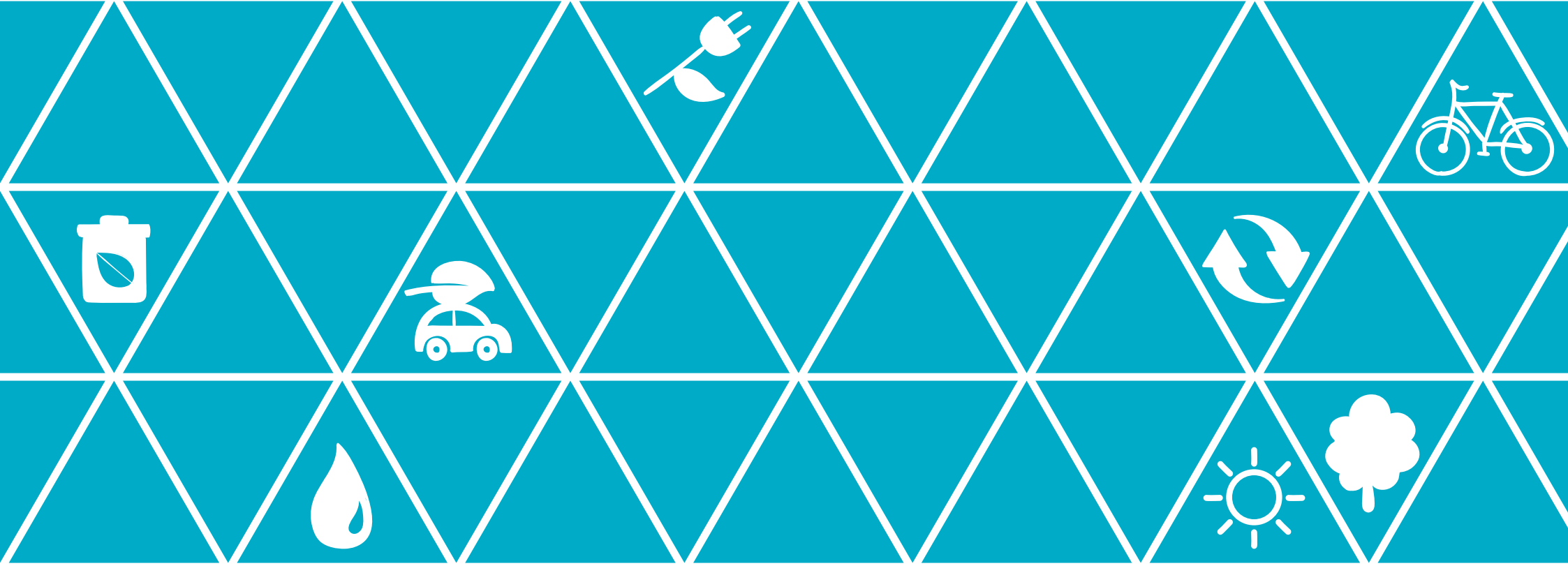
DECEMBER 2018



This report has been prepared in the context of the Project “Support for the Preparation of Turkey’s Seventh National Communication (7th NC) and Third Biennial Report (3rd BR) to United Nations Framework Convention on Climate Change (UNFCCC)”, executed by the Republic of Turkey Ministry of Environment and Urbanization (MoEU), implemented by the United Nations Development Programme (UNDP), with the financial contribution of Global Environment Facility (GEF) and in-kind contribution of the Republic of Turkey Ministry of Environment and Urbanization (MoEU).



Empowered lives.  
Resilient nations.



# Turkey's Third Biennial Report

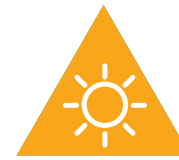
under the United Nations  
Framework Convention  
on Climate Change



7. Ulusal  
.Bildirim ve  
3. İki Yıllık Rapor Hazırlanmasına  
Destek Projesi

DECEMBER 2018





## Table of Contents

List of Abbreviations	02
Chapter I: Introduction	04
I.A. National Circumstances	04
Chapter II: Information on Greenhouse Gas Emissions and Trends	06
Chapter III: Quantified Economy-Wide Emission Reduction Target	47
Chapter IV: Progress in Achievement of the Quantified Economy-Wide Emission Reduction Target	53
Chapter V: Projections	60
V.A. Without Measures / Business-As-Usual Scenario	60
V.B. With Measures / Mitigation Scenario	61
Chapter VI: Financial, Technological and Capacity-Building Support	61
VI.A. Finance	67
VI.B. Technology Development and Transfer	71
VI.C. Capacity-Building	72
Bibliography	73

## List of Abbreviations

AAU	Assigned Amount Unit
AFD	French Development Agency
BR	Biennial Report
AKTOB	Mediterranean Touristic Hoteliers and Investors Association
C10F18	Perfluorodecalin
C2F6	Hexafluoroethane
C3F8	Octafluoropropane
C4F10	Decafluorobutane
C4F8	Octafluorocyclobutane
C5F12	Dodecafluoropentane
C6F14	Perfluorohexane
c-C3F6	Hexafluoropropylene
CBAMCC	Coordination Board on Air Management and Climate Change
CER	Certified Emission Reduction
CF4	Carbon Tetrafluoride
CH <sub>4</sub>	Methane
CMP	Conference of the Parties Serving as the Meeting of the Parties to the Kyoto Protocol
CO	Carbon Monoxide

CO <sub>2</sub>	Carbon Dioxide
CO <sub>2</sub> -eq	Carbon Dioxide Equivalent
COP	Conference of the Parties
CRF	Common Reporting Format
EBRD	European Bank for Reconstruction and Development
EIB	European Investment Bank
ERU	Emission Reduction Unit
EU	European Union
GDNCNP	General Directorate of Nature Conservation and National Parks
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gas
GWh	Gigawatt Hour
HFCs	Hydrofluorocarbons
INDC	Intended Nationally Determined Contribution
IPCC	Intergovernmental Panel on Climate Change
IUCN	International Union for Conservation of Nature
KfW	Reconstruction Credit Institute



## List of Abbreviations

## IPPU Industrial Processes and Product Use

KT	Kiloton
LCER	Long-term Certified Emission Reduction
LULUCF	Land Use, Land Use Change and Forestry
MoD	Ministry of Development
MENR	Ministry of Energy and Natural Resources
MoEF	Ministry of Environment and Forestry
MFAL	Ministry of Food, Agriculture and Livestock
MFWA	Ministry of Forestry and Water Affairs
MoEU	Ministry of Environment and Urbanisation
MTMAC	Ministry of Transport, Maritime Affairs and Communications
N <sub>2</sub> O	Nitrous Oxide
NF <sub>3</sub>	Nitrogen Trifluoride
NIR	National Inventory Report
NMVOC	Non-Methane Volatile Organic Compounds
NOX	Nitrogen Oxide
ODA	Official Development Assistance
ODS	Ozone Depleting Substances
OECD	Organisation for Economic Cooperation and Development

OOF	Other Official Flows
PFCs	Perfluorocarbons
POPs	Persistent Organic Pollutants
SF <sub>6</sub>	Sulfur Hexafluoride
SMEs	Small and Medium Enterprises
tCER	Temporary Certified Emission Reduction
TOE	Tonne of Oil Equivalent
TUBITAK	Scientific and Technological Research Council of Turkey
TurkStat	Turkish Statistical Institute
TWh	Terawatt Hour
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNWTO	United Nations World Tourism Organisation
USD	The United States Dollar
WB	World Bank

## Chapter I: Introduction

Climate change has already proved itself as one of the biggest global threats to ecological and economical systems. According to the IPCC, “Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, and sea level has risen”.

All countries are under the thread of climate change without exceptions. Being one of the countries in the Mediterranean where severe climate change impacts are projected according to IPCC Turkey is expected to face severe impacts due to climate change. Turkey recognizes that climate change represents a pressing and complex problem that can lead to serious environmental and socio-economic consequences and that it has become one of the most significant threats to the lives of future generations due to its long-term and cross sectoral effects. Efforts are necessary to limit emissions of greenhouse gases, the main cause of anthropogenic climate change, and to pursue multilateral international cooperation as nations seek to reduce impacts from and adapt to climate change.

When the United Nations Framework Convention on Climate Change (UNFCCC) was adopted in 1992, Turkey, as an Organization for Economic Cooperation and Development (OECD) member, was included among the Annex I and Annex II countries which bear most of the burden of the commitments made under the agreement. However, Turkey did not engage actively in Convention implementation until 2001, following negotiations which resulted in UNFCCC parties agreeing that Turkey’s “special circumstances” should be recognized and that it could invoke the “common but differentiated responsibilities” principle under the Convention. As a result of decision 26/CP.7 of the UNFCCC adopted in 7<sup>th</sup> Conference of Parties (COP7) held in Marrakech in 2001, Turkey was removed from Annex II of the UNFCCC and State Parties were invited to recognize the special conditions which place Turkey in a different position from other Annex I countries. After this decision, Turkey became a party to UNFCCC on 24 May 2004. Then, it became an official party to the Kyoto Protocol on 26 August 2009. However, when Kyoto Protocol was adopted, Turkey was not in Annex-B as it was not a Party to the UNFCCC, thus it didn’t have any quantified

emission reduction or limitation targets. Nevertheless, Turkey undertakes significant activities toward decreasing emissions in the fields of energy efficiency, promotion of renewable energy, transportation and waste management. In addition, Turkey makes active efforts to participate in voluntary markets for emission credits through emission reduction projects.

With regards to reporting requirements, Turkey has submitted its First National Communication on Climate Change in 2007 and the Fifth National Communication on Climate Change where second, third, fourth and fifth communications were submitted together in 2013 to the UNFCCC. In 2016, Turkey submitted its Joint First and Second Biennial Report and Sixth National Communication. Hereby, following the provisions of Decision 2/CP.17 and 9/CP.18, Turkey submits its Third Biennial Report to the UNFCCC.

GHG emissions/removals data provided in the 7<sup>th</sup> National Communication is taken from latest GHG inventory of Turkey submitted on 14<sup>th</sup> April 2018. However, Turkey submitted its 3<sup>rd</sup> BR on 1st January 2018 and emissions/removals data from 2017 GHG inventory submission was provided in 3<sup>rd</sup> BR. Therefore, in order to ensure the consistency between 7<sup>th</sup> NC, 3<sup>rd</sup> BR and latest GHG inventory, Turkey’s 3<sup>rd</sup> Biennial report is now being updated based on GHG emission/removal data from Turkey’s 2018 GHG inventory submission. However, at the time of the resubmission BR3, the BR-CTF application did not allow to upload the latest year of the inventory (2016) due to the technical configuration of the BR-CTF application maintained by the Secretariat. For this reason, although GHG emissions/removals data in both NC7 and BR3 are based on the same CRF version (Submission 2018 v1), in the NC7, data for the period 1990–2016 is reported, while in the BR3 (CTF table 1) the year 2016 is not reported.

### I.A. National Circumstances

As explained in the Sixth National Communication, according to Turkey’s population was 56.47 million in 1990, and it reached 79.81 million as of 2016. The population is estimated to reach about 104.8 million in 2050. In Turkey, the urban population increases while a decline is observed in the rural population. Proportion of urban





## Chapter I: Introduction

population was 51.3% in 1990 and reached to 87.9% in 2016. Urban population growth and rapid urbanization have a significant effect on the increased demand for housing, energy, transportation, etc. Turkey with a 8,592 km long coastal border is located between the subtropical zone and temperate zone. Turkey is surrounded by sea on three sides, extension of the mountains and diverse nature of the landscape result in significant differences in climatic conditions from one region to the other.

Turkey has a growing economy and continues to grow. There is an increasing trend in GDP during 1990-2016 excepting 1994, 1999, 2001, and 2008 where economic crisis was experienced in the country. Total primary energy supply of Turkey has been 52.5 million TOE in 1990 which increased to 136.2 million TOE in 2016 (with 160% increase). Biggest share in 2016 total primary energy supply was oil with 31%, coal with 28.2% and natural gas with 28.1%. 12.4% was renewables. Only 0.8% of natural gas and 6.4% of oil was supplied from domestic production while 40.3% of coal was supplied from domestic production. Energy imports have a significant share in Turkey's account deficit. For this reason, Turkey has to use its limited energy resources in order to continue its sustainable development. Of 2016 total energy consumption 25% was in energy industry, 26% was in industrial sectors 21% was in transport sector and 29% was in other sectors. In 2016, Turkey's electricity generation was 274.4TWh. 33.1% of which was generated from hydro and other renewable sources (solar, wind and geothermal). Share of natural gas, coal and liquid fuels was 33.7%, 32.5% and 0.7% respectively. (MENR, 2017, TEIAS 2018)

According to the data in 2016 energy balance tables, final energy consumption was 104.6 million TOE. Of which, 32% was industrial sector consumption, 26% was transport sector, and 36% was other sectors' consumption. Transport sector energy consumption was 26.76 million TOE in 2016. The highest portion of energy consumption in transportation sector was road transportation with 92.9%, and it was followed by domestic aviation with 5.3%, pipeline with 1.1%, railways 0.5%, and domestic navigation with 0.2%. (MENR, 2017)

Waste generation per capita in Turkey has been decreasing since 1998 as a result of waste minimization campaigns. With the establishment of local waste associations introduced with

the Waste Management Action Plan and the landfills begun to be operated by this means, as of 2008 a rapid increase has been observed in the waste services provided in Turkey. In particular, with the Wastewater Treatment Action Plan prepared within the same year, the actions in the treatment of domestic and municipal wastewater in metropolis have been accelerated and a progress has been shown in the wastewater treatment in conjunction with the basin management works. Finally it worths mentioning that the National Recycling Strategy and Action Plan has been prepared and put into effect as of 2015.

Total arable agricultural land including perennial crop land in Turkey was 27.9 million hectare in 1990 and decreased to 23.7 million hectare in 2016. Although the livestock population decreased in 2016 as compared to 1990, there is an increasing trend since 2010. (TurkStat, 2018)

In Turkey, forests are managed according to the sustainable forest management principles and the country is one of the few countries in the world that has increased its forest areas. The forest area which was 20.2 million hectares in 1973 when the first forest inventory was carried out increased to 22.57 million hectares as of 2016. The annual net carbon accumulation increased to 18.97 million tons (69.57 million t CO<sub>2</sub>) in 2016. (NIR,2018 submission)

Turkey is the 6th most popular tourist destination in the world, attracting more than 30 million tourists annually and continuing to show positive growth year-on-year. The annual number of tourists has grown from approximately 5.4 million in 1990 to 31.4 million in 2016 and tourism revenue worth of 22.1 billion US \$ was generated in 2016. (TurkStat, 2018)

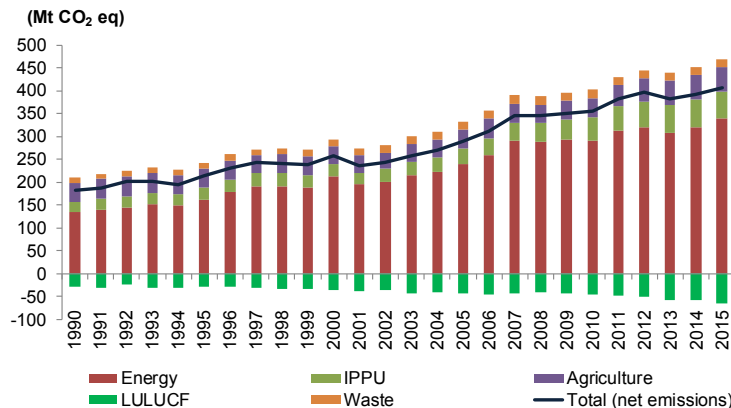
Turkey's consumable surface and ground water potential is 112 billion m<sup>3</sup> per year. Utilization rate of the current 112 billion m<sup>3</sup> of available water resources is still around 48.2%. The amount of water available per capita per year in Turkey is about 1,403 m<sup>3</sup>. 40 billion m<sup>3</sup> of the available water is used for irrigation, 7 billion m<sup>3</sup> is used for drinking and 7 billion m<sup>3</sup> is used in the industry. (DSİ,2018)

## Chapter II: Information on Greenhouse Gas Emissions and Trends

### II.1 Trends in greenhouse gas emissions

The latest GHG inventory of Turkey covering the years 1990-2016 was submitted to the UNFCCC Secretariat on April 14<sup>th</sup> 2018.

At the time of the submission of NC7 and resubmission of BR3, the BR-CTF application did not allow to upload the latest year of the inventory (2016) due to the technical configuration of the BR-CTF application maintained by the Secretariat. Therefore, GHG emissions data for the period 1990-2016 is reported in the NC7, while in the BR3 (CTF table 1) 1990-2015 period was reported (the year 2016 is not reported). To ensure consistency, the GHG emissions data in both NC7 and BR3 are based on the same CRF version (Submission 2018 v1). Chapter 2 of Turkey's latest NIR provides detailed information on the greenhouse gas emissions and removals trends for gases and sectors. Short summary of the GHG emissions and removals trends for the years 1990-2015 is given in BR3.



The Emission Inventory includes direct GHGs as carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), F gases, and GHG precursors as nitrogen oxides (NO<sub>x</sub>), non-methane volatile organic compounds (NMVOC), carbon monoxide (CO), and Sulphur dioxide(SO<sub>2</sub>) emissions originated from energy, industrial processes and product use agricultural activities, and waste. The emissions and removals from land use, land use change and

forestry (LULUCF) are also included in the inventory.

The national GHG emission inventory is prepared using 2006 IPCC Guidelines for National Greenhouse Gas Inventories.

According to the latest GHG inventory of Turkey, total GHG emissions were 469.9 Mt of CO<sub>2</sub> equivalents (CO<sub>2</sub> eq.) excluding the LULUCF

sector and 406.3 Mt CO<sub>2</sub> eq. including the LULUCF sector in 2015. This represents 123% and 123.5% increase as compared to 1990 level respectively.

In overall 2015 GHG emissions without LULUCF, the energy sector had the largest portion with 72.3%. The energy sector was followed by the industrial processes and product use (IPPU) sector with 12.7%, the agriculture with 11.4% and the waste with 3.6%.

## Chapter II: Information on Greenhouse Gas Emissions and Trends



There is an increasing trend in emissions from 1990 to 2015 for all sectors. Emissions from energy sector increased by 152.9% as compared to 1990. The increase in emissions from IPPU sector was 160.22%, and there were 26.53% and 53.14% increase in agriculture and waste sectors emissions respectively. Growing economy, population growth, and urbanization are the main drivers of the GHG emissions in Turkey. Urban population growth has a significant effect on the increased demand for housing, energy, transportation, etc. There is also increasing trend in CO<sub>2</sub> intake by LULUCF sector in 1990 to 2015 period. The main reasons of the increasing trend of removals by LULUCF sector are improvements in sustainable forest management, afforestation, rehabilitation of degraded forests, reforestations on forest land and conversion of coppices to high forests in forest land remaining forest land, efficient forest fire management and protection activities, conversions to perennial croplands from annual croplands and grasslands, and conversions to grasslands from annual croplands.

Fuel combustion emissions are the major source of Turkish anthropogenic GHG emissions. Total emissions from the energy sector for 2015 were 339.7 Mt CO<sub>2</sub> eq. and 98.5% of that amount is related to fuel combustion. Energy industries were the main contributor of GHG emissions from fuel combustion with 40.8%. It is followed by transport sector with 22.7%, manufacturing industries with 17.1%, residential and commercial/institutional sector with 16.5% and, agriculture/forestry/fishing sector with 2.9%.

The highest portion of the total GHG emissions without LULUCF is CO<sub>2</sub> emissions. The share of CO<sub>2</sub> emissions in total CO<sub>2</sub>-eq. was 81% in 2015. The share of CH<sub>4</sub> emissions was 11.1% and share of N<sub>2</sub>O emissions was 6.3% and in the share of F gases was 1.5% in the same year.

CO<sub>2</sub> emissions mainly originated from energy and IPPU sectors. In 2015, the highest portion of total CO<sub>2</sub> emissions was from energy sector with 86.3%. The remaining 13.4% originated from IPPU and 0.2% from agriculture. CO<sub>2</sub> emissions from energy increased from 125 Mt to 329 Mt between 1990-2015 (163.45% increase). CO<sub>2</sub> emissions from industrial processes increased 141.54% as compared to 1990 and reached to 51.2 Mt in 2015.

Methane emissions mainly originated from agriculture activities

and waste sector. In 2015, Methane emissions were 2.1 Mt. 57.8% of total CH<sub>4</sub> emissions are from agriculture, 28.5% from waste, and 13.7% from energy and IPPU sectors. For 1990-2015 periods CH<sub>4</sub> emissions generally increased in all sectors excepting energy sector. The increase in CH<sub>4</sub> emissions as compared to 1990 was 21.3% in agriculture sector, 55.71% in waste sector. Increase in emissions from agriculture was mainly related to enteric fermentation and manure management. Waste sector methane emissions increased in parallel to the increase in amount of managed waste. CH<sub>4</sub> emissions from energy sector decreased by 5.38% as compared to 1990 due to decrease in underground coal production.

Main source of N<sub>2</sub>O emission is agriculture sector. In 2015, N<sub>2</sub>O emissions were 0.1 Mt. 75.8% of N<sub>2</sub>O emission was from agricultural activities, 12.5% from energy, 6.9% from waste and 4.9% from IPPU sectors. The increase in N<sub>2</sub>O emissions as compared to 1990 was 33.3% in agriculture sector, 39.11% in waste sector, and 91.24% in energy sector. N<sub>2</sub>O emissions were mainly related to the use of fertilizers in agricultural soils, fuel combustion sector and wastewater treatment and discharge.

The emissions of F-gases have increased 1005% during 1990-2015 and reached to 6.9 Mt CO<sub>2</sub> eq. The main contributor of total F gas emissions is the substitution of ozone depleting substances (ODS) by HFCs gases and SF<sub>6</sub> emissions from electrical equipment.

Emissions of CO, NO<sub>x</sub>, NMVOC and SO<sub>2</sub> have also influence on climate change. CO emissions were 2.18 Mt, NO<sub>x</sub> emissions were 0.69 Mt, NMVOC emissions were 1.08 Mt and SO<sub>2</sub> emissions were 1.9 Mt in 2015. Energy sector was the main source of CO, NO<sub>x</sub>, and SO<sub>2</sub> emissions and responsible from 99% of the emissions. NMVOC emissions are mainly from agriculture and energy sector. The largest portion of NMVOC emissions is from agriculture with 38.2% and from energy with 25.7%.

### II.2 National inventory arrangements and changes

The Turkish Statistical Institute (TurkStat) is the responsible agency for compiling the National Greenhouse Gases Inventory. Turkey's greenhouse gas emissions inventory is prepared by "Greenhouse Gas Emissions Inventory Working Group" which is set up by the

Chapter II:  
Information on  
Greenhouse Gas Emissions  
and Trends

decision of the Coordination Board on Air Management and Climate Change (CBAMCC). The institutions involved in the GHG inventory working group are:

- Turkish Statistical Institute (TurkStat),
- Ministry of Energy and Natural Resources (MENR),
- Ministry of Transportation and Infrastructure (MoTI),
- Ministry of Environment and Urbanization (MoEU),
- Ministry of Agriculture and Forestry (MoAF),

TurkStat is the responsible organization for the coordination and implementation of national inventory activities from planning to management.

Responsibilities of the institutions involved in the national GHG inventory are shown in Table 1

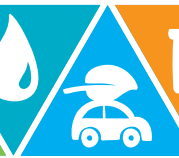
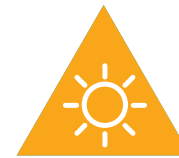


TABLE 1  
Institutions by  
Responsibilities for  
National GHG Inventory

Sector	CRF Category	Collection of Activity Data	Selection of Methods and Emission Factors	GHG Emission Calculation	Filling in CRF tables and preparing NIR	Quality control
Energy	1-Energy (Excluding 1.A.1.a-public electricity and heat production and 1.A.3-Transport)	MENR	TurkStat	TurkStat	TurkStat	TurkStat
		TurkStat	MENR	MENR	MENR	MENR
	Public electricity and heat production - 1.A.1.a	MENR MoTI TurkStat	MoTI	MoTI	MoTI	MoTI
	Transport					
Industrial Processes and Other Product Uses	2- IPPU (except F-gases) F-Gases	TurkStat MoEU	TurkStat MoEU	TurkStat MoEU	TurkStat MoEU	TurkStat MoEU
Agriculture	3-Agriculture	TurkStat	TurkStat	TurkStat	TurkStat	TurkStat
Land Use, Land Use Change and Forestry Waste	4-LULUCF 5-Waste	MoAF	MoAF	MoAF	MoAF,	MoAF
		TurkStat	TurkStat	TurkStat	TurkStat	TurkStat
Cross cutting issues						
Key category Analysis	TurkStat					
Uncertainty analysis	TurkStat					

The national GHG inventory is subject to an official consideration and approval procedure before its submission to the UNFCCC. The national inventory is subject to a two-step official consideration and approval process. The final version of the NIR and CRF tables is first approved by the TurkStat Presidency and published in the official TurkStat press release. Subsequently, The MoEU as National Focal Point to the UNFCCC provides final checks and approval of the CRF tables via CRF web application tool as a final step prior to its submission to the UNFCCC.

TurkStat, as the Single National Entity, is responsible from official inventory submission to UNFCCC, and also responsible for responding to the UNFCCC expert review team (ERT)

recommendations on national inventory improvement and ensuring they are incorporated in the current and following NIR(s) in the broader context of its continuous improvement.

Name and structure of some ministries were changed since the latest submission of biennial report in 2016.

Name of Ministry of Transportation, maritime affairs and and Communication was changes as Ministry of Transportation and Infrastructure. Also Ministry of Food, Agriculture and Livestock and Ministry of Forestry and Water Affairs were restructured under the a new Ministry named as Ministry of Agriculture and Forestry.

TABLE 1  
EMISSION TRENDS:  
SUMMARY  
(Part 1 of 4)

Source:  
Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS EMISSIONS	Base year <sup>a</sup>	1990	1991	1992	1993	1994	1995	1996	1997
	(kt CO <sub>2</sub> eq)								
CO <sub>2</sub> emissions without net CO <sub>2</sub> from LULUCF	146,507.20	146,507.20	153,538.02	159,065.85	167,301.87	163,783.17	178,310.25	195,750.70	208,023.00
CO <sub>2</sub> emissions with net CO <sub>2</sub> from LULUCF	117,526.58	117,526.58	122,917.34	136,050.82	137,354.82	132,089.99	149,349.79	166,329.34	178,049.03
CH <sub>4</sub> emissions without CH <sub>4</sub> from LULUCF	42,183.50	42,183.50	43,148.94	43,088.60	42,886.46	42,618.78	42,372.39	42,699.16	42,001.53
CH <sub>4</sub> emissions with CH <sub>4</sub> from LULUCF	42,203.66	42,203.66	43,160.86	43,106.73	42,909.40	42,676.02	42,383.98	42,721.85	42,011.20
N <sub>2</sub> O emissions without N <sub>2</sub> O from LULUCF	21,398.73	21,398.73	21,197.85	21,823.02	22,760.78	20,441.99	20,900.54	21,635.01	21,492.84
N <sub>2</sub> O emissions with N <sub>2</sub> O from LULUCF	21,436.50	21,436.50	21,232.19	21,863.45	22,806.38	20,512.21	20,942.66	21,686.44	21,542.79
HFCs	NO	NO	NO	NO	NO	NO	NO	NO	NO
PFCs	625.30	625.30	863.34	722.59	403.08	710.00	611.44	577.15	574.01
Unspecified mix of HFCs and PFCs	NO	NO	NO	NO	NO	NO	NO	NO	NO
SF <sub>6</sub>	NO	NO	NO	NO	NO	NO	NO	503.30	555.75
NF <sub>3</sub>	NO	NO	NO	NO	NO	NO	NO	NO	NO
<b>Total (without LULUCF)</b>	210,714.73	210,714.73	218,748.15	224,700.05	233,352.18	227,553.93	242,194.62	261,165.32	272,647.13
<b>Total (with LULUCF)</b>	181,792.04	181,792.04	188,173.72	201,743.59	203,473.68	195,988.23	213,287.87	231,818.08	242,732.78
<b>Total (without LULUCF, with indirect)</b>	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Total (with LULUCF, with indirect)</b>	NA	NA	NA	NA	NA	NA	NA	NA	NA

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	Base year <sup>a</sup>	1990	1991	1992	1993	1994	1995	1996	1997
	(kt CO <sub>2</sub> eq)								
1. Energy	134,327.90	134,327.90	139,276.71	145,377.56	152,693.95	149,313.39	162,696.10	179,801.83	191,782.50
2. Industrial processes and product use	22,893.94	22,893.94	24,864.09	24,338.16	24,865.48	24,508.75	26,128.67	26,944.72	27,820.36
3. Agriculture	42,402.30	42,402.30	43,282.64	43,437.65	44,009.35	41,682.28	40,987.45	41,721.85	39,827.87
4. Land use, land-use change and forestry <sup>(b)</sup>	-28,922.68	-28,922.68	-30,574.43	-22,956.46	-29,878.49	-31,565.70	-28,906.75	-29,347.24	-29,914.35
5. Waste	11,090.59	11,090.59	11,324.71	11,546.69	11,783.40	12,049.51	12,382.41	12,696.92	13,216.40
6. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO
<b>Total (including LULUCF)</b>	181,792.04	181,792.04	188,173.72	201,743.59	203,473.68	195,988.23	213,287.87	231,818.08	242,732.78



TABLE 1  
EMISSION TRENDS:  
SUMMARY  
(Part 2 of 4)

Source:  
Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS EMISSIONS	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
	(kt CO <sub>2</sub> eq)									
CO <sub>2</sub> emissions without net CO <sub>2</sub> from LULUCF	208,042.30	203,949.03	226,029.84	209,529.14	217,652.91	232,963.02	241,909.22	260,897.95	281,541.72	312,862.50
CO <sub>2</sub> emissions with net CO <sub>2</sub> from LULUCF	174,633.75	171,296.76	191,160.50	170,351.68	181,589.68	191,138.63	200,999.39	218,139.32	235,874.45	268,819.70
CH <sub>4</sub> emissions without CH <sub>4</sub> from LULUCF	42,257.90	43,653.17	43,484.24	42,879.95	40,840.76	42,960.65	43,650.41	45,468.20	47,127.92	49,652.22
CH <sub>4</sub> emissions with CH <sub>4</sub> from LULUCF	42,268.34	43,662.17	43,525.51	42,891.61	40,855.01	42,971.78	43,658.57	45,472.89	47,140.89	49,671.75
N <sub>2</sub> O emissions without N <sub>2</sub> O from LULUCF	22,985.25	23,294.90	22,596.29	20,510.48	20,624.52	22,456.60	23,350.36	23,697.07	25,296.86	24,602.73
N <sub>2</sub> O emissions with N <sub>2</sub> O from LULUCF	23,042.79	23,358.58	22,684.61	20,586.36	20,709.78	22,547.23	23,452.32	23,798.22	25,404.20	24,714.88
HFCs	NO	NO	115.66	232.00	417.19	628.80	909.37	1,146.88	1,424.19	1,713.19
PFCs	615.00	604.82	601.00	592.20	586.39	581.79	580.13	559.96	460.96	574.44
Unspecified mix of HFCs and PFCs	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
SF <sub>6</sub>	595.25	618.99	667.13	658.81	698.71	758.55	822.19	884.09	971.02	1,052.90
NF <sub>3</sub>	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
<b>Total (without LULUCF)</b>	274,495.70	272,120.91	293,494.15	274,402.58	280,820.48	300,349.42	311,221.69	332,654.16	356,822.67	390,457.97
<b>Total (with LULUCF)</b>	241,155.14	239,541.32	258,754.41	235,312.66	244,856.75	258,626.78	270,421.97	290,001.36	311,275.71	346,546.85
<b>Total (without LULUCF, with indirect)</b>	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Total (with LULUCF, with indirect)</b>	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
	(kt CO <sub>2</sub> eq)									
1. Energy	191,595.06	189,794.83	212,330.42	195,152.82	201,935.46	216,412.60	223,093.67	240,329.11	259,959.13	291,049.97
2. Industrial processes and product use	28,107.28	26,487.13	26,643.60	26,593.87	27,914.03	29,127.57	31,828.85	34,633.97	37,435.87	39,977.45
3. Agriculture	41,247.16	41,808.37	40,032.91	37,695.28	35,537.83	38,913.33	39,824.02	40,771.65	41,968.07	41,686.81
4. Land use, land-use change and forestry <sup>(b)</sup>	-33,340.57	-32,579.59	-34,739.75	-39,089.92	-35,963.74	-41,722.63	-40,799.72	-42,652.80	-45,546.96	-43,911.12
5. Waste	13,546.20	14,030.58	14,487.23	14,960.62	15,433.16	15,895.93	16,475.14	16,919.43	17,459.61	17,743.75
6. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
<b>Total (including LULUCF)</b>	241,155.14	239,541.32	258,754.41	235,312.66	244,856.75	258,626.78	270,421.97	290,001.36	311,275.71	346,546.85

TABLE 1  
EMISSION TRENDS:  
SUMMARY  
(Part 3 of 4)

Source:  
Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS EMISSIONS	2008	2009	2010	2011	2012	2013	2014	2015	Change from base to latest reported year
	(kt CO <sub>2</sub> eq)								(%)
CO <sub>2</sub> emissions without net CO <sub>2</sub> from LULUCF	310,396.70	316,771.03	319,528.40	344,745.50	354,134.76	346,780.97	357,559.96	380,858.10	159.96
CO <sub>2</sub> emissions with net CO <sub>2</sub> from LULUCF	269,708.25	272,606.08	273,417.50	296,499.86	304,637.17	289,422.81	299,230.49	317,002.72	169.73
CH <sub>4</sub> emissions without CH <sub>4</sub> from LULUCF	50,765.47	50,542.52	52,461.56	54,709.60	57,965.47	56,771.52	58,130.48	52,392.72	24.20
CH <sub>4</sub> emissions with CH <sub>4</sub> from LULUCF	50,815.30	50,550.36	52,467.16	54,715.71	57,983.16	56,791.22	58,135.13	52,397.82	24.15
N <sub>2</sub> O emissions without N <sub>2</sub> O from LULUCF	23,227.98	25,118.50	25,889.96	26,775.82	27,592.36	29,344.19	29,297.59	29,769.97	39.12
N <sub>2</sub> O emissions with N <sub>2</sub> O from LULUCF	23,374.21	25,268.98	26,038.63	26,922.87	27,769.10	29,524.59	29,470.32	29,951.30	39.72
HFCs	1,896.14	2,111.28	3,054.28	3,432.64	4,256.83	4,470.24	4,927.55	4,805.04	100.00
PFCs	527.72	259.26	461.74	480.36	359.06	270.60	255.42	119.72	-80.85
Unspecified mix of HFCs and PFCs	NO	NO	NO	NO	NO	NO	NO	NO	0.00
SF <sub>6</sub>	1,099.14	1,064.84	1,167.75	1,263.10	1,322.98	1,344.17	1,637.67	1,984.90	100.00
NF <sub>3</sub>	NO	NO	NO	NO	NO	NO	NO	NO	0.00
Total (without LULUCF)	387,913.15	395,867.43	402,563.69	431,407.02	445,631.48	438,981.70	451,808.67	469,930.44	123.02
Total (with LULUCF)	347,420.76	351,860.80	356,607.05	383,314.54	396,328.31	381,823.64	393,656.59	406,261.50	123.48
Total (without LULUCF, with indirect)	NA	NA	NA	NA	NA	NA	NA	NA	0.00
Total (with LULUCF, with indirect)	NA	NA	NA	NA	NA	NA	NA	NA	0.00
GREENHOUSE GAS EMISSIONS	2008	2009	2010	2011	2012	2013	2014	2015	Change from base to latest reported year
	(kt CO <sub>2</sub> eq)								(%)
1. Energy	288,443.90	293,982.21	292,323.66	313,375.15	320,114.01	308,771.37	321,255.33	339,721.86	152.90
2. Industrial processes and product use	41,932.10	43,438.20	49,215.31	54,413.15	56,780.54	59,809.23	60,204.41	59,574.33	160.22
3. Agriculture	39,739.66	40,557.33	42,826.37	45,125.81	50,610.34	53,627.96	53,742.13	53,650.01	26.53
4. Land use, land-use change and forestry(b)	-40,492.39	-44,006.63	-45,956.63	-48,092.48	-49,303.17	-57,158.06	-58,152.08	-63,668.94	120.13
5. Waste	17,797.49	17,889.68	18,198.35	18,492.92	18,126.59	16,773.13	16,606.80	16,984.25	53.14
6. Other	NO	NO	NO	NO	NO	NO	NO	NO	0
<b>Total (including LULUCF)</b>	<b>347,420.76</b>	<b>351,860.80</b>	<b>356,607.05</b>	<b>383,314.54</b>	<b>396,328.31</b>	<b>381,823.64</b>	<b>393,656.59</b>	<b>406,261.50</b>	<b>123.48</b>





TABLE 1  
EMISSION TRENDS:  
SUMMARY  
(Part 4 of 4)

Source:  
Submission 2018 v1.1,  
TURKEY

**Notes:**

(1) Further detailed information could be found in the common reporting format tables of the Party's greenhouse gas inventory, namely "Emission trends (CO<sub>2</sub>)", "Emission trends (CH<sub>4</sub>)", "Emission trends (N<sub>2</sub>O)" and "Emission trends (HFCs, PFCs and SF<sub>6</sub>)", which is included in an annex to this biennial report.

(2) 2015 is 33th the latest reported inventory year.

(3) 1 kt CO<sub>2</sub> eq equals 1 Gg CO<sub>2</sub> eq.

Abbreviation: LULUCF = land use, land-use change and forestry.

a. The column "Base year" should be filled in only by those Parties with economies in transition that use a base year different from 1990 in accordance with the relevant decisions of the Conference of the Parties. For these Parties, this different base year is used to calculate the percentage change in the final column of this table.

b. Includes net CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O from LULUCF.

TABLE 1 (cont.)  
EMISSION TRENDS: CO<sub>2</sub>  
(Part 1 of 9)

Source:  
Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	Base year <sup>(a)</sup>	1990	1991	1992	1993	1994	1995	1996	1997
	(kt)								
1. Energy	124,822.78	124,822.78	129,929.65	135,929.76	143,129.82	140,158.93	153,352.10	170,347.01	181,807.04
A. Fuel combustion (sectoral approach)	124,602.45	124,602.45	129,666.15	135,676.12	142,898.78	139,939.91	153,142.86	170,138.47	181,600.44
1. Energy industries	36,882.90	36,882.90	38,597.47	43,183.39	42,689.68	49,062.32	50,401.31	54,345.52	59,403.12
2. Manufacturing industries and construction	32,224.93	32,224.93	35,682.97	34,407.07	35,722.49	31,632.27	36,279.83	46,274.59	51,539.11
3. Transport	26,250.81	26,250.81	24,982.32	25,639.91	31,268.75	29,789.14	33,179.97	35,277.22	33,702.48
4. Other sectors	29,243.80	29,243.80	30,403.39	32,445.75	33,217.86	29,456.18	33,281.75	34,241.14	36,955.73
5. Other	IE	IE	IE	IE	IE	IE	IE	IE	IE
B. Fugitive emissions from fuels	220.20	220.20	263.37	253.51	230.92	218.89	209.11	208.41	206.48
1. Solid fuels	NE	NE	NE	NE	NE	NE	NE	NE	NE
2. Oil and natural gas and other emissions from energy production	220.20	220.20	263.37	253.51	230.92	218.89	209.11	208.41	206.48
C. CO <sub>2</sub> transport and storage	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
2. Industrial processes	21,197.08	21,197.08	23,144.31	22,649.01	23,516.52	23,142.40	24,505.44	24,840.61	25,642.62
A. Mineral industry	13,452.14	13,452.14	14,952.93	15,584.74	16,147.93	16,814.93	17,585.72	17,845.25	18,709.91
B. Chemical industry	1,060.35	1,060.35	994.04	973.14	880.69	747.41	891.36	832.65	880.94
C. Metal industry	6,501.23	6,501.23	7,006.91	5,927.82	6,313.97	5,406.13	5,825.54	5,939.25	5,809.44
D. Non-energy products from fuels and solvent use	183.37	183.37	190.44	163.32	173.93	173.93	202.82	223.46	242.33
E. Electronic industry									
F. Product uses as ODS substitutes									
G. Other product manufacture and use	NA	NA	NA	NA	NA	NA	NA	NA	NA
H. Other	NE, NA	NE, NA	NE, NA	NE, NA	NE, NA	NE, NA	NE, NA	NA	NE, NA

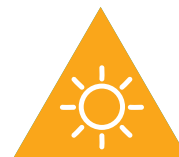


TABLE 1 (cont.)  
EMISSION TRENDS: CO<sub>2</sub>  
(Part 2 of 9)

Source:  
Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	Base year <sup>(a)</sup>	1990	1991	1992	1993	1994	1995	1996	1997
	(kt)								
<b>3. Agriculture</b>	459.95	459.95	436.20	458.75	626.74	452.60	425.92	534.13	532.00
A. Enteric fermentation									
B. Manure management									
C. Rice cultivation									
D. Agricultural soils									
E. Prescribed burning of savannas									
F. Field burning of agricultural residues									
G. Liming	NE	NE	NE	NE	NE	NE	NE	NE	NE
H. Urea application	459.95	459.95	436.20	458.75	626.74	452.60	425.92	534.13	532.00
I. Other carbon-containing fertilizers	NE	NE	NE	NE	NE	NE	NE	NE	NE
J. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO
<b>4. Land use, land-use change and forestry<sup>(2)</sup></b>	-28,980.62	-28,980.62	-30,620.68	-23,015.03	-29,947.05	-31,693.18	-28,960.47	-29,421.36	-29,973.97
A. Forest land	-27,074.81	-27,074.81	-28,764.23	-28,821.41	-29,099.47	-31,647.69	-28,891.33	-29,382.93	-32,101.80
B. Cropland	-47.63	-47.63	-41.29	-34.94	-28.64	-22.29	-15.99	-9.61	-3.26
C. Grassland	85.07	85.07	113.80	142.49	171.22	199.94	228.67	257.40	360.67
D. Wetlands	1,741.74	1,741.74	991.58	8,893.76	185.39	690.47	341.33	594.51	2,664.71
E. Settlements	683.21	683.21	683.21	683.21	683.21	683.21	683.21	683.21	683.21
F. Other land	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE
G. Harvested wood products	-4,368.20	-4,368.20	-3,603.75	-3,878.13	-1,858.75	-1,596.81	-1,306.36	-1,563.95	-1,577.50
H. Other	NE	NE	NE	NE	NE	NE	NE	NE	NE
<b>5. Waste</b>	27.40	27.40	27.86	28.32	28.78	29.24	26.79	28.96	41.35
A. Solid waste disposal	NA	NA	NA	NA	NA	NA	NA	NA	NA
B. Biological treatment of solid waste									
C. Incineration and open burning of waste	27.40	27.40	27.86	28.32	28.78	29.24	26.79	28.96	41.35
D. Waste water treatment and discharge									
E. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO
<b>6. Other (as specified in the summary table in CRF)</b>	NO	NO	NO	NO	NO	NO	NO	NO	NO

TABLE 1 (cont.)  
EMISSION TRENDS: CO<sub>2</sub>  
(Part 3 of 9)

Source:  
Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	Base year <sup>(a)</sup>	1990	1991	1992	1993	1994	1995	1996	1997
	(kt)								
Memo items:									
International bunkers	930.78	930.78	1,138.96	1,151.44	1,290.14	1,138.84	1,394.62	1,397.47	1,870.62
Aviation	551.80	551.80	715.77	804.05	977.48	788.29	807.21	1,002.70	1,368.47
Navigation	378.98	378.98	423.19	347.39	312.66	350.55	587.41	394.77	502.15
Multilateral operations	NO	NO	NO	NO	NO	NO	NO	NO	NO
CO <sub>2</sub> emissions from biomass	32,841.81	32,841.81	32,874.32	32,874.05	32,635.17	32,484.98	32,330.40	32,234.97	32,147.25
CO <sub>2</sub> captured	NO	NO	NO	NO	NO	NO	NO	NO	NO
Long-term storage of C in waste disposal sites	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indirect N <sub>2</sub> O									
Indirect CO <sub>2</sub> <sup>(b)</sup>	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE
Total CO <sub>2</sub> equivalent emissions with land use, land-use change and forestry	117,526.58	117,526.58	122,917.34	136,050.82	137,354.82	132,089.99	149,349.79	166,329.34	178,049.03
Total CO <sub>2</sub> equivalent emissions, including indirect CO <sub>2</sub> , with land use, land-use change and forestry	NA	NA	NA	NA	NA	NA	NA	NA	NA



TABLE 1 (cont.)  
EMISSION TRENDS: CO<sub>2</sub>  
(Part 4 of 9)

Source:  
Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
	(kt)									
<b>1. Energy</b>	181,459.07	178,859.41	200,985.63	184,614.22	191,743.34	205,989.66	212,480.03	228,972.50	248,009.98	276,736.04
A. Fuel combustion (sectoral approach)	181,264.83	178,681.01	200,817.66	184,459.42	191,594.98	205,844.35	212,339.70	228,830.77	247,874.75	276,603.01
1. Energy industries	64,944.02	70,083.52	77,776.11	79,928.71	74,208.19	74,001.00	74,877.26	89,822.09	95,334.70	112,795.41
2. Manufacturing industries and construction	51,092.67	43,315.39	53,390.92	40,924.78	52,460.48	62,215.95	60,278.11	58,746.95	67,420.21	69,211.41
3. Transport	31,816.76	33,634.52	35,490.22	35,533.74	35,316.14	36,892.84	41,061.32	41,043.83	44,376.84	50,988.90
4. Other sectors	33,411.38	31,647.57	34,160.40	28,072.17	29,610.17	32,734.57	36,123.01	39,217.90	40,743.00	43,607.29
5. Other	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
B. Fugitive emissions from fuels	194.12	178.28	167.85	154.67	148.24	145.18	140.20	141.60	135.10	132.90
1. Solid fuels	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
2. Oil and natural gas and other emissions from energy production	194.12	178.28	167.85	154.67	148.24	145.18	140.20	141.60	135.10	132.90
C. CO <sub>2</sub> transport and storage	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
<b>2. Industrial processes</b>	25,899.78	24,333.11	24,403.89	24,365.13	25,372.83	26,396.43	28,792.48	31,304.19	32,928.41	35,548.93
A. Mineral industry	18,804.52	17,888.20	18,456.25	18,138.78	18,754.33	19,516.64	20,996.85	23,276.16	25,334.88	27,580.27
B. Chemical industry	784.67	315.03	285.44	264.66	772.11	747.88	860.19	977.08	253.56	40.62
C. Metal industry	6,107.18	5,879.89	5,385.09	5,747.67	5,563.39	5,857.15	6,576.38	6,605.21	6,868.30	7,478.75
D. Non-energy products from fuels and solvent use	203.41	249.99	277.11	214.02	283.01	274.75	359.07	445.74	471.68	449.28
E. Electronic industry										
F. Product uses as ODS substitutes										
G. Other product manufacture and use	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
H. Other	NE, NA	NE, NA	NE, NA	NE, NA	NE, NA	NE, NA	NE, NA	NE, NA	NE, NA	NE, NA

TABLE 1 (cont.)  
EMISSION TRENDS: CO<sub>2</sub>  
(Part 5 of 9)

Source:  
Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
	(kt)									
<b>3. Agriculture</b>		733.33	617.47	527.07	526.92	565.41	632.18	613.16	592.34	566.30
A. Enteric fermentation	657.91	733.33	617.47	527.07	526.92	565.41	632.18	613.16	592.34	566.30
B. Manure management										
C. Rice cultivation										
D. Agricultural soils										
E. Prescribed burning of savannas										
F. Field burning of agricultural residues										
G. Liming	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
H. Urea application	657.91	733.33	617.47	527.07	526.92	565.41	632.18	613.16	592.34	566.30
I. Other carbon-containing fertilizers	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
J. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
<b>4. Land use, land-use change and forestry <sup>(2)</sup></b>	-33,408.55	-32,652.26	-34,869.34	-39,177.46	-36,063.24	-41,824.38	-40,909.83	-42,758.64	-45,667.27	-44,042.80
A. Forest land	-33,314.21	-34,358.13	-34,717.12	-38,314.30	-38,344.68	-40,705.74	-40,349.08	-41,444.87	-42,753.24	-42,146.19
B. Cropland	3.01	9.39	-508.93	-516.08	-527.23	-529.14	-521.88	-517.15	-530.27	190.56
C. Grassland	463.98	948.58	-302.13	-198.35	-85.46	23.23	217.93	239.47	249.91	1,461.73
D. Wetlands	510.11	1,279.81	1,232.81	875.86	3,181.71	737.22	793.50	1,498.75	260.22	640.90
E. Settlements	683.21	683.21	683.21	629.49	629.49	629.49	629.49	629.49	629.49	44.56
F. Other land	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE
G. Harvested wood products	-1,754.65	-1,215.13	-1,257.17	-1,654.08	-917.07	-1,979.46	-1,679.80	-3,164.34	-3,523.38	-4,234.35
H. Other	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
<b>5. Waste</b>	25.54	23.17	22.85	22.72	9.82	11.51	4.53	8.11	10.98	11.23
A. Solid waste disposal	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B. Biological treatment of solid waste										
C. Incineration and open burning of waste	25.54	23.17	22.85	22.72	9.82	11.51	4.53	8.11	10.98	11.23
D. Waste water treatment and discharge										
E. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
<b>6. Other (as specified in the summary table in CRF)</b>	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

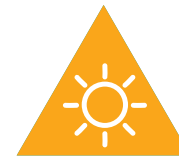


TABLE 1 (cont.)  
EMISSION TRENDS: CO<sub>2</sub>  
(Part 6 of 9)

Source:  
Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
	(kt)									
International bunkers	2,031.47	2,407.30	2,877.79	2,340.89	4,338.33	4,726.51	6,144.26	6,705.97	6,141.29	6,086.12
Aviation	1,522.97	1,513.51	1,598.65	1,592.34	2,648.65	2,762.16	2,976.57	3,329.73	3,014.41	3,730.69
Navigation	508.50	893.79	1,279.14	748.55	1,689.68	1,964.35	3,167.69	3,376.24	3,126.88	2,355.43
Multilateral operations	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
CO <sub>2</sub> emissions from biomass	31,974.71	30,742.14	29,720.99	28,530.38	27,455.69	26,370.34	25,358.84	24,373.84	23,495.12	22,670.27
CO <sub>2</sub> captured	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Long-term storage of C in waste disposal sites	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indirect N <sub>2</sub> O										
Indirect CO <sub>2</sub> <sup>(9)</sup>	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE
Total CO <sub>2</sub> equivalent emissions without land use, land-use change and forestry	174,633.75	171,296.76	191,160.50	170,351.68	181,589.68	191,138.63	200,999.39	218,139.32	235,874.45	268,819.70
Total CO <sub>2</sub> equivalent emissions with land use, land-use change and forestry	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 1 (cont.)  
EMISSION TRENDS: CO<sub>2</sub>  
(Part 7 of 9)

Source:  
Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	2008	2009	2010	2011	2012	2013	2014	2015	Change from base to latest reported year
	(kt)								%
1. Energy	272,245.18	277,515.70	276,009.67	296,691.18	304,437.92	294,046.42	305,210.02	328,847.93	163.45
A. Fuel combustion (sectoral approach)	272,110.19	277,377.36	275,853.39	296,540.54	304,294.10	293,900.76	305,064.41	328,693.21	163.79
1. Energy industries	118,170.56	118,300.15	112,786.98	124,406.04	125,578.05	120,178.08	130,647.98	135,132.73	266.38
2. Manufacturing industries and construction	45,791.68	45,526.30	54,216.78	56,378.80	57,488.54	51,579.42	52,088.33	57,084.69	77.14
3. Transport	47,116.86	46,871.23	44,382.60	46,366.82	61,248.52	67,478.09	72,084.28	74,271.58	182.93
4. Other sectors	61,031.09	66,679.69	64,467.02	69,388.88	59,978.99	54,665.17	50,243.82	62,204.22	112.71
5. Other	IE	IE	IE	IE	IE	IE	IE	IE	0.00
B. Fugitive emissions from fuels	134.86	138.22	156.16	150.52	143.69	145.54	145.49	154.59	-29.80
1. Solid fuels	NE	NE	NE	NE	NE	NE	NE	NE	0.00
2. Oil and natural gas and other emissions from energy production	134.86	138.22	156.16	150.52	143.69	145.54	145.49	154.59	-29.80
C. CO <sub>2</sub> transport and storage	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.00
2. Industrial processes	37,576.03	38,653.93	42,867.78	47,491.33	49,052.41	51,924.81	51,561.77	51,198.81	141.54
A. Mineral industry	29,114.97	30,255.74	33,389.19	35,294.01	36,370.23	39,583.14	39,792.46	38,430.63	185.68
B. Chemical industry	270.83	52.34	333.60	1,379.60	1,520.72	1,061.95	1,154.13	1,613.94	52.21
C. Metal industry	7,830.56	7,949.63	8,713.41	9,963.98	10,555.94	10,746.14	10,216.02	10,887.74	67.47
D. Non-energy products from fuels and solvent use	359.66	396.21	431.59	853.74	605.52	533.59	399.16	266.50	45.34
E. Electronic industry									
F. Product uses as ODS substitutes									
G. Other product manufacture and use	NA	NA	NA	NA	NA	NA	NA	NA	0.00
H. Other	NE, NA	NE, NA	NE, NA	NE, NA	NE, NA	NE, NA	NE, NA	NE, NA	0.00



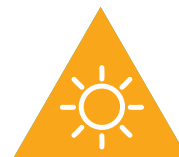


TABLE 1 (cont.)  
EMISSION TRENDS: CO<sub>2</sub>  
(Part 8 of 9)

Source:  
Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	2008	2009	2010	2011	2012	2013	2014	2015	Change from base to latest reported year
	(kt)								%
<b>3. Agriculture</b>	564.84	592.72	644.98	557.55	639.77	807.30	787.69	810.59	76.24
A. Enteric fermentation									
B. Manure management									
C. Rice cultivation									
D. Agricultural soils									
E. Prescribed burning of savannas									
F. Field burning of agricultural residues									
G. Liming	NE	NE	NE	NE	NE	NE	NE	NE	0.00
H. Urea application	564.84	592.72	644.98	557.55	639.77	807.30	787.69	810.59	76.24
I. Other carbon-containing fertilizers	NE	NE	NE	NE	NE	NE	NE	NE	0.00
J. Other	NO	NO	NO	NO	NO	NO	NO	NO	0.00
<b>4. Land use, land-use change and forestry</b>	-40,688.45	-44,164.95	-46,110.90	-48,245.64	-49,497.59	-57,358.15	-58,329.47	-63,855.38	120.34
A. Forest land	-38,573.09	-41,860.25	-43,955.69	-45,165.75	-45,762.83	-52,553.00	-53,259.76	-56,496.99	108.67
B. Cropland	194.88	184.43	194.22	191.36	197.05	202.69	205.48	213.14	-547.50
C. Grassland	1,667.86	2,135.51	2,130.12	2,101.54	2,424.01	2,456.87	2,489.40	2,611.31	2,969.51
D. Wetlands	16.68	237.38	60.87	7.85	NO, NE	NO, NE	NE, NO	NO, NE	
E. Settlements	44.56	44.56	44.56	44.56	44.56	44.56	44.56	44.56	-93.48
F. Other land	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NE, NO	NO, NE	0.00
G. Harvested wood products	-4,039.34	-4,906.58	-4,584.98	-5,425.20	-6,400.37	-7,509.27	-7,809.15	-10,227.40	134.13
H. Other	NE	NE	NE	NE	NE	NE	NE	NE	0.00
<b>5. Waste</b>	10.66	8.68	5.96	5.43	4.66	2.44	0.48	0.76	-97.21
A. Solid waste disposal	NA	NA	NA	NA	NA	NA	NA	NA	0.00
B. Biological treatment of solid waste									
C. Incineration and open burning of waste	10.66	8.68	5.96	5.43	4.66	2.44	0.48	0.76	-97.21
D. Waste water treatment and discharge									
E. Other	NO	NO	NO	NO	NO	NO	NO	NO	0.00
<b>6. Other (as specified in the summary table in CRF)</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>0.00</b>

TABLE 1 (cont.)  
EMISSION TRENDS: CO<sub>2</sub>  
(Part 9 of 9)

Source:  
Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	2008	2009	2010	2011	2012	2013	2014	2015	Change from base to latest reported year
	(kt)								%
International bunkers	7,316.49	8,108.61	8,265.77	8,720.45	10,302.77	11,552.99	13,182.48	13,827.13	1,385.54
Aviation	4,991.42	5,254.72	5,858.47	6,769.01	7,684.30	8,660.75	9,922.40	11,085.16	1,908.90
Navigation	2,325.07	2,853.89	2,407.30	1,951.44	2,618.47	2,892.24	3,260.08	2,741.97	623.51
Multilateral operations	NO	NO	NO	NO	NO	NO	NO	NO	0.00
CO <sub>2</sub> emissions from biomass	22,028.51	21,118.32	20,504.25	16,117.34	11,572.32	19,890.40	15,012.35	12,598.54	-61.64
CO <sub>2</sub> captured	NO	NO	NO	NO	NO	NO	NO	NO	0.00
Long-term storage of C in waste disposal sites	NA	NA	NA	NA	NA	NA	NA	NA	0.00
Indirect N <sub>2</sub> O									
Indirect CO <sub>2</sub> <sup>(a)</sup>	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	0.00
Total CO <sub>2</sub> equivalent emissions with land use, land-use change and forestry	269,708.25	272,606.08	273,417.50	296,499.86	304,637.17	289,422.81	299,230.49	317,002.72	169.73
Total CO <sub>2</sub> equivalent emissions, including indirect CO <sub>2</sub> with land use, land-use change and forestry	NA	NA	NA	NA	NA	NA	NA	NA	0.00

Abbreviations: CRF = common reporting format, LULUCF = land use, land-use change and forestry.

a) The column "Base year" should be filled in only by those Parties with economies in transition that use a base year different from 1990 in accordance with the relevant decisions of the Conference of the Parties. For these Parties, this different base year is used to calculate the percentage change in the final column of this table.

b) Fill in net emissions/removals as reported in CRF table Summary 1.A of the latest reported inventory year. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

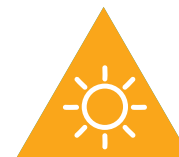


TABLE 1 (cont.)  
EMISSION TRENDS: CH<sub>4</sub>  
(Part 1 of 9)

Source:  
Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	Base year <sup>(a)</sup>	1990	1991	1992	1993	1994	1995	1996	1997
	(kt)								
1. Energy	302.35	302.35	296.20	298.66	292.47	277.01	280.40	279.07	298.60
A. Fuel combustion (sectoral approach)	139.19	139.19	140.16	143.24	139.85	128.76	133.64	132.98	138.72
1. Energy industries	0.43	0.43	0.43	0.48	0.44	0.55	0.57	0.60	0.66
2. Manufacturing industries and construction	2.14	2.14	2.35	2.11	2.07	1.81	2.04	2.86	3.22
3. Transport	3.95	3.95	3.81	4.16	5.00	4.94	5.45	5.86	7.02
4. Other sectors	132.67	132.67	133.56	136.50	132.33	121.46	125.57	123.66	127.83
5. Other	IE	IE	IE	IE	IE	IE	IE	IE	IE
B. Fugitive emissions from fuels	163.16	163.16	156.04	155.42	152.63	148.25	146.76	146.09	159.88
1. Solid fuels	135.54	135.54	123.40	122.90	121.12	117.02	113.65	110.77	121.09
2. Oil and natural gas and other emissions from energy production	27.62	27.62	32.64	32.51	31.51	31.23	33.11	35.33	38.79
C. CO <sub>2</sub> transport and storage									
2. Industrial processes	0.32	0.32	0.30	0.31	0.31	0.32	0.30	0.33	0.34
A. Mineral industry									
B. Chemical industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C. Metal industry	0.32	0.32	0.30	0.31	0.31	0.31	0.30	0.32	0.34
D. Non-energy products from fuels and solvent use	NE, NA	NE, NA	NE, NA	NE, NA	NE, NA	NE, NA	NE, NA	NA, NE	NA, NE
E. Electronic industry									
F. Product uses as ODS substitutes									
G. Other product manufacture and use	NA	NA	NA	NA	NA	NA	NA	NA	NA
H. Other	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE

TABLE 1 (cont.)  
EMISSION TRENDS: CH<sub>4</sub>  
(Part 2 of 9)

Source:  
Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	Base year <sup>(1)</sup>	1990	1991	1992	1993	1994	1995	1996	1997
	(kt)								
<b>3. Agriculture</b>	1,000.79	1,000.79	1,037.25	1,024.06	1,012.99	1,008.79	983.43	984.36	915.58
A. Enteric fermentation	892.56	892.56	925.17	917.18	901.44	889.40	868.18	867.10	808.15
B. Manure management	94.08	94.08	97.62	93.20	96.81	106.43	101.04	102.18	92.33
C. Rice cultivation	4.01	4.01	3.99	3.76	4.06	3.59	4.50	5.03	4.97
D. Agricultural soils	NO	NO	NO	NO	NO	NO	NO	NO	NO
E. Prescribed burning of savannas	NO	NO	NO	NO	NO	NO	NO	NO	NO
F. Field burning of agricultural residues	10.13	10.13	10.47	9.93	10.67	9.37	9.71	10.06	10.14
G. Liming									
H. Urea application									
I. Other carbon-containing fertilizers									
J. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO
<b>4. Land use, land-use change and forestry<sup>(2)</sup></b>	0.81	0.81	0.48	0.73	0.92	2.29	0.46	0.91	0.39
A. Forest land	0.81	0.81	0.48	0.73	0.92	2.29	0.46	0.91	0.39
B. Cropland	NO, NE, IE	NO, NE, IE	NO, NE, IE	NO, NE, IE	NO, NE, IE	NO, NE, IE	NO, NE, IE	NO, NE, IE	NO, NE, IE
C. Grassland	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO
D. Wetlands	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO
E. Settlements	NO	NO	NO	NO	NO	NO	NO	NO	NO
F. Other land	NE	NE	NE	NE	NE	NE	NE	NE	NE
G. Harvested wood products									
H. Other	NE	NE	NE	NE	NE	NE	NE	NE	NE
<b>5. Waste</b>	383.89	383.89	392.21	400.51	409.68	418.63	430.76	444.21	465.54
A. Solid waste disposal	269.18	269.18	276.13	283.06	290.90	298.53	306.09	318.53	333.70
B. Biological treatment of solid waste	0.45	0.45	0.45	0.45	0.45	0.45	0.37	0.42	0.42
C. Incineration and open burning of waste	2.69	2.69	2.74	2.78	2.83	2.87	2.63	2.85	4.06
D. Waste water treatment and discharge	111.56	111.56	112.90	114.21	115.50	116.78	121.67	122.42	127.35
E. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO
<b>6. Other (as specified in the summary table in CRF)</b>	NO	NO	NO	NO	NO	NO	NO	NO	NO

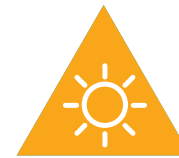


TABLE 1 (cont.)  
EMISSION TRENDS: CH<sub>4</sub>  
(Part 3 of 9)

Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	Base year <sup>(1)</sup>	1990	1991	1992	1993	1994	1995	1996	1997
	(kt)								
Total CH <sub>4</sub> emissions with CH <sub>4</sub> from LULUCF	1,688.15	1,688.15	1,726.43	1,724.27	1,716.38	1,707.04	1,695.36	1,708.87	1,680.45
Memo items:									
Aviation	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Navigation	0.04	0.04	0.04	0.03	0.03	0.03	0.05	0.04	0.05
Multilateral operations	NO	NO	NO	NO	NO	NO	NO	NO	NO
CO <sub>2</sub> emissions from biomass									
CO <sub>2</sub> captured									
Long-term storage of C in waste disposal sites									
Indirect N <sub>2</sub> O									
Indirect CO <sub>2</sub> <sup>(2)</sup>									

TABLE 1 (cont.)  
EMISSION TRENDS: CH<sub>4</sub>  
(Part 4 of 9)

Source:  
Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
	(kt)									
<b>1. Energy</b>	306.50	338.65	352.93	327.41	312.14	306.66	304.80	329.62	343.80	421.64
A. Fuel combustion (sectoral approach)	129.86	121.58	121.70	108.25	109.92	112.37	114.43	113.12	112.60	114.98
1. Energy industries	0.69	0.83	0.95	0.97	0.93	0.91	0.97	1.18	1.25	1.52
2. Manufacturing industries and construction	3.44	2.85	3.89	2.57	3.56	4.11	4.18	3.83	4.77	5.05
3. Transport	7.46	7.78	8.91	8.43	7.86	8.08	8.35	8.59	9.22	10.45
4. Other sectors	118.27	110.13	107.95	96.28	97.57	99.26	100.93	99.52	97.36	97.96
5. Other	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
B. Fugitive emissions from fuels	176.64	217.07	231.23	219.16	202.22	194.29	190.37	216.51	231.20	306.66
1. Solid fuels	137.23	174.66	185.61	172.76	153.85	139.08	133.35	149.74	157.98	223.06
2. Oil and natural gas and other emissions from energy production	39.41	42.41	45.62	46.40	48.37	55.20	57.02	66.77	73.21	83.61
C. CO <sub>2</sub> transport and storage										
<b>2. Industrial processes</b>	0.32	0.31	0.35	0.33	0.30	0.32	0.33	0.37	0.35	0.37
A. Mineral industry										
B. Chemical industry	0.00	0.00	0.00	0.00	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA
C. Metal industry	0.32	0.30	0.35	0.33	0.30	0.32	0.33	0.37	0.35	0.37
D. Non-energy products from fuels and solvent use	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE
E. Electronic industry										
F. Product uses as ODS substitutes										
G. Other product manufacture and use	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
H. Other	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE

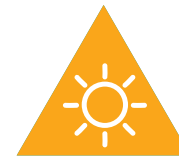


TABLE 1 (cont.)  
EMISSION TRENDS: CH<sub>4</sub>  
(Part 5 of 9)

Source:  
Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
	(kt)									
<b>3. Agriculture</b>	906.91	912.00	873.35	855.34	770.80	842.88	849.73	880.93	912.25	924.89
A. Enteric fermentation	791.24	794.02	764.96	744.25	675.14	738.56	758.27	786.52	813.23	822.10
B. Manure management	99.10	102.17	93.35	96.55	80.68	89.21	74.82	78.36	82.03	87.32
C. Rice cultivation	5.41	5.87	5.12	5.28	5.40	5.72	6.25	7.34	8.48	8.11
D. Agricultural soils	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
E. Prescribed burning of savannas	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
F. Field burning of agricultural residues	11.16	9.95	9.93	9.26	9.59	9.39	10.39	8.70	8.50	7.36
G. Liming										
H. Urea application										
I. Other carbon-containing fertilizers										
J. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
<b>4. Land use, land-use change and forestry<sup>(2)</sup></b>	0.42	0.36	1.65	0.47	0.57	0.44	0.33	0.19	0.52	0.78
A. Forest land	0.42	0.36	1.65	0.47	0.57	0.44	0.33	0.19	0.52	0.78
B. Cropland	NO, NE, IE	NO, NE, IE	NO, NE, IE	NO, NE, IE	NO, NE, IE	NO, NE, IE	NO, NE, IE	NO, NE, IE	NO, NE, IE	NO, NE, IE
C. Grassland	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO
D. Wetlands	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO
E. Settlements	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
F. Other land	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
G. Harvested wood products										
H. Other	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
<b>5. Waste</b>	476.58	495.17	512.74	532.11	550.40	568.56	591.16	607.80	628.72	639.19
A. Solid waste disposal	351.49	370.55	388.49	407.28	425.29	444.18	464.89	483.43	502.41	515.40
B. Biological treatment of solid waste	0.39	0.53	0.56	0.51	0.89	0.76	0.82	0.66	0.42	0.78
C. Incineration and open burning of waste	2.51	2.28	2.25	2.23	1.43	1.68	0.66	1.18	1.60	1.64
D. Waste water treatment and discharge	122.19	121.82	121.44	122.09	122.78	121.94	124.79	122.53	124.29	121.37
E. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
<b>6. Other (as specified in the summary table in CRF)</b>	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

TABLE 1 (cont.)  
EMISSION TRENDS: CH<sub>4</sub>  
(Part 6 of 9)

Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
	(kt)									
Total CH <sub>4</sub> emissions with CH <sub>4</sub> from LULUCF	1,690.73	1,746.49	1,741.02	1,715.66	1,634.20	1,718.87	1,746.34	1,818.92	1,885.64	1,986.87
Memo items:										
Aviation	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.03
Navigation	0.05	0.08	0.12	0.07	0.16	0.18	0.29	0.31	0.29	0.21
Multilateral operations	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
CO <sub>2</sub> emissions from biomass										
CO <sub>2</sub> captured										
Long-term storage of C in waste disposal sites										
Indirect N <sub>2</sub> O										
Indirect CO <sup>(9)</sup>										



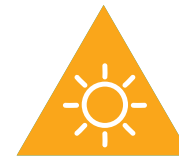


TABLE 1 (cont.)  
EMISSION TRENDS: CH<sub>4</sub>  
(Part 7 of 9)

Source:  
Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	2008	2009	2010	2011	2012	2013	2014	2015	Change from base to latest reported year
	(kt)								%
<b>1. Energy</b>	485.54	491.46	493.95	498.34	511.87	469.03	515.31	286.07	-5.38
A. Fuel combustion (sectoral approach)	159.86	176.64	175.47	149.37	150.77	148.47	124.16	82.40	-40.80
1. Energy industries	1.51	1.72	1.74	1.91	1.91	1.78	1.96	1.96	353.84
2. Manufacturing industries and construction	2.63	2.73	3.09	3.11	3.03	2.79	2.96	3.21	50.22
3. Transport	10.53	10.96	11.44	11.49	12.60	13.03	13.62	14.54	267.89
4. Other sectors	145.18	161.23	159.19	132.86	133.24	130.86	105.62	62.68	-52.76
5. Other	IE	IE	IE	IE	IE	IE	IE	IE	0.00
B. Fugitive emissions from fuels	325.68	314.83	318.48	348.97	361.10	320.56	391.15	203.67	24.83
1. Solid fuels	239.44	237.70	241.73	258.89	265.65	238.44	281.08	99.35	-26.70
2. Oil and natural gas and other emissions from energy production	86.23	77.13	76.75	90.08	95.44	82.12	110.08	104.33	277.69
C. CO <sub>2</sub> transport and storage									
<b>2. Industrial processes</b>	0.38	0.36	0.41	0.45	0.51	0.53	0.55	0.60	88.97
A. Mineral industry									
B. Chemical industry	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	
C. Metal industry	0.38	0.36	0.41	0.45	0.51	0.53	0.55	0.60	90.07
D. Non-energy products from fuels and solvent use	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NE, NA	NE, NA	0.00
E. Electronic industry									
F. Product uses as ODS substitutes									
G. Other product manufacture and use	NA	NA	NA	NA	NA	NA	NA	NA	0.00
H. Other	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NE, NA	NE, NA	0.00

TABLE 1 (cont.)  
EMISSION TRENDS: CH<sub>4</sub>  
(Part 8 of 9)

Source:  
Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	2008	2009	2010	2011	2012	2013	2014	2015	Change from base to latest reported year
	(kt)								%
<b>3. Agriculture</b>	902.60	885.17	949.73	1,025.28	1,159.50	1,209.95	1,225.58	1,211.27	21.03
A. Enteric fermentation	802.28	783.06	836.49	912.25	1,029.59	1,074.02	1,083.78	1,075.52	20.50
B. Manure management	84.32	85.50	98.83	98.09	113.50	119.86	126.53	121.24	28.86
C. Rice cultivation	8.64	8.35	8.09	8.17	9.96	9.23	9.18	9.60	139.54
D. Agricultural soils	NO	NO	NO	NO	NO	NO	NO	NO	0.00
E. Prescribed burning of savannas	NO	NO	NO	NO	NO	NO	NO	NO	0.00
F. Field burning of agricultural residues	7.36	8.26	6.33	6.76	6.44	6.85	6.08	4.92	-51.46
G. Liming									
H. Urea application									
I. Other carbon-containing fertilizers									
J. Other	NO	NO	NO	NO	NO	NO	NO	NO	0.00
<b>4. Land use, land-use change and forestry</b>	1.99	0.31	0.22	0.24	0.71	0.79	0.19	0.20	-74.70
A. Forest land	1.99	0.31	0.22	0.24	0.71	0.79	0.19	0.20	-74.70
B. Cropland	NO, NE, IE	NO, NE, IE	NO, NE, IE	NO, NE, IE	NO, NE, IE	NO, NE, IE	NO, NE, IE	NO, NE, IE	0.00
C. Grassland	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NO, NE	0.00
D. Wetlands	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NO, NE	0.00
E. Settlements	NO	NO	NO	NO	NO	NO	NO	NO	0.00
F. Other land	NE	NE	NE	NE	NE	NE	NE	NE	0.00
G. Harvested wood products									
H. Other	NE	NE	NE	NE	NE	NE	NE	NE	0.00
<b>5. Waste</b>	642.10	644.71	654.37	664.32	646.74	591.35	583.78	597.76	55.71
A. Solid waste disposal	522.43	524.88	534.34	545.77	528.56	485.93	486.55	502.28	86.59
B. Biological treatment of solid waste	0.57	0.74	0.54	0.68	0.42	0.37	0.35	0.37	-16.68
C. Incineration and open burning of waste	1.56	1.27	0.87	0.79	0.68	0.36	0.03	0.04	-98.34
D. Waste water treatment and discharge	117.53	117.83	118.62	117.08	117.08	104.69	96.85	95.07	-14.79
E. Other	NO	NO	NO	NO	NO	NO	NO	NO	0.00
<b>6. Other (as specified in the summary table in CRF)</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>0.00</b>

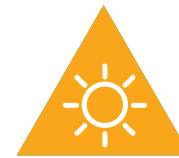


TABLE 1 (cont.)  
EMISSION TRENDS: CH<sub>4</sub>  
(Part 9 of 9)

Source:  
Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	2008	2009	2010	2011	2012	2013	2014	2015	Change from base to latest reported year
	(kt)								%
Total CH <sub>4</sub> emissions with CH <sub>4</sub> from LULUCF	2,032.61	2,022.01	2,098.69	2,188.63	2,319.33	2,271.65	2,325.41	2,095.91	24.15
Memo items:									
Aviation	0.03	0.04	0.04	0.05	0.05	0.06	0.07	0.08	1,908.26
Navigation	0.21	0.26	0.22	0.18	0.24	0.26	0.29	0.25	601.13
Multilateral operations	NO	NO	NO	NO	NO	NO	NO	NO	0.00
CO <sub>2</sub> emissions from biomass									
CO <sub>2</sub> captured									
Long-term storage of C in waste disposal sites									
Indirect N <sub>2</sub> O									
Indirect CO <sub>2</sub> <sup>a)</sup>									

Abbreviations: CRF = common reporting format, LULUCF = land use, land-use change and forestry.

a) The column “Base year” should be filled in only by those Parties with economies in transition that use a base year different from 1990 in accordance with the relevant decisions of the Conference of the Parties. For these Parties, this different base year is used to calculate the percentage change in the final column of this table.

TABLE 1 (cont.)  
EMISSION TRENDS: N<sub>2</sub>O  
(Part 1 of 9)

Source:  
Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	Base year <sup>(a)</sup>	1990	1991	1992	1993	1994	1995	1996	1997
	(kt)								
1. Energy	6.53	6.53	6.52	6.65	7.56	7.48	7.83	8.32	8.42
A. Fuel combustion (sectoral approach)	6.53	6.53	6.51	6.65	7.55	7.48	7.83	8.31	8.42
1. Energy industries	0.37	0.37	0.39	0.44	0.43	0.51	0.51	0.55	0.60
2. Manufacturing industries and construction	0.34	0.34	0.38	0.34	0.34	0.30	0.33	0.46	0.51
3. Transport	2.08	2.08	2.00	2.09	2.51	2.44	2.67	2.85	2.72
4. Other sectors	3.73	3.73	3.75	3.77	4.28	4.23	4.31	4.45	4.58
5. Other	IE	IE	IE	IE	IE	IE	IE	IE	IE
B. Fugitive emissions from fuels	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1. Solid fuels	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE
2. Oil and natural gas and other emissions from energy production	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C. CO <sub>2</sub> transport and storage									
2. Industrial processes	3.57	3.57	2.85	3.22	3.15	2.18	3.37	3.41	3.49
A. Mineral industry									
B. Chemical industry	3.57	3.57	2.85	3.22	3.15	2.18	3.37	3.41	3.49
C. Metal industry	NA	NA	NA	NA	NA	NA	NA	NA	NA
D. Non-energy products from fuels and solvent use	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE
E. Electronic industry									
F. Product uses as ODS substitutes									
G. Other product manufacture and use	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA
H. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA

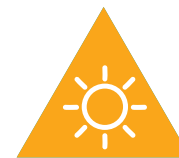


TABLE 1 (cont.)  
EMISSION TRENDS: N<sub>2</sub>O  
(Part 2 of 9)

Source:  
Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	Base year <sup>(a)</sup>	1990	1991	1992	1993	1994	1995	1996	1997
	(kt)								
<b>3. Agriculture</b>	56.79	56.79	56.76	58.31	60.60	53.72	53.61	55.63	55.06
A. Enteric fermentation									
B. Manure management	5.90	5.90	6.42	6.49	6.59	6.62	6.38	6.52	6.24
C. Rice cultivation									
D. Agricultural soils	50.62	50.62	50.08	51.57	53.73	46.86	46.98	48.85	48.55
E. Prescribed burning of savannas	NO	NO	NO	NO	NO	NO	NO	NO	NO
F. Field burning of agricultural residues	0.26	0.26	0.27	0.26	0.28	0.24	0.25	0.26	0.26
G. Liming									
H. Urea application									
I. Other carbon-containing fertilizers									
J. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO
<b>4. Land use, land-use change and forestry</b>	0.13	0.13	0.12	0.14	0.15	0.24	0.14	0.17	0.17
A. Forest land	0.04	0.04	0.03	0.04	0.05	0.13	0.03	0.05	0.02
B. Cropland	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
C. Grassland	0.05	0.05	0.05	0.06	0.07	0.07	0.08	0.09	0.11
D. Wetlands	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO
E. Settlements	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO
F. Other land	NE	NE	NE	NE	NE	NE	NE	NE	NE
G. Harvested wood products									
H. Other	NE	NE	NE	NE	NE	NE	NE	NE	NE
<b>5. Waste</b>	4.92	4.92	5.01	5.05	5.08	5.22	5.32	5.24	5.16
A. Solid waste disposal									
B. Biological treatment of solid waste	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.03	0.03
C. Incineration and open burning of waste	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.05
D. Waste water treatment and discharge	4.86	4.86	4.94	4.99	5.01	5.15	5.27	5.18	5.08
E. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO
<b>6. Other (as specified in the summary table in CRF)</b>	NO	NO	NO	NO	NO	NO	NO	NO	NO

TABLE 1 (cont.)  
EMISSION TRENDS: N<sub>2</sub>O  
(Part 3 of 9)

Source:  
Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	Base year(1)	1990	1991	1992	1993	1994	1995	1996	1997
	(kt)								%
Total direct N <sub>2</sub> O emissions with N <sub>2</sub> O from LULUCF	71.93	71.93	71.25	73.37	76.53	68.83	70.28	72.77	72.29
Memo items:									
Aviation	0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.03	0.04
Navigation	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01
Multilateral operations	NO	NO	NO	NO	NO	NO	NO	NO	NO
CO <sub>2</sub> emissions from biomass									
CO <sub>2</sub> captured									
Long-term storage of C in waste disposal sites									
Indirect N <sub>2</sub> O	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE
Indirect CO <sub>2</sub> <sup>(9)</sup>									

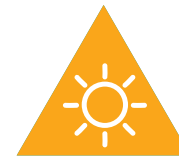


TABLE 1 (cont.)  
EMISSION TRENDS: N<sub>2</sub>O  
(Part 4 of 9)

Source:  
Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
	(kt)									
1. Energy	8.30	8.29	8.46	7.90	8.02	9.25	10.05	10.46	11.26	12.66
A. Fuel combustion (sectoral approach)	8.30	8.28	8.46	7.90	8.01	9.25	10.04	10.45	11.25	12.66
1. Energy industries	0.65	0.67	0.72	0.73	0.63	1.72	2.11	2.55	2.87	3.80
2. Manufacturing industries and construction	0.54	0.45	0.61	0.41	0.56	0.64	0.65	0.59	0.73	0.76
3. Transport	2.61	2.65	2.52	2.38	2.42	2.45	2.61	2.63	2.74	2.85
4. Other sectors	4.50	4.51	4.61	4.38	4.41	4.44	4.67	4.68	4.92	5.25
5. Other	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
B. Fugitive emissions from fuels	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1. Solid fuels	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE
2. Oil and natural gas and other emissions from energy production	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C. CO <sub>2</sub> transport and storage										
2. Industrial processes	3.32	3.10	2.84	2.47	2.79	2.53	2.40	2.45	5.51	3.62
A. Mineral industry										
B. Chemical industry	3.32	3.10	2.84	2.47	2.79	2.53	2.40	2.45	5.51	3.62
C. Metal industry	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
D. Non-energy products from fuels and solvent use	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE
E. Electronic industry										
F. Product uses as ODS substitutes										
G. Other product manufacture and use	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA
H. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 1 (cont.)  
EMISSION TRENDS: N<sub>2</sub>O  
(Part 5 of 9)

Source:  
Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
	(kt)									
<b>3. Agriculture</b>	60.12	61.33	59.00	52.97	52.82	57.97	60.23	60.86	62.31	60.40
A. Enteric fermentation										
B. Manure management	6.44	6.46	6.40	6.14	5.81	6.44	6.93	7.30	7.72	7.59
C. Rice cultivation										
D. Agricultural soils	53.39	54.61	52.34	46.59	46.76	51.29	53.03	53.34	54.37	52.62
E. Prescribed burning of savannas	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
F. Field burning of agricultural residues	0.29	0.26	0.26	0.24	0.25	0.24	0.27	0.23	0.22	0.19
G. Liming										
H. Urea application										
I. Other carbon-containing fertilizers										
J. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
<b>4. Land use, land-use change and forestry</b>	0.19	0.21	0.30	0.25	0.29	0.30	0.34	0.34	0.36	0.38
A. Forest land	0.02	0.02	0.09	0.03	0.03	0.02	0.02	0.01	0.03	0.04
B. Cropland	0.04	0.04	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.00
C. Grassland	0.13	0.16	0.18	0.21	0.23	0.26	0.30	0.31	0.31	0.33
D. Wetlands	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO
E. Settlements	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO
F. Other land	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
G. Harvested wood products										
H. Other	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
<b>5. Waste</b>	5.39	5.46	5.52	5.49	5.58	5.61	5.68	5.76	5.81	5.88
A. Solid waste disposal										
B. Biological treatment of solid waste	0.02	0.03	0.03	0.03	0.05	0.05	0.05	0.04	0.03	0.05
C. Incineration and open burning of waste	0.03	0.03	0.03	0.03	0.02	0.02	0.01	0.02	0.02	0.02
D. Waste water treatment and discharge	5.33	5.40	5.46	5.43	5.51	5.53	5.62	5.70	5.76	5.81
E. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
<b>6. Other (as specified in the summary table in CRF)</b>										



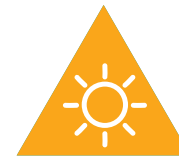


TABLE 1 (cont.)  
EMISSION TRENDS: N<sub>2</sub>O  
(Part 6 of 9)

Source:  
Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
	(kt)									
Total direct N <sub>2</sub> O emissions with N <sub>2</sub> O from LULUCF	77.32	78.38	76.12	69.08	69.50	75.66	78.70	79.86	85.25	82.94
Memo items:										
Aviation	0.04	0.04	0.04	0.04	0.07	0.08	0.08	0.09	0.08	0.10
Navigation	0.01	0.02	0.03	0.02	0.04	0.05	0.08	0.09	0.08	0.06
Multilateral operations	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
CO <sub>2</sub> emissions from biomass										
CO <sub>2</sub> captured										
Long-term storage of C in waste disposal sites										
Indirect N <sub>2</sub> O	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE
Indirect CO <sub>2</sub> <sup>(9)</sup>										

TABLE 1 (cont.)  
EMISSION TRENDS: N<sub>2</sub>O  
(Part 7 of 9)

Source:  
Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	2008	2009	2010	2011	2012	2013	2014	2015	Change from base to latest reported year
	(kt)								%
1. Energy	13.62	14.03	13.31	14.18	9.66	10.06	10.61	12.49	91.24
A. Fuel combustion (sectoral approach)	13.62	14.02	13.30	14.18	9.66	10.06	10.61	12.49	91.29
1. Energy industries	4.00	4.51	4.00	4.23	3.85	4.05	4.36	3.87	942.22
2. Manufacturing industries and construction	0.40	0.42	0.47	0.47	0.46	0.43	0.45	0.48	39.81
3. Transport	2.64	2.56	2.43	2.46	3.23	3.56	3.81	3.90	87.72
4. Other sectors	6.59	6.54	6.40	7.02	2.13	2.02	2.00	4.24	13.42
5. Other	IE	IE	IE	IE	IE	IE	IE	IE	0.00
B. Fugitive emissions from fuels	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-31.96
1. Solid fuels	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	0.00
2. Oil and natural gas and other emissions from energy production	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-31.96
C. CO <sub>2</sub> transport and storage									
2. Industrial processes	2.76	4.50	5.55	5.82	5.96	5.99	6.07	4.87	36.41
A. Mineral industry									
B. Chemical industry	2.76	4.50	5.55	5.82	5.96	5.99	6.07	4.87	36.41
C. Metal industry	NA	NA	NA	NA	NA	NA	NA	NA	0.00
D. Non-energy products from fuels and solvent use	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NE, NA	NE, NA	0.00
E. Electronic industry									
F. Product uses as ODS substitutes									
G. Other product manufacture and use	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	0.00
H. Other	NA	NA	NA	NA	NA	NA	NA	NA	0.00

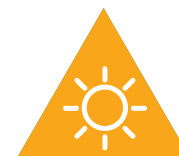


TABLE 1 (cont.)  
EMISSION TRENDS: N<sub>2</sub>O  
(Part 8 of 9)

Source:  
Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	2008	2009	2010	2011	2012	2013	2014	2015	Change from base to latest reported year
	(kt)								%
<b>3. Agriculture</b>	55.74	59.85	61.87	63.54	70.41	75.74	74.88	75.70	33.30
A. Enteric fermentation									
B. Manure management	7.53	7.40	7.95	8.68	9.84	10.30	10.52	10.55	78.70
C. Rice cultivation									
D. Agricultural soils	48.02	52.24	53.76	54.69	60.40	65.26	64.21	65.02	28.44
E. Prescribed burning of savannas	NO	NO	NO	NO	NO	NO	NO	NO	0.00
F. Field burning of agricultural residues	0.19	0.21	0.16	0.18	0.17	0.18	0.16	0.13	-51.46
G. Liming									
H. Urea application									
I. Other carbon-containing fertilizers									
J. Other	NO	NO	NO	NO	NO	NO	NO	NO	0.00
<b>4. Land use, land-use change and forestry</b>	0.49	0.50	0.50	0.49	0.59	0.61	0.58	0.61	380.06
A. Forest land	0.11	0.02	0.01	0.01	0.04	0.04	0.01	0.01	-74.70
B. Cropland	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-99.82
C. Grassland	0.38	0.49	0.49	0.48	0.55	0.56	0.57	0.60	1,171.16
D. Wetlands	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NO, NE	0.00
E. Settlements	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NO, NE	0.00
F. Other land	NE	NE	NE	NE	NE	NE	NE	NE	0.00
G. Harvested wood products									
H. Other	NE	NE	NE	NE	NE	NE	NE	NE	0.00
<b>5. Waste</b>	5.82	5.92	6.15	6.31	6.56	6.67	6.75	6.84	39.11
A. Solid waste disposal									
B. Biological treatment of solid waste	0.03	0.04	0.03	0.04	0.03	0.02	0.02	0.02	-16.68
C. Incineration and open burning of waste	0.02	0.02	0.01	0.01	0.01	0.01	0.00	0.00	-98.25
D. Waste water treatment and discharge	5.76	5.85	6.11	6.25	6.52	6.64	6.73	6.82	40.44
E. Other	NO	NO	NO	NO	NO	NO	NO	NO	0.00
<b>6. Other (as specified in the summary table in CRF)</b>	NO	NO	NO	NO	NO	NO	NO	NO	0.00

TABLE 1 (cont.)  
EMISSION TRENDS: N<sub>2</sub>O  
(Part 9 of 9)

Source:  
Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	2008	2009	2010	2011	2012	2013	2014	2015	Change from base to latest reported year
	(kt)								%
Total direct N <sub>2</sub> O emissions with N <sub>2</sub> O from LULUCF	78.44	84.80	87.38	90.35	93.18	99.08	98.89	100.51	39.72
Memo items:									
Aviation	0.14	0.15	0.16	0.19	0.21	0.24	0.28	0.31	1,908.90
Navigation	0.06	0.07	0.06	0.05	0.07	0.07	0.08	0.07	600.00
Multilateral operations	NO	NO	NO	NO	NO	NO	NO	NO	0.00
CO <sub>2</sub> emissions from biomass									
CO <sub>2</sub> captured									
Long-term storage of C in waste disposal sites									
Indirect N <sub>2</sub> O	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	0.00
Indirect CO <sub>2</sub> <sup>(a)</sup>									

Abbreviations: CRF = common reporting format, LULUCF = land use, land-use change and forestry.

a The column "Base year" should be filled in only by those Parties with economies in transition that use a base year different from 1990 in accordance with the relevant decisions of the Conference of the Parties. For these Parties, this different base year is used to calculate the percentage change in the final column of this table.

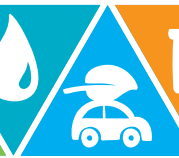
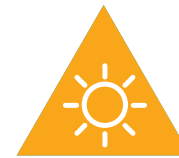


TABLE 1 (cont.)  
EMISSION TRENDS:  
HFCs, PFCs, SF<sub>6</sub>, and NF<sub>3</sub>  
(Part 1 of 6)

Source:  
Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	Base year <sup>(a)</sup>	1990	1991	1992	1993	1994	1995	1996	1997
	(kt)								
Emissions of HFCs and PFCs - (kt CO <sub>2</sub> equivalent)	625.30	625.30	863.34	722.59	403.08	710.00	611.44	577.15	574.01
Emissions of HFCs - (kt CO <sub>2</sub> equivalent)	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-23	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-32	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-41	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-43-10mee	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-125	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-134	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-134a	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-143	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-143a	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-152									
HFC-152a	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-161									
HFC-227ea	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-236cb									
HFC-236ea									
HFC-236fa	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-245ca	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-245fa	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-365mfc	NO	NO	NO	NO	NO	NO	NO	NO	NO
Unspecified mix of HFCs <sup>(g)</sup> - (kt CO <sub>2</sub> equivalent)	NO	NO	NO	NO	NO	NO	NO	NO	NO

TABLE 1 (cont.)  
EMISSION TRENDS:  
HFCs, PFCs, SF<sub>6</sub>, and NF<sub>3</sub>  
(Part 2 of 6)

Source:  
Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	Base year <sup>(a)</sup>	1990	1991	1992	1993	1994	1995	1996	1997
	(kt)								
CF <sub>4</sub>	0.08	0.08	0.11	0.09	0.05	0.09	0.08	0.07	0.07
C <sub>2</sub> F <sub>6</sub>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C <sub>3</sub> F <sub>8</sub>									
C <sub>4</sub> F <sub>10</sub>									
c-C <sub>4</sub> F <sub>8</sub>									
C <sub>5</sub> F <sub>12</sub>									
C <sub>6</sub> F <sub>14</sub>									
C <sub>10</sub> F <sub>18</sub>									
c-C3F6									
Unspecified mix of PFCs(4) - (kt CO <sub>2</sub> equivalent)									
Unspecified mix of HFCs and PFCs - (kt CO <sub>2</sub> equivalent)	NO	NO	NO	NO	NO	NO	NO	NO	NO
SF <sub>6</sub>	NO	NO	NO	NO	NO	NO	NO	0.02	0.02
NF <sub>3</sub>	NO	NO	NO	NO	NO	NO	NO	NO	NO

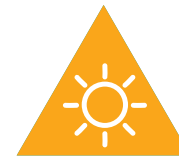


TABLE 1 (cont.)  
EMISSION TRENDS:  
HFCs, PFCs, SF<sub>6</sub>, and NF<sub>3</sub>  
(Part 3 of 6)

Source:  
Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
	(kt)									
Emissions of HFCs and PFCs - (kt CO <sub>2</sub> equivalent)	615.00	604.82	716.65	824.20	1,003.57	1,210.59	1,489.50	1,706.85	1,885.15	2,287.63
Emissions of HFCs - (kt CO <sub>2</sub> equivalent)	NO	NO	115.66	232.00	417.19	628.80	909.37	1,146.88	1,424.19	1,713.19
HFC-23	NO	NO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HFC-32	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-41	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-43-10mee	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-125	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-134	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-134a	NO	NO	0.08	0.16	0.29	0.43	0.63	0.79	0.98	1.18
HFC-143	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-143a	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-152										
HFC-152a	NO	NO	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02
HFC-161										
HFC-227ea	NO	NO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HFC-236cb										
HFC-236ea										
HFC-236fa	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-245ca	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-245fa	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
HFC-365mfc	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Unspecified mix of HFCs <sup>(4)</sup> - (kt CO <sub>2</sub> equivalent)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

TABLE 1 (cont.)  
EMISSION TRENDS:  
HFCs, PFCs, SF<sub>6</sub>, and NF<sub>3</sub>  
(Part 4 of 6)

Source:  
Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
	(kt)									
CF <sub>4</sub>	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.06	0.07
C <sub>2</sub> F <sub>6</sub>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C <sub>3</sub> F <sub>8</sub>										
C <sub>4</sub> F <sub>10</sub>										
c-C <sub>4</sub> F <sub>8</sub>										
C <sub>5</sub> F <sub>12</sub>										
C <sub>6</sub> F <sub>14</sub>										
C10F18										
c-C3F6										
Unspecified mix of PFCs(4) - (kt CO <sub>2</sub> equivalent)										
Unspecified mix of HFCs and PFCs - (kt CO <sub>2</sub> equivalent)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
SF <sub>6</sub>	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.05
NF <sub>3</sub>	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO



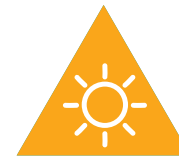


TABLE 1 (cont.)  
EMISSION TRENDS:  
HFCs, PFCs, SF<sub>6</sub>, and NF<sub>3</sub>  
(Part 5 of 6)

Source:  
Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	2008	2009	2010	2011	2012	2013	2014	2015	Change from base to latest reported year
	(kt)								%
Emissions of HFCs and PFCs - (kt CO <sub>2</sub> equivalent)	2,423.86	2,370.54	3,516.02	3,913.01	4,615.90	4,740.85	5,182.97	4,924.76	687.59
Emissions of HFCs - (kt CO <sub>2</sub> equivalent)	1,896.14	2,111.28	3,054.28	3,432.64	4,256.83	4,470.24	4,927.55	4,805.04	100.00
HFC-23	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	100.00
HFC-32	NO	NO	NO	NO	0.00	0.00	0.00	0.00	100.00
HFC-41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
HFC-43-10mee	NO	NO	NO	0.00	0.00	0.00	0.00	0.00	100.00
HFC-125	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.03	100.00
HFC-134	NO	NO	NO	0.00	0.00	0.00	0.00	0.00	100.00
HFC-134a	1.30	1.43	2.07	2.29	2.77	2.88	3.14	3.00	100.00
HFC-143	NO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
HFC-143a	NO	NO	NO	NO	0.00	0.00	0.00	0.00	100.00
HFC-152									
HFC-152a	0.04	0.18	0.33	0.64	0.85	1.11	1.27	1.42	100.00
HFC-161									
HFC-227ea	0.01	0.01	0.01	0.02	0.02	0.03	0.03	0.04	100.00
HFC-236cb									
HFC-236ea									
HFC-236fa	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
HFC-245ca	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
HFC-245fa	NO	NO	NO	NO	NO	NO, IE	0.01	0.01	100.00
HFC-365mfc	NO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Unspecified mix of HFCs <sup>(4)</sup> - (kt CO <sub>2</sub> equivalent)	NO	NO	NO	NO	NO	NO	NO	NO	0.00

TABLE 1 (cont.)  
EMISSION TRENDS:  
HFCs, PFCs, SF<sub>6</sub>, and NF<sub>3</sub>  
(Part 6 of 6)

Source:  
Submission 2018 v1.1,  
TURKEY

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	2008	2009	2010	2011	2012	2013	2014	2015	Change from base to latest reported year
CF <sub>4</sub>	0.07	0.03	0.06	0.06	0.05	0.03	0.03	0.02	-80.85
C <sub>2</sub> F <sub>6</sub>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-80.89
C <sub>3</sub> F <sub>8</sub>									
C <sub>4</sub> F <sub>10</sub>									
c-C <sub>4</sub> F <sub>8</sub>									
C <sub>5</sub> F <sub>12</sub>									
C <sub>6</sub> F <sub>14</sub>									
C10F18									
c-C3F6									
Unspecified mix of PFCs(4) - (kt CO <sub>2</sub> equivalent)									
Unspecified mix of HFCs and PFCs - (kt CO <sub>2</sub> equivalent)	NO	NO	NO	NO	NO	NO	NO	NO	0.00
SF <sub>6</sub>	0.05	0.05	0.05	0.06	0.06	0.06	0.07	0.09	100.00
NF <sub>3</sub>	NO	NO	NO	NO	NO	NO	NO	NO	0.00

Abbreviations: CRF = common reporting format, LULUCF = land use, land-use change and forestry.

<sup>a)</sup> The column "Base year" should be filled in only by those Parties with economies in transition that use a base year different from 1990 in accordance with the relevant decisions of the Conference of the Parties. For these Parties, this different base year is used to calculate the percentage change in the final column of this table.

<sup>c)</sup> Enter actual emissions estimates. If only potential emissions estimates are available, these should be reported in this table and an indication for this be provided in the documentation box. Only in these rows are the emissions expressed as CO<sub>2</sub> equivalent emissions.

<sup>d)</sup> In accordance with the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual inventories", HFC and PFC emissions should be reported for each relevant chemical. However, if it is not possible to report values for each chemical (i.e. mixtures, confidential data, lack of disaggregation), this row could be used for reporting aggregate figures for HFCs and PFCs, respectively. Note that the unit used for this row is kt of CO<sub>2</sub> equivalent and that appropriate notation keys should be entered in the cells for the individual chemicals.)

## Chapter III: Quantified Economy-Wide Emission Reduction Target

The most important step to address the impact of global warming caused by human activities on climate change was the conclusion of the UNFCCC, which was opened for signature at the United Nations Environment and Development Conference, convened in 1992 in Rio de Janeiro. The Convention entered into force on March 21, 1994. More than 190 countries including Turkey and the European Union (EU) member countries are party to the Convention.

Parties to the Convention are required to reduce GHG emissions, to cooperate on research and technology and to encourage protection of sinks. The Convention lays “common but differentiated responsibilities” to countries, taking into account their respective development priorities, goals and special circumstances, in order to reduce greenhouse gases emissions. “Common but differentiated responsibilities” principle rests on the fact that some countries need to take more responsibility in reducing GHG emissions, since they have been emitting more GHG than others after the industrial revolution.

When the Convention was adopted in 1992, Turkey, as an OECD member, was included among the Annex I and Annex II countries which bear most of the burden of the commitments made under the agreement. However, Turkey did not engage actively in Convention implementation until 2001, following negotiations which resulted in UNFCCC parties agreeing that Turkey’s “special circumstances” should be recognized and that it could invoke the “common but differentiated responsibilities” principle under the Convention. As a result of decision 26/CP.7 of the UNFCCC adopted in 7<sup>th</sup> Conference of Parties held in Marrakech in 2001, Turkey was removed from Annex II of the UNFCCC and State Parties were invited to recognize the special conditions which place Turkey in a different position from other Annex I countries. This decision entered into force on June 28, 2002 and since that date Turkey is only an Annex I country. After this decision was taken, Turkey was able to adhere to the

Convention ten years after its entry into force on May 24, 2004.

GHG reduction commitments for the Parties, included in Annex I of the Convention, during the first commitment period ranging from 2008 to 2012 are determined in the Annex B of the Kyoto Protocol. Turkey was not Party to the Convention, during the negotiations

of the Kyoto Protocol, and therefore, is not listed in the Annex-B of the Kyoto Protocol, although being listed in the Annex-I of the Convention.

Turkey became a Party to the Kyoto Protocol on 26 August 2009. Since it is not listed in the Annex-B of the Protocol, Turkey does not have any quantified emission reduction target. Turkey’s responsibility under the Protocol until 2012 is only limited to the Article 10 of the Protocol.

The first commitment period of the Kyoto Protocol ended in 2012. Official negotiations of the post Kyoto regime under the UNFCCC have begun at the 13th Conference of Parties to the UNFCCC in December 2007 in Bali. As successor of the Kyoto Protocol, the “Doha Amendment to the Kyoto Protocol” has been adopted at the Doha Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on 8 December 2012.

In that respect Turkey as an Annex-I and non-Annex B country, has no quantified emission reduction target within the Kyoto Regime. Regarding the reporting in Biennial Report (BR), the BR Table 2 on description of quantified economy-wide emission reduction target is inapplicable for the case of Turkey thus is left blank throughout the report



TABLE 2(A)<sup>1</sup>  
DESCRIPTION OF  
QUANTIFIED ECONOMY-  
WIDE EMISSION  
REDUCTION TARGET:  
BASE YEAR <sup>a</sup>

		Comments
Base year/ base period		
Emission reductions target (% of base year/base period)	(% of base year/base period)	(% of 1990) <sup>b</sup>
Period for reaching target	BY-2020	

(a) Reporting by a developed country Party on the information specified in the common tabular format does not prejudice the position of other Parties with regard to the treatment of units from market-based mechanisms under the Convention or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.

(b) Optional.

<sup>1</sup> Turkey does not have any quantified economy-wide emission reduction targets, therefore this table is not applicable for Turkey.

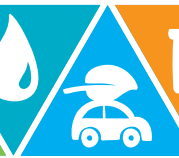
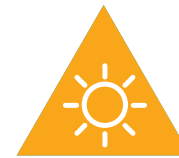


TABLE 2(B)<sup>2</sup>  
DESCRIPTION OF  
QUANTIFIED ECONOMY-  
WIDE EMISSION  
REDUCTION TARGET:  
GASES AND SECTORS  
COVERED<sup>a</sup>

Gases covered	Base Year for each gas (year):
CO <sub>2</sub>	
CH <sub>4</sub>	
N <sub>2</sub> O	
HFCs	
PFCs	
SF <sub>6</sub>	
NF <sub>3</sub>	
Other Gases (Specify)	

Sectors covered <sup>b</sup>	Covered	Comments
Energy		Yes
Transport <sup>c</sup>		Yes
Industrial processes <sup>d</sup>		Yes
Agriculture		Yes
LULUCF		Yes
Waste		Yes
Other Sectors (Specify)		

Abbreviations: LULUCF = land use, land-use change and forestry.

(a) Reporting by a developed country Party on the information specified in the common tabular format does not prejudice the position of other Parties with regard to the treatment of units from market-based mechanisms under the Convention or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.

(b) More than one selection will be allowed. If Parties use sectors other than those indicated above, the explanation of how these sectors relate to the sectors defined by the IPCC should be provided.

(f) Transport is reported as a subsector of the energy sector.

(g) Industrial processes refer to the industrial processes and solvent and other product use sectors.

<sup>2</sup> Turkey does not have any quantified economy-wide emission reduction targets, therefore this table is not applicable for Turkey

TABLE 2(C)<sup>3</sup>  
DESCRIPTION OF  
QUANTIFIED ECONOMY-  
WIDE EMISSION  
REDUCTION TARGET:  
GLOBAL WARMING  
POTENTIAL VALUES  
(GWP)<sup>a</sup>

Gases covered	GWP Values <sup>b</sup>
CO <sub>2</sub>	
CH <sub>4</sub>	
N <sub>2</sub> O	
HFCs	
PFCs	
SF <sub>6</sub>	
NF <sub>3</sub>	
Other Gases (Specify)	

Abbreviations: GWP = global warming potential

(a) Reporting by a developed country Party on the information specified in the common tabular format does not prejudice the position of other Parties with regard to the treatment of units from market-based mechanisms under the Convention or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.

(b) Please specify the reference for the GWP: Second Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) or the Fourth Assessment Report of the IPCC

TABLE 2(D)<sup>4</sup>  
DESCRIPTION OF  
QUANTIFIED ECONOMY-  
WIDE EMISSION  
REDUCTION TARGET:  
APPROACH TO COUNTING  
EMISSIONS AND  
REMOVALS FROM THE  
LULUCF SECTOR<sup>a</sup>

Role of LULUCF	LULUCF in base year level and target	Included
	Contribution of LULUCF is calculated using	

Abbreviation: LULUCF = land use, land-use change and forestry.

(a) Reporting by a developed country Party on the information specified in the common tabular format does not prejudice the position of other Parties with regard to the treatment of units from market-based mechanisms under the Convention or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.

<sup>3</sup> Turkey does not have any quantified economy-wide emission reduction targets, therefore this table is not applicable for Turkey

<sup>4</sup> Turkey does not have any quantified economy-wide emission reduction targets, therefore this table is not applicable for Turkey

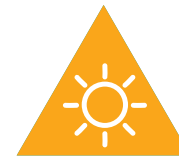


TABLE 2(E)-I  
DESCRIPTION OF  
QUANTIFIED ECONOMY-  
WIDE EMISSION  
REDUCTION TARGET:  
MARKET-BASED  
MECAHNISMS UNDER  
THE CONVENTION<sup>a</sup>

	Market-based mechanisms under the Convention	Possible scale of contributions of market-based mechanisms under the Convention (estimated kt CO <sub>2</sub> eq)
CERs		
ERUs		
AAUs <sup>b</sup>		
Carry-over units <sup>c</sup>		
Other mechanism units under the Convention (Specify) <sup>d</sup>		

Abbreviation: AAU = assigned amount unit, CER = certified emission reduction, ERU = emission reduction unit.

(a) Reporting by a developed country Party on the information specified in the common tabular format does not prejudice the position of other Parties with regard to the treatment of units from market-based mechanisms under the Convention or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.

(d) As indicated in paragraph 5(e) of the guidelines contained in annex I of decision 2/CP.17.

(i) AAUs issued to or purchased by a Party

(j) Units carried over from the first to the second commitment periods of the Kyoto Protocol, as described in decision 13/CMP.1 and consistent with decision 1/CMP.8.

TABLE 2(E)-II<sup>5</sup>  
DESCRIPTION OF  
QUANTIFIED ECONOMY-  
WIDE EMISSION  
REDUCTION TARGET:  
OTHER MARKET-BASED  
MECHANISM<sup>a</sup>

Other market-based mechanisms (Specify)	Possible scale of contributions of other market-based mechanisms (Specify) (estimated kt CO <sub>2</sub> eq)
--	---

(a) Reporting by a developed country Party on the information specified in the common tabular format does not prejudice the position of other Parties with regard to the treatment of units from market-based mechanisms under the Convention or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets

TABLE 2(F)  
DESCRIPTION OF  
QUANTIFIED ECONOMY-  
WIDE EMISSION  
REDUCTION TARGET: ANY  
OTHER INFORMATION<sup>a,b</sup>

|--|

(a) Reporting by a developed country Party on the information specified in the common tabular format does not prejudice the position of other Parties with regard to the treatment of units from market-based mechanisms under the Convention or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets

(b) This information could include information on the domestic legal status of the target or the total assigned amount of emission units for the period for reaching a target. Some of this information is presented in the narrative part of the biennial report.

<sup>5</sup> Turkey does not have any quantified economy-wide emission reduction targets, therefore this table is not applicable for Turkey.





## Chapter IV: Progress in Achievement of the Quantified Economy- Wide Emission Reduction Target

The most important step to address the impact of global warming caused by human activities on climate change was the conclusion of the UNFCCC, which was opened for signature at the United Nations Environment and Development Conference, convened in 1992 in Rio de Janeiro. The Convention entered into force on March 21, 1994. More than 190 countries including Turkey and the EU member countries are party to the Convention.

Parties to the Convention are required to reduce GHG emissions, to cooperate on research and technology and to encourage protection of sinks. The Convention lays “common but differentiated responsibilities” to countries, taking into account their respective development priorities, goals and special circumstances, in order to reduce greenhouse gases emissions. “Common but differentiated responsibilities” principle rests on the fact that some countries need to take more responsibility in reducing GHG emissions, since they have been emitting more GHG than others after the industrial revolution.

When the Convention was adopted in 1992, Turkey, as an OECD member, and was included among the Annex I and Annex II countries which bear most of the burden of the commitments made under the agreement. However, Turkey did not engage actively in Convention implementation until 2001, following negotiations which resulted in UNFCCC parties agreeing that Turkey’s “special circumstances” should be recognized and that it could invoke the “common but differentiated responsibilities” principle under the Convention. As a result of decision 26/CP.7 of the UNFCCC adopted in 7<sup>th</sup> Conference of Parties held in Marrakech in 2001, Turkey was removed from Annex II of the UNFCCC and State Parties were invited to recognize the special conditions which place Turkey in a different position from other Annex I countries. This decision entered into force on June 28, 2002 and since that date Turkey is only an Annex I country. After this decision was taken, Turkey was able to adhere to the Convention ten years after its entry into force on May 24, 2004.

GHG reduction commitments for the Parties, included in Annex I of the Convention, during the first commitment period ranging from 2008 to 2012 are determined in the Annex B of the Kyoto Protocol. Turkey was not Party to the Convention during the negotiations

of the Kyoto Protocol, and therefore, is not listed in the Annex-B of the Kyoto Protocol, although being listed in the Annex-I of the Convention.

Turkey became a Party to the Kyoto Protocol on 26 August 2009. Since it is not listed in the Annex-B of the Protocol, Turkey does not have any quantified emission reduction targets. Turkey’s responsibility under the Protocol until 2012 is only limited to the Article 10 of the Protocol.

The first commitment period of the Kyoto Protocol ended in 2012. Official negotiations of the post Kyoto regime under the UNFCCC have begun at the 13th Conference of Parties to the UNFCCC in December 2007 in Bali. As successor of the Kyoto Protocol, the “Doha Amendment to the Kyoto Protocol” has been adopted at the Doha Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on 8 December 2012.

In that respect Turkey as an Annex-I and non-Annex B country, has no quantified emission reduction target within the Kyoto Regime. Regarding the reporting in Biennial Report, the BR Table 3 on progress in achievement of the quantified economy-wide emission reduction target and BR Table 4 on progress in achievement of the quantified economy-wide emission reduction target, are inapplicable for the case of Turkey thus are left blank throughout the report.

TABLE 3<sup>6</sup>  
 PROGRESS IN  
 ACHIEVEMENT OF THE  
 QUANTIFIED ECONOMY-  
 WIDE EMISSION  
 REDUCTION TARGET:  
 INFORMATION ON  
 MITIGATION ACTIONS  
 AND THEIR EFFECTS

Name of mitigation action <sup>a</sup>	Sector(s) affected	GHG(s) affected	Objective and/or activity affected	Type of instrument <sup>c</sup>	Status of implementation <sup>d</sup>	Brief description <sup>e</sup>	Start year of implementation	Implementing entity or entities	Estimate of mitigation impact (not cumulative) (kt CO <sub>2</sub> eq)
									2020

Note: The two final columns specify the year identified by the Party for estimating impacts (based on the status of the measure and whether an ex post or ex ante estimation is available).

Abbreviations: GHG = greenhouse gas; LULUCF = land use, land-use change and forestry.

(a) Parties should use an asterisk (\*) to indicate that a mitigation action is included in the 'with measures' projection.

(b) To the extent possible, the following sectors should be used: energy, transport, industry/industrial processes, agriculture, forestry/LULUCF, waste management/waste, other sectors, cross-cutting, as appropriate.

(c) To the extent possible, the following types of instrument should be used: economic, fiscal, voluntary agreement, regulatory, information, education, research, other.

(d) To the extent possible, the following descriptive terms should be used to report on the status of implementation: implemented, adopted, planned.

(e) Additional information may be provided on the cost of the mitigation actions and the relevant timescale.

(f) Optional year or years deemed relevant by the Party.

<sup>6</sup>Turkey does not have any quantified economy-wide emission reduction targets, therefore this table is not applicable for Turkey



TABLE 4<sup>7</sup>  
REPORTING ON  
PROGRESS<sup>a,b</sup>

Year <sup>c</sup>	Total emissions excluding LULUCF (kt CO <sub>2</sub> eq)	Contribution from LULUCF <sup>d</sup> (kt CO <sub>2</sub> eq)	Quantity of units from market based mechanisms under the Convention		Quantity of units from other market based mechanisms	
			(number of units)	(kt CO <sub>2</sub> eq)	(number of units)	(kt CO <sub>2</sub> eq)
Base year/period						
2010						
2011						
2012						
2013						
2014						
2015						
2016						

Abbreviation: GHG = greenhouse gas, LULUCF = land use, land-use change and forestry.

(a) Reporting by a developed country Party on the information specified in the common tabular format does not prejudice the position of other Parties with regard to the treatment of units from market-based mechanisms under the Convention or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.

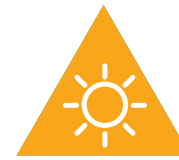
(b) For the base year, information reported on the emission reduction target shall include the following: (a) total GHG emissions, excluding emissions and removals from the LULUCF sector; (b) emissions and/or removals from the LULUCF sector based on the accounting approach applied taking into consideration any relevant decisions of the Conference of the Parties and the activities and/or land that will be accounted for; (c) total GHG emissions, including emissions and removals from the LULUCF sector. For each reported year, information reported on progress made towards the emission reduction targets shall include, in addition to the information noted in paragraphs 9(a-c) of the UNFCCC biennial reporting guidelines for developed country Parties, information on the use of units from market-based mechanisms.

(c) Parties may add additional rows for years other than those specified below.

<sup>7</sup> Turkey does not have any quantified economy-wide emission reduction targets, therefore this table is not applicable for Turkey.

TABLE 4(A)-1<sup>8</sup>  
 PROGRESS IN ACHIEVING  
 THE QUANTIFIED ECONOMY-  
 WIDE EMISSION REDUCTION  
 TARGETS –FURTHER  
 INFORMATION ON MITIGATION  
 ACTIONS RELEVANT TO THE  
 CONTRIBUTION OF THE LAND  
 USE, LAND-USE CHANGE AND  
 FORESTRY SECTOR IN 20XX-3<sup>a,b</sup>

	Net GHG emissions/ removals from LULUCF categories <sup>c</sup>	Base year/period or reference level value <sup>d</sup>	Contribution from LULUCF for reported year	Cumulative contribu- tion from LULUCF <sup>e</sup>	Accounting approach <sup>f</sup>
kt CO <sub>2</sub> eq					
Total LULUCF					
A. Forest land					
1. Forest land remaining forest land					
2. Land converted to forest land					
3. Other (please specify) <sup>g</sup>					
B. Cropland					
1. Cropland remaining cropland					
2. Land converted to cropland					
3. Other (please specify) <sup>g</sup>					
C. Grassland					
1. Grassland remaining grassland					
2. Land converted to grassland					
3. Other (please specify) <sup>g</sup>					
D. Wetlands					
1. Wetland remaining wetland					
2. Land converted to wetland					
3. Other (please specify) <sup>g</sup>					
E. Settlements					
1. Settlements remaining settlements					
2. Land converted to settlements					
3. Other (please specify) <sup>g</sup>					
F. Other land					
1. Other land remaining other land					
2. Land converted to other land					
3. Other (please specify) <sup>g</sup>					
Harvested wood products					



Abbreviations: GHG = greenhouse gas, LULUCF = land use, land-use change and forestry.

- (a) Reporting by a developed country Party on the information specified in the common tabular format does not prejudice the position of other Parties with regard to the treatment of units from market-based mechanisms under the Convention or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.
- (b) Parties that use the LULUCF approach that is based on table 1 do not need to complete this table, but should indicate the approach in table 2. Parties should fill in a separate table for each year, namely 2011 and 2012, where 2014 is the reporting year.
- (c) For each category, enter the net emissions or removals reported in the most recent inventory submission for the corresponding inventory year. If a category differs from that used for the reporting under the Convention or its Kyoto Protocol, explain in the biennial report how the value was derived.
- (d) Enter one reference level or base year/period value for each category. Explain in the biennial report how these values have been calculated.
- (e) If applicable to the accounting approach chosen. Explain in this biennial report to which years or period the cumulative contribution refers to.
- (f) Label each accounting approach and indicate where additional information is provided within this biennial report explaining how it was implemented, including all relevant accounting parameters (i.e. natural disturbances, caps).
- (g) Specify what was used for the category "other". Explain in this biennial report how each was defined and how it relates to the categories used for reporting under the Convention or its Kyoto Protocol.

TABLE 4(A)-II<sup>9</sup>  
 PROGRESS IN ACHIEVING  
 THE QUANTIFIED ECONOMY-  
 WIDE EMISSION REDUCTION  
 TARGETS –FURTHER  
 INFORMATION ON MITIGATION  
 ACTIONS RELEVANT TO THE  
 COUNTING OF EMISSIONS  
 AND REMOVALS FROM  
 THE LAND USE, LAND-USE  
 CHANGE AND FORESTRY  
 SECTOR IN RELATION TO  
 ACTIVITIES UNDER ARTICLE 3,  
 PARAGRAPHS 3 AND 4 OF THE  
 KYOTO PROTOCOL<sup>a,b,c</sup>

GREENHOUSE GAS SOURCE AND SINK ACTIVITIES	Base year <sup>d</sup>	Net emissions/removals <sup>e</sup>				Accounting parameters <sup>h</sup>	Accounting quantity <sup>i</sup>
		2008	2009	... <sup>f</sup>	Total <sup>g</sup>		
(kt CO <sub>2</sub> eq)							
<b>A. Article 3, paragraph 3, activities</b>							
<b>A.1. Afforestation and reforestation</b>							
A.1.1. Units of land not harvested since the beginning of the commitment period <sup>d</sup>							
A.1.2. Units of land harvested since the beginning of the commitment period <sup>d</sup>							
<b>A.2. Deforestation</b>							
<b>B. Article 3, paragraph 4, activities</b>							
<b>B.1. Forest management (if elected)</b>							
3.3 offset <sup>k</sup>							
Forest management cap <sup>l</sup>							
<b>B.2. Cropland management (if elected)</b>							
<b>B.3. Grazing land management (if elected)</b>							
<b>B.4. Revegetation (if elected)</b>							

Note: 1 kt CO<sub>2</sub> eq equals 1 Gg CO<sub>2</sub> eq.

Abbreviations: CRF = common reporting format, LULUCF = land use, land-use change and forestry.

(a) Reporting by a developed country Party on the information specified in the common tabular format does not prejudice the position of other Parties with regard to the treatment of units from market-based mechanisms under the Convention or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.

(b) Developed country Parties with a quantified economy-wide emission reduction target as communicated to the secretariat and contained in document FCCC/SB/2011/ INF.1/Rev.1 or any update to that document, that are Parties to the Kyoto Protocol, may use table 4(a)II for reporting of accounting quantities if LULUCF is contributing to the attainment of that target.

(c) Parties can include references to the relevant parts of the national inventory report, where accounting methodologies regarding LULUCF are further described in the documentation box or in the biennial reports.

(d) Net emissions and removals in the Party's base year, as established by decision 9/CP.2.

(e) All values are reported in the information table on accounting for activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, of the CRF for the relevant inventory year as reported in the current submission and are automatically entered in this table.

(f) Additional columns for relevant years should be added, if applicable.

(g) Cumulative net emissions and removals for all years of the commitment period reported in the current submission.

(h) The values in the cells "3.3 offset" and "Forest management cap" are absolute values.

(i) The accounting quantity is the total quantity of units to be added to or subtracted from a Party's assigned amount for a particular activity in accordance with the provisions of Article 7, paragraph 4, of the Kyoto Protocol.

(j) In accordance with paragraph 4 of the annex to decision 16/CMP.1, debits resulting from harvesting during the first commitment period following afforestation and reforestation since 1990 shall not be greater than the credits accounted for on that unit of land.

(k) In accordance with paragraph 10 of the annex to decision 16/CMP.1, for the first commitment period a Party included in Annex I that incurs a net source of emissions under the provisions of Article 3 paragraph 3, may account for anthropogenic greenhouse gas emissions by sources and removals by sinks in areas under forest management under Article 3, paragraph 4, up to a level that is equal to the net source of emissions under the provisions of Article 3, paragraph 3, but not greater than 9.0 megatonnes of carbon times five, if the total anthropogenic greenhouse gas emissions by sources and removals by sinks in the managed forest since 1990 is equal to, or larger than, the net source of emissions incurred under Article 3, paragraph 3.

(l) In accordance with paragraph 11 of the annex to decision 16/CMP.1, for the first commitment period of the Kyoto Protocol only, additions to and subtractions from the assigned amount of a Party resulting from Forest management under Article 3, paragraph 4, after the application of paragraph 10 of the annex to decision 16/CMP.1 and resulting from forest management project activities undertaken under Article 6, shall not exceed the value inscribed in the appendix of the annex to decision 16/ CMP.1, times five.

<sup>9</sup>Turkey does not have any quantified economy-wide emission reduction targets, therefore this table is not applicable for Turkey.

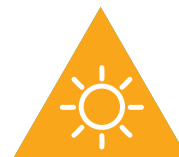


TABLE 4(B)<sup>10</sup>  
REPORTING ON  
PROGRESS<sup>a,b,c</sup>

Units of market based mechanisms		Year	Year	
			2015	2016
<b>Kyoto Protocol units<sup>d</sup></b>	Kyoto Protocol Units	(number of units)		
		(kt CO <sub>2</sub> eq)		
	AAUs	(number of units)		
	ERUs	(kt CO <sub>2</sub> eq)		
	CERs	(number of units)		
	tCERs	(kt CO <sub>2</sub> eq)		
<b>Other units<sup>d,e</sup></b>	Units from market-based mechanisms under the Convention	(number of units)		
		(kt CO <sub>2</sub> eq)		
	Units from other market-based mechanisms <sup>d, e</sup>	(number of units)		
		(kt CO <sub>2</sub> eq)		
<b>Total</b>	(number of units)			
	(kt CO <sub>2</sub> eq)			

Abbreviations: AAUs = assigned amount units, CERs = certified emission reductions, ERUs = emission reduction units, LCERs = long-term certified emission reductions, tCERs = temporary certified emission reductions.

Note: 2011 is the latest reporting year.

(a) Reporting by a developed country Party on the information specified in the common tabular format does not prejudice the position of other Parties with regard to the treatment of units from market-based mechanisms under the Convention or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.

(b) For each reported year, information reported on progress made towards the emission reduction target shall include, in addition to the information noted in paragraphs 9(a-c) of the reporting guidelines, on the use of units from market-based mechanisms.

(c) Parties may include this information, as appropriate and if relevant to their target.

(d) Units surrendered by that Party for that year that have not been previously surrendered by that or any other Party.

(e) Additional rows for each market-based mechanism should be added, if applicable

<sup>10</sup> Turkey does not have any quantified economy-wide emission reduction targets, therefore this table is not applicable for Turkey.

## Chapter V: Projections

As referred in Turkey's Sixth National Communication, in accordance with decisions 1/CP.19 and 1/CP.20, on 30 September 2015, the Republic of Turkey submitted its Intended Nationally Determined Contribution (INDC) to UNFCCC towards achieving the ultimate objective of the Convention, which is set out in its Article 2 and clarifying information. The study of projections of GHG emissions which constituted the basis for the INDC was carried out under the project called "Preparation of Turkey's Sixth National Communication on Climate Change", implemented by Ministry of Environment and Urbanisation and Scientific and Technological Research Council of Turkey (TUBITAK) Marmara Research Center. In this report, the GHG emission projections that are based on the INDC submissions have been used. And the GHG emission projections have not been updated since then.

Mathematical modeling approach is deployed using a widely known energy system model IEA ETSAP TIMES. It is a bottom-up, linear dynamic model with the objective of total cost minimization under the given set of constraints (e.g. demand levels, GHGs limits etc.). The projections of greenhouse gas emissions by 2030 are based on two scenarios: Business-As-Usual Scenario and Mitigation Scenario. TIMES-MACRO model has been used for modelling the emissions from energy consumption, industrial processes and product use, while for non-energy emissions different national models and studies have been used.

The key underlying assumptions used to estimate the projections of greenhouse gas emissions are presented in Table 5. The Greenhouse Gas (GHG) Projection study which has constituted the basis for the Intended Nationally Determined Contribution (INDC) was submitted by Turkey on 30 September 2015, which is based on 2014 NIR. For this reason the GHG Projections, for both With Measures and Without Measures Scenarios reported, start from 2012. The GHG emission projection figures for 2020 and 2030 are based on Turkey's INDC, therefore the GHG emission projections have not been updated. The base year for GHG emission projections is 2012; however in this report the GHG emission trends for 1990-2015 have been updated based on Turkey's latest GHG inventory, that is submitted in 2017.

Turkey achieved 230% increase in GDP between 1990 and 2012. While Turkey's annual GDP growth stood at 2.1% in 2012, it is projected to reach 4% by 2030. Its population has increased to 75.6 million by more than 30% from 1990 to 2012. Turkey's energy demand increases by 6-7% every year. According to the projections by Ministry of Energy and Natural Resources, electricity demand in 2030 will reach 580 TWh under the business-as-usual scenario.

Emissions factors used to calculate GHG emissions are based on 2014 National Inventory Report<sup>11</sup>, 2006 IPCC Guidelines and data provided by various national institutions. Global warming potential on a 100 year timescale used for the calculation of CO<sub>2</sub> equivalent emissions is in accordance with the IPCC's Fourth Assessment Report.

No sensitivity analysis has been carried out during modeling process due to the time limitations that has been faced. A more comprehensive sensitivity analysis is being planned for the next projection study.

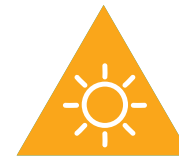
### **V.A. Without Measures / Business-As-Usual Scenario**

BAU scenario is based on the assumption that energy intensity of residential and commercial sector would increase due to personal income increase expected and the smaller household size coupled with expected population growth, industrial sector composition will stay the same coupled with similar growth rates as expected GDP growth rates. Thus these assumptions coupled with the planning of energy sector with minimum cost principle, drives the current BAU scenario outcomes.

The business-as-usual scenario projects greenhouse gas emissions up to 2030 based on the case that the mitigation measures which have been legalised, applied or planned since 2012 will not be implemented between 2012 and 2030. Greenhouse gas emissions for 1990-2012 and projected emissions up to 2030 are provided in Table 6. CO<sub>2</sub> emissions are projected to increase about 187% by 2030 compared to 2012. CO<sub>2</sub> emissions, which were 79% of the total emissions in 2012, are projected to be 84% and 87% to total emissions in 2020 and 2030 respectively (excluding LULUCF) due to a gradual

<sup>11</sup> The GHG Projection study which would constitute the basis for the Intended Nationally Determined Contribution (INDC) submitted by Turkey on 30 September 2015, had to be initiated in advance and therefore based on 2014 Inventory submission.

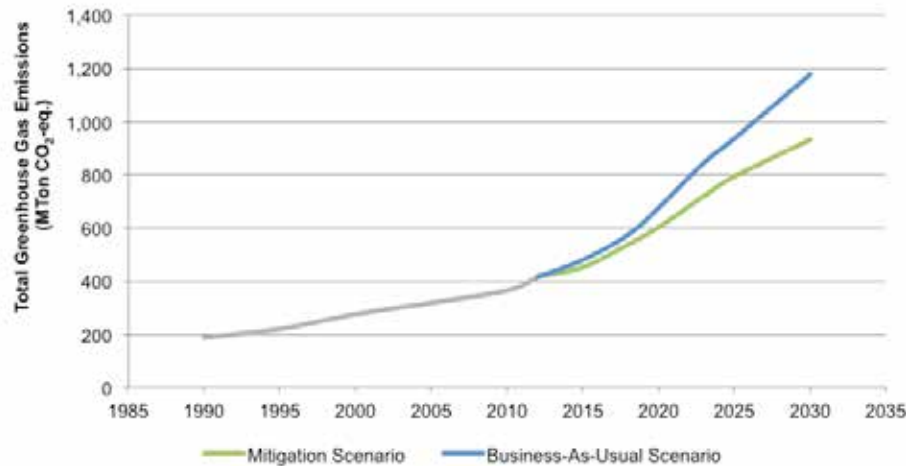




increase in energy consumption. The ratio of CH<sub>4</sub> and N<sub>2</sub>O emissions to total emissions is 15% and 5% in 2012 respectively. The ratio of CH<sub>4</sub> emissions to total emissions is 11% and 9% in 2020 and 2030 respectively, while the ratio of N<sub>2</sub>O emissions to total emissions is 4% and 3% 2020 and 2030 respectively. On the other hand, the ratio of fluorinated gases emissions to total emissions is not expected to change much by 2030. In business-as-usual scenario, emissions from energy consumption are projected to increase about 27.3 Mton CO<sub>2</sub>-equiv per year for 2012-2020 and about 40.5 Mton CO<sub>2</sub>-equiv per year for 2020-2030.

### V.B. With Measures / Mitigation Scenario

In mitigation scenario, emissions for 2012-2030 were developed based on mitigation measures from various policy papers and strategic documents. Under the mitigation scenario, it is projected that the increase in CO<sub>2</sub> emissions will be about 133% from 2012 to 2030. The ratio of CO<sub>2</sub> emissions to total GHG emissions will be 84% and 86% in 2020 and 2030 respectively. Compared to business-as-usual scenario, emissions of CO<sub>2</sub> and NH<sub>4</sub> are projected to decrease 19% and 15% respectively by 2030 (excluding LULUCF). The ratio of CH<sub>4</sub>, N<sub>2</sub>O and fluorinated gases emissions to total GHG emissions are slightly different compared to business-as-usual scenario.



When evaluating emission projections by sector, it shows that the greatest mitigation will happen in the waste sector up to 23.2% by 2030. Policies such as rehabilitation of unmanaged waste sites and recovery of methane gas from landfill gas will play a major role in mitigation. The energy sector will be in the second place of the greatest mitigation up to 21.8% by 2030. Plans/policies about renewable energy resources and nuclear power are among the most important supporters in mitigation foreseen in the energy sector, covering the fuel borne emissions from transportation, industry, residential-commercial, agriculture sectors, besides the emissions from electricity generation sector. Implementation of urban transformation projects in residential-commercial sector and adoption of transformation programs in industry sector will help the mitigation of greenhouse gases in these sectors. With regards to the LULUCF, Turkey aims to increase its forestland to cover 30% of the country (23.400.000 ha) by 2023. In addition, it is anticipated that removals by sinks will rise by 37% until 2030 related to 2012 for mitigation scenario. There is also anticipated that removals by sinks will change 80% at 2030 between two scenarios. (MoEU, 2016)

Greenhouse gas emissions for 1990-2012 and projected emissions up to 2030 for mitigation scenario are provided in Table 6. For detailed information on the plans and policies to be implemented in electricity generation, industry, transportation, residential-commercial, agriculture, waste and forestry sectors, please refer to the “Chapter 5 on Projections of Greenhouse Gas Emissions” of Turkey’s Sixth National Communication.

Consequently, as submitted in the context of the INDC, up to 21 percent reduction in GHG emissions from business-as-usual scenario level by 2030 is anticipated and believed to enable Turkey to step on low-carbon development pathways compatible with the long-term objective of limiting the increase in global temperature below 20C. Recalling the decisions 26/CP.7, 1/CP.16, 2/CP.17, 1/CP.18 and 21/CP.20, in view of successfully implementing this INDC, Turkey will use domestic sources and receive international financial, technological, technical and capacity building support. The emission reductions to be achieved by the referred policies and plans compared to the business-as-usual scenario are presented in the figure below.

TABLE 5  
SUMMARY OF KEY  
VARIABLES AND  
ASSUMPTIONS USED IN THE  
PROJECTIONS ANALYSIS

Key underlying assumptions	Unit	Historical								Projected			Comment
		1990	1995	2000	2005	2010	2011	2012	2015	2020	2025	2030	
Population	thousands							75,627	78,151	82,076	85,569	88,427	
Annual population growth rate	%							1.38%	1.07%	0.93%	0.75%	0.60%	
Annual GDP Growth Rate	%							2.10%	3.50%	4.15%	4.25%	4.12%	

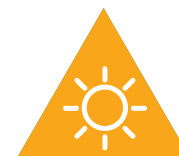


TABLE 6 <sup>12</sup>  
INFORMATION ON UPDATED GREENHOUSE GAS PROJECTIONS UNDER  
“WITH MEASURES” AND “WITHOUT MEASURES” SCENARIOS

GHG emissions projections	GHG emissions and removals							GHG emission projections (with measures)		GHG emission projections (without measures)	
	kt CO <sub>2</sub> eq							kt CO <sub>2</sub> eq		kt CO <sub>2</sub> eq	
	Base Year	1990	1995	2000	2005	2010	2012	2020	2030	2020	2030
<b>Sector <sup>d,e</sup></b>											
Energy	134,327.90	134,327.90	162,696.10	212,330.42	240,329.11	292,323.66	339,721.86	499,335.53	738,265.86	538,886.82	943,547.02
Transport	26,968.90	26,968.90	34,112.99	36,464.87	42,041.16	45,391.99	75,788.98	101,112.82	135,994.48	101,189.82	136,512.60
Industrial processes	22,893.94	22,893.94	26,128.67	26,643.60	34,633.97	49,215.31	59,574.33	94,785.20	169,753.80	94,750.20	169,753.80
Agriculture	42,402.30	42,402.30	40,987.45	40,032.91	40,771.65	42,826.37	53,650.01	51,557.04	59,277.89	51,557.04	59,277.89
Forestry/LULUCF	-28,922.68	-28,922.68	-28,906.75	-34,739.75	-42,652.80	-45,956.63	-63,668.94	-70,035.88	-69,710.38	-40,193.25	-38,698.13
Waste management/waste	11,090.59	11,090.59	12,382.41	14,487.23	16,919.43	18,198.35	16,984.25	23,610.00	31,400.00	27,900.00	40,900.00
Other Sectors											
<b>Gases</b>											
CO <sub>2</sub> emissions including net CO <sub>2</sub> from LULUCF	117,526.58	117,526.58	149,349.79	191,160.50	218,139.32	273,417.50	317,002.72	494,057.44	790,338.43	561,857.87	1,018,359.96
CO <sub>2</sub> emissions excluding net CO <sub>2</sub> from LULUCF	146,507.20	146,507.20	178,310.25	226,029.84	260,897.95	319,528.40	380,858.10	564,093.32	860,048.81	602,051.13	1,057,058.09
CH <sub>4</sub> emissions including CH <sub>4</sub> from LULUCF	42,203.66	42,203.66	42,383.98	43,525.51	45,472.89	52,467.16	52,397.82	71,214.67	91,824.92	76,549.20	107,651.46
CH <sub>4</sub> emissions excluding CH <sub>4</sub> from LULUCF	42,183.50	42,183.50	42,372.39	43,484.24	45,468.20	52,461.56	52,392.72	71,214.67	91,824.92	76,549.20	107,651.46
N <sub>2</sub> O emissions including N <sub>2</sub> O from LULUCF	21,436.50	21,436.50	20,942.66	22,684.61	23,798.22	26,038.63	29,951.30	25,170.91	31,104.62	25,719.86	33,049.96
N <sub>2</sub> O emissions excluding N <sub>2</sub> O from LULUCF	21,398.73	21,398.73	20,900.54	22,596.29	23,697.07	25,889.96	29,769.97	25,170.91	31,104.62	25,719.86	33,049.96
HFCs	NO	NO	NO	115.66	1,146.88	3,054.28	4,805.04	7,504.22	13,444.50	7,504.22	13,444.50
PFCs	625.30	625.30	611.44	601.00	559.96	461.74	119.72	NE	NE	NE	NE
NF <sub>3</sub>	NO	NO	NO	667.13	884.09	1,167.75	1,984.90	1,269.65	2,274.70	1,269.65	2,274.70
Other gases	NO	NO	NO	NO	NO	NO	NO	NE	NE	NE	NE
<b>Total with LULUCF</b>	<b>181,792.04</b>	<b>181,792.04</b>	<b>213,287.87</b>	<b>258,754.41</b>	<b>290,001.36</b>	<b>356,607.05*</b>	<b>406,261.50</b>	<b>599,216.89</b>	<b>928,987.17</b>	<b>672,900.80</b>	<b>1,174,780.58</b>
<b>Total without LULUCF</b>	<b>210,714.73</b>	<b>210,714.73</b>	<b>242,194.62</b>	<b>293,494.15*</b>	<b>332,654.16*</b>	<b>402,563.69</b>	<b>469,930.44*</b>	<b>669,252.77</b>	<b>998,697.55</b>	<b>713,094.06</b>	<b>1,213,478.71</b>

<sup>12</sup> The GHG emission projection figures for years 2020 and 2030 are based on Turkey's INDC, which has been submitted on 30 September 2015. The projections have not been updated since then. The base year for the projections is 2012. However, the GHG emission trends for 1990-2015 have been updated based on Turkey's latest GHG Inventory.

TABLE 6  
 INFORMATION ON UPDATED  
 GREENHOUSE GAS  
 PROJECTIONS UNDER  
 "WITH MEASURES" AND  
 "WITHOUT MEASURES"  
 SCENARIOS

Abbreviations: GHG = greenhouse gas, LULUCF = land use, land-use change and forestry.

(a) In accordance with the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications", at a minimum Parties shall report a 'with measures' scenario, and may report 'without measures' and 'with additional measures' scenarios. If a Party chooses to report 'without measures' and/or 'with additional measures' scenarios they are to use tables 6(b) and/or 6(c), respectively. If a Party does not choose to report 'without measures' or 'with additional measures' scenarios then it should not include tables 6(b) or 6(c) in the biennial report.

(b) Emissions and removals reported in these columns should be as reported in the latest GHG inventory and consistent with the emissions and removals reported in the table on GHG emissions and trends provided in this biennial report. Where the sectoral breakdown differs from that reported in the GHG inventory Parties should explain in their biennial report how the inventory sectors relate to the sectors reported in this table.

(c) 20XX is the reporting due-date year (i.e. 2014 for the first biennial report).

(d) In accordance with paragraph 34 of the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications", projections shall be presented on a sectoral basis, to the extent possible, using the same sectoral categories used in the policies and measures section. This table should follow, to the extent possible, the same sectoral categories as those listed in paragraph 17 of those guidelines, namely, to the extent appropriate, the following sectors should be considered: energy, transport, industry, agriculture, forestry and waste management.

(e) To the extent possible, the following sectors should be used: energy, transport, industry/industrial processes, agriculture, forestry/LULUCF, waste management/waste, other sectors (i.e. cross-cutting), as appropriate.

(f) Parties may choose to report total emissions with or without LULUCF, as appropriate



## Chapter VI: Financial, Technological and Capacity- Building Support

As referred in its 5th and 6th National Communication, Turkey, as a non-Annex II country, is not responsible for providing support to developing countries according to Articles 4.3, 4.4, 4.5 of the UNFCCC, and Article 11 of the Kyoto Protocol.

Turkey, although listed in Annex I to the Convention, is a developing country according to both the World Bank and International Monetary Foundation classifications. Indeed, while Turkey is an OECD member, it is recognized by the OECD Development Assistance Committee as among the countries that may benefit from Official Development Assistance (ODA).

As a developing country Turkey could have accessed resources from bilateral and multilateral development banks and international funds to combat climate change. Turkey has been the first country to benefit from the Climate Investment Funds managed by the World Bank, and has also received bilateral and multilateral financing for renewable energy and energy efficiency investments. Turkey is eligible to receive finance from the main mechanism of the UNFCCC

- Global Environment Mechanism (GEF) - and has been one of the best users of the GEF grants. Additionally, Turkey was also eligible to short-term financing facility of \$30 billion that was committed by developed countries under Copenhagen Accord with an aim to provide support to developing countries in their investments to combat with climate change. This position, as agreed by Cancun Agreements (Decision 2/CP.17), also highlights the special circumstances of Turkey among other Annex I countries of the UNFCCC.

The COP decision 26/CP.7 agreed to amend the list in Annex II to the Convention by deleting the name of Turkey and invited Parties to recognize the special circumstances of Turkey, which place Turkey, after becoming a Party, in a situation different from that of other Parties included in Annex I to the Convention. Decision 1/CP.16 recognized the special circumstances of Turkey and placed Turkey in a different situation than the other Parties included in Annex I. The Decision requested the Ad Hoc Working Group on Long-term Cooperative Action under the Convention to

continue consideration of these issues with a view to promoting access by Turkey to finance, technology and capacity-building in order to enhance its ability to better implement the Convention. Decision 1/CP.18 reaffirmed the importance of the financial, technological and capacity-building supports to Turkey as an Annex I Party special circumstances of which is recognized by the COP so that it becomes able to implement the Convention more efficiently and encouraged the Annex II countries with appropriate conditions to provide financial, technological, technical and capacity-building supports to the Annex I countries with special position through multilateral agencies. Decision 21/CP.20 encouraged Parties included in Annex I to the Convention whose special circumstances are recognized by the COP to fully utilize the opportunities to benefit, at least until 2020, from support from relevant bodies established under the Convention and other relevant bodies and institutions to enhance mitigation, adaptation, technology, capacity-building and access to finance.

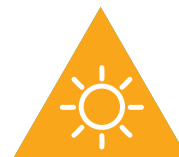
Consequently, Turkey is a developing and emerging country, accomplished an average 5% GDP growth per annum for the last decade which is one of the greatest in the world. In order to implement its intended nationally determined contribution and to achieve ambitious national targets such as increasing share of renewable energy in national mix and mobilize its huge mitigation potential, Turkey needs to access financial resources in addition to existing funds that Turkey can access. For the continuation of efforts of Turkey to combat with global climate change within the perspective of common but differentiated responsibilities of countries, it is critical for Turkey to access financial resources and mechanisms under UNFCCC in particular Green Climate Fund.

The BR Table 7 on finance, BR Table 8 on technology development and transfer and BR Table 9 on capacity building are inapplicable for the case of Turkey and left blank throughout the report.

Consequently, Turkey is a developing and emerging country, accomplished an average 5% GDP growth per annum for the last decade which is one of the greatest in the world. In order

to implement its nationally determined contribution and to achieve ambitious national targets such as increasing share of renewable energy in national mix and mobilize its huge mitigation potential, Turkey needs to access financial resources in addition to existing funds that Turkey can access. For the continuation of efforts of Turkey to combat with global climate change within the perspective of common but differentiated responsibilities of countries, it is critical for Turkey to access financial resources and mechanisms under UNFCCC in particular Green Climate Fund.

The BR Table 7 on finance, BR Table 8 on technology development and transfer and BR Table 9 on capacity building are inapplicable for the case of Turkey and left blank throughout the report.



## VI.A. Finance

TABLE 7<sup>13</sup>

PROVISION OF PUBLIC FINANCIAL SUPPORT: SUMMARY INFORMATION IN 20XX-3<sup>a</sup>

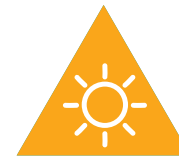
Allocation Channels	Year									
	Turkish new lira - TRY					USD <sup>b</sup>				
	Core / General <sup>c1</sup>	Climate Specific <sup>d,2</sup>				Core/General	Climate Specific <sup>d</sup>			
		Mitigation	Adaptation	Cross-cutting <sup>e</sup>	Other		Mitigation	Adaptation	Cross-cutting <sup>e</sup>	Other <sup>f</sup>
<b>Total contributions through multilateral channels</b>										
Multilateral climate change funds <sup>g</sup>										
Other multilateral climate change funds <sup>h</sup>										
Multilateral financial institutions, including regional development banks										
Specialized United Nations bodies										
<b>Total contributions through bilateral, regional and other channels</b>										
<b>Total</b>										

<sup>13</sup> Turkey, as a non-Annex II country, is not responsible for providing support to developing countries according to Articles 4.3, 4.4, 4.5 of the UNFCCC, and Article 11 of the Kyoto Protocol. Therefore this table is not applicable

TABLE 7(A)  
PROVISION OF PUBLIC  
FINANCIAL SUPPORT:  
CONTRIBUTION THROUGH  
MULTILATERAL CHANNELS IN  
20XX-3<sup>a</sup>

Donor Funding	Total Amount				Status <sup>b,3</sup>	Funding source <sup>f,4</sup>	Financial instrument <sup>f,5</sup>	Type of support <sup>g,6</sup>	Sector <sup>c,f,7</sup>
	Core/General <sup>d,1</sup>		Climate Specific <sup>e,2</sup>						
	Turkish new lira- TRY	USD	Turkish new lira - TRY	USD					
Total contributions through multilateral channels									
Multilateral climate change funds									
1. Global Environment Facility									
2. Least Developed Countries Fund									
3. Special Climate Change Fund									
4. Adaptation Fund									
5. Green Climate Fund									
6. UNFCCC Trust Fund for Supplementary Activities									
7. Other multilateral climate change funds									
Multilateral financial institutions, including regional development banks									
1. World Bank									
2. International Finance Corporation									
3. African Development Bank									
4. Asian Development Bank									
5. European Bank for Reconstruction and Development									
6. Inter-American Development Bank									
7. Other									
Specialized United Nations bodies									
1. United Nations Development Programme									
2. United Nations Development Programme									
3. Other									





Abbreviations: ODA = official development assistance, OOF = other official flows, USD = United States dollars.

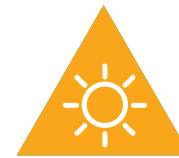
- (a) Parties should fill in a separate table for each year, namely 2015 and 2016, where 2018 is the reporting year.
- (b) Parties should explain, in their biennial reports, the methodologies used to specify the funds as disbursed and committed. Parties will provide the information for as many status categories as appropriate in the following order of priority: disbursed and committed.
- (c) Parties may select several applicable sectors. Parties may report sectoral distribution, as applicable, under “Other”.
- (d) This refers to support to multilateral institutions that Parties cannot specify as being climate-specific.
- (e) Parties should explain in their biennial reports how they define funds as being climate-specific.
- (f) Please specify.

TABLE 7(B)<sup>14</sup>  
 PROVISION OF PUBLIC  
 FINANCIAL SUPPORT:  
 CONTRIBUTION THROUGH  
 BILATERAL, REGIONAL AND  
 OTHER CHANNELS IN 20XX-3<sup>a</sup>

Recipient Country/ Region/ Project/Programme <sup>b</sup>	Total Amount		Status <sup>c,3</sup>	Funding Source	Financial Instrument	Type of Support <sup>g,h,6</sup>	Sector <sup>d,g,7</sup>	Additional Information <sup>e</sup>
	Climate Specific <sup>f,2</sup>							
	Turkish new lira - TRY	USD						
Total contributions through bilateral, regional and other channels								

Abbreviations: ODA = official development assistance, OOF = other official flows; USD = United States dollars.

- (a) Parties should fill in a separate table for each year, namely 20XX-3 and 20XX-2, where 20XX is the reporting year.
- (b) Parties should report, to the extent possible, on details contained in this table.
- (c) Parties should explain, in their biennial reports, the methodologies used to specify the funds as provided, committed and/or pledged. Parties will provide the information for as many status categories as appropriate in the following order of priority: provided, committed, pledged.
- (d) Parties may select several applicable sectors. Parties may report sectoral distribution, as applicable, under "Other".
- (e) Parties should report, as appropriate, on project details and the implementing agency.
- (f) Parties should explain in their biennial reports how they define funds as being climate-specific.
- (g) Please specify.
- (h) This refers to funding for activities which are cross-cutting across mitigation and adaptation.



## VI.B. Technology Development and Transfer

TABLE 8<sup>15</sup>  
PROVISION OF  
TECHNOLOGY  
DEVELOPMENT AND  
TRANSFER SUPPORT<sup>a,b</sup>

Recipient Country and/or Region	Targeted Area	Measures and Measures ad Activities Related to Technology Transfer	Sector <sup>c</sup>	Source of the Funding for Technology Transfer	Activities Undertaken by	Status	Additional Information <sup>d</sup>

(a) To be reported to the extent possible.

(b) The tables should include measures and activities since the last national communication or biennial report.

(c) Parties may report sectoral disaggregation, as appropriate.

(d) Additional information may include, for example, funding for technology development and transfer provided, a short description of the measure or activity and co-financing arrangements.

<sup>15</sup> Turkey, as a non-Annex II country, is not responsible for providing support to developing countries according to Articles 4.3, 4.4, 4.5 of the UNFCCC, and Article 11 of the Kyoto Protocol. Therefore this table is not applicable

## VI.C. Capacity-Building

TABLE 9<sup>16</sup>  
PROVISION OF CAPACITY  
BUILDING SUPPORT<sup>a</sup>

Recipient Country / Region	Targeted Area	Programme or Project Title	Description of Programme or Project <sup>b,c</sup>

(a) To be reported to the extent possible.

(b) Each Party included in Annex II to the Convention shall provide information, to the extent possible, on how it has provided capacity-building support that responds to the existing and emerging capacity-building needs identified by Parties not included in Annex I to the Convention in the areas of mitigation, adaptation and technology development and transfer.

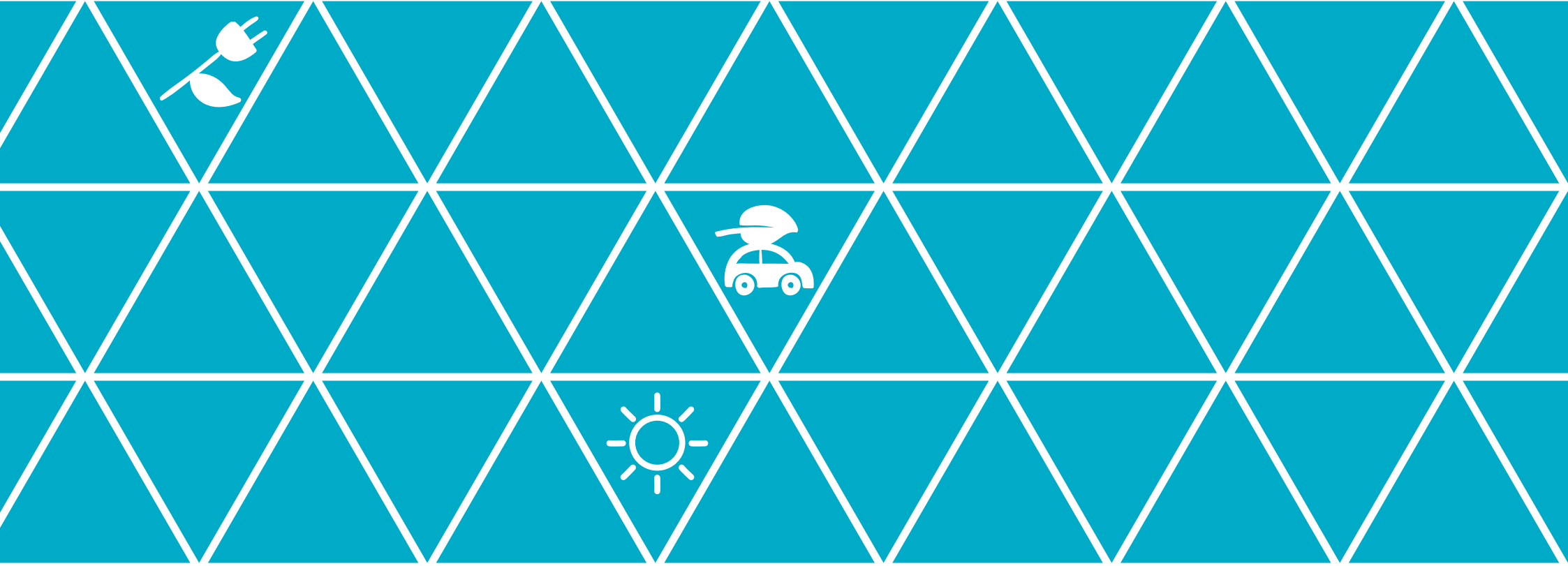
(c) Additional information may be provided on, for example, the measure or activity and co-financing arrangements.

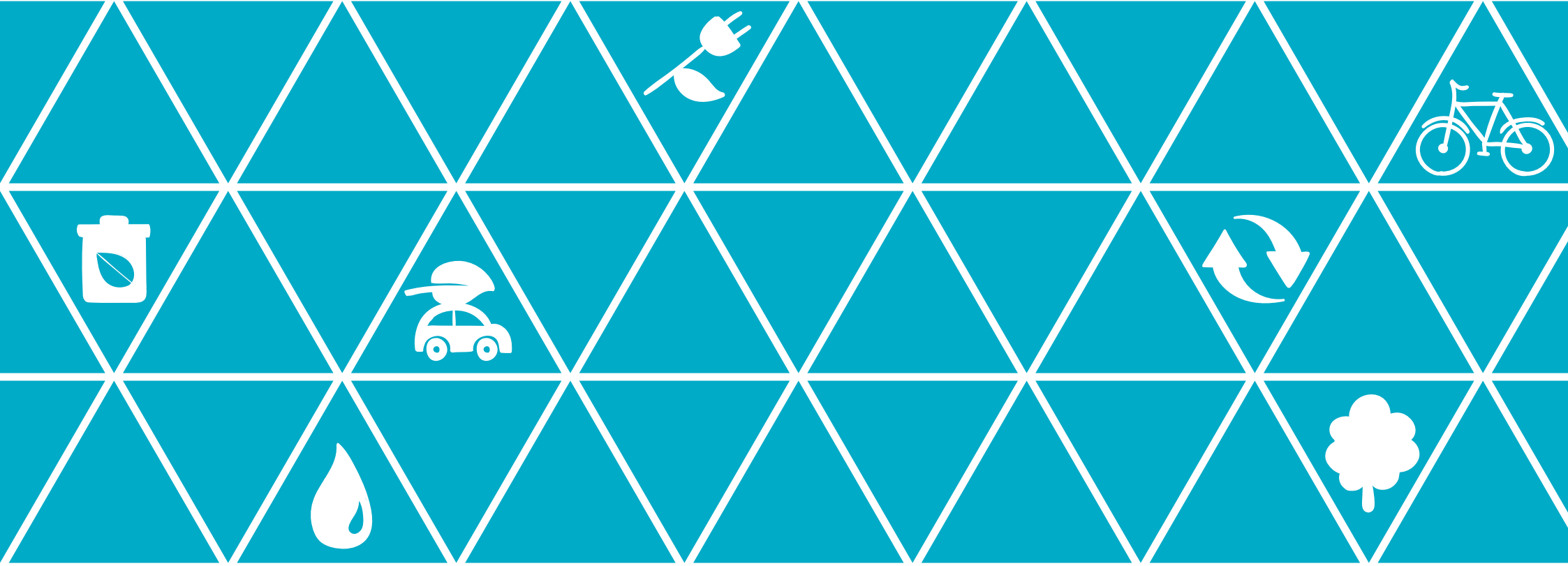
<sup>16</sup> Turkey, as a non-Annex II country, is not responsible for providing support to developing countries according to Articles 4.3, 4.4, 4.5 of the UNFCCC, and Article 11 of the Kyoto Protocol. Therefore this table is not applicable



## Bibliography

- Republic of Turkey Ministry of Development (MoD). (2013).
- 10th National Development Plan 2014-2018.
- Republic of Turkey Ministry of Energy and Natural Resources (MENR). (2014). Energy and Natural Resources Outlook for the World and Turkey.
- Republic of Turkey Ministry of Energy and Natural Resources (MENR). (2015) Energy Balance Tables.
- Republic of Turkey Ministry of Environment and Urbanisation (MoEU). (2016). Turkey's Sixth National Communication under United Nations Framework Convention on Climate Change (UNFCCC).
- Republic of Turkey Ministry of Forestry and Water Affairs (MFWA) (2014).
- Republic of Turkey Ministry of Forestry and Water Affairs (MFWA) General Directorate of Forestry (GDF). (2015). Forest Inventory of Turkey.
- Republic of Turkey (T.R.). (2015). Intended Nationally Determined Contribution (INDC). [http://www4.unfccc.int/submissions/INDC/Published%20Documents/Turkey/1/The\\_INDC\\_of\\_TURKEY\\_v.15.19.30.pdf](http://www4.unfccc.int/submissions/INDC/Published%20Documents/Turkey/1/The_INDC_of_TURKEY_v.15.19.30.pdf)
- Turkish Statistical Institute (TurkStat). (2017). National Greenhouse Gas Inventory Report 1990-2015.
- UNFCCC. (2017). Turkey's Common Reporting Format Tables 1990-2015.[http://unfccc.int/national\\_reports/annex\\_i\\_ghg\\_inventories/national\\_inventories\\_submissions/items/10116.php](http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/10116.php)
- Turkish Statistical Institute (TurkStat). (2017). <http://www.tuik.gov.tr>







**Address :**

Mustafa Kemal Neighborhood, Eskişehir State Road  
(Dumlupınar Boulevard) 9. km. No: 278

Çankaya, Ankara - TURKEY

**Tel:** +90(312) 474 03 37 • **Fax:** +90(312) 474 03 35

**Website:** [www.csb.gov.tr](http://www.csb.gov.tr) • **E- Mail:** [iklim@csb.gov.tr](mailto:iklim@csb.gov.tr)

