EUROPEAN
COMMISSION

Brussels, 26.3.2013
SWD(2013) 97 final

COMMISSION STAFF WORKING DOCUMENT
Accompanying the document

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

The 2015 International Climate Change Agreement: Shaping international climate policy beyond 2020

Consultative Communication

{COM(2013) 167 final}

COMMISSION STAFF WORKING DOCUMENT
Accompanying the document

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

The 2015 International Climate Change Agreement: Shaping international climate policy beyond 2020

Consultative Communication

1. CHALLENGES AND OPPORTUNITIES 2020 - 2030

The 2015 Agreement will come into effect and be implemented from 2020. It will operate in a context that will be different from those in which the 1992 Convention, the 1997 Kyoto Protocol and the most recent Copenhagen-Cancun framework were agreed:

- **Scientific advances have removed any reasonable doubt that we are warming the planet**: The Intergovernmental Panel on Climate Change (IPCC), fifth assessment report due at the end of 2014 is expected to provide further authoritative evidence that human-induced climate change is happening. In 2001-2005, average global temperature increase had reached 0.76° Celsius compared to 1850-1889. By 2030, scientists expect this to have further increased to around 1.26° Celsius, even when current 2020 commitments are fully implemented. People and the planet will have to adapt to the consequences of this significant and already largely inevitable temperature increase. The potential costs of inaction could amount to a permanent loss in average per capita world consumption of more than 14 % in 2050[1]. This will, for instance, also be increasingly reflected in regional conflicts and threats to security, especially in areas where water is already scarce today and a major cause of conflicts.
- **Emerging economies are an increasing source of economic growth and emissions.** As we approach 2020, more emerging economies are estimated to have per capita GDP levels comparable or higher than those in some EU Member States while emissions per capita will also continue to rise. This demonstrates the need and growing capacity for all countries to participate in the global mitigation effort and take commitments under the 2015 Agreement. The table below shows for instance that China's *per capita* CO_2 emissions in 2010 were almost on par with those of the EU, in total were more than those of the EU and the US combined, and are projected to increase by 30% by 2020 under a business as usual scenario. It also shows the EU experience that economic growth can be achieved while reducing emissions, which will be a prerequisite for effective action in all major economies.

[1] OECD (2012). Environmental Outlook to 2050 – The consequences of inaction; and Stern N. (2006), The Economics of Climate Change: the Stern Review.

Table 1: The development of income and emissions per capita of the EU-27, US and China until 2020

	GDP/capita **PPP** (constant 2005 international $)			**Emissions (incl. land use)/capita** **tons CO_2eq/capita**				
	1990	2010	2011	1990	2010	2011	2020 BAU	2020 pledges
EU-27	20.5	27.6	28	11.9	8.6	9.2	10	8.8 (20% reduction) 7.7 (30% reduction)
US	31.9	42.1	42.5	24.3	21.2	21.6	21	17.7
China	1.1	6.8	7.4	3.5	7.9	8.3	9.9	9.7

Sources:

GDP per capita: World Bank Databank, World Development Indicators

Population: United Nations, Department of Economic and Social Affairs, Population Division (2011). World Population Prospects: The 2010 Revision.

Emissions/capita with 2020 projections: PBL Netherlands Environmental Assessment Agency; UNEP Gap report 2012 Annex I; European Commission, Joint Research Centre (JRC)/PBL Netherlands Environmental Assessment Agency. Emission Database for Global Atmospheric Research (EDGAR), release version 4.2 http://edgar.jrc.ec.europe.eu, 2011

A more elaborate overview of the development in GDP and emissions for G20 countries is included in the Annexes to this paper.

- **Significant sustainable development challenges remain:** By 2030, the global population is set to increase by another billion to 8 billion. As an increasing share of this population joins the middle income classes, it is expected that by 2030 there will be a 50% increase in demand for food, 45 % demand increase for energy, and a 30% demand increase for water. This increasing demand for resources occurs against the background of slowing economic growth.[2] Moreover, even though overall poverty rates fell from 46 per cent in 1990 to 27 per cent in 2005, an estimated 920 million people would still be living under the international poverty line by 2015[3]. At the same time, around 20% of the world's population or 1.3 billion people remain without access to electricity[4] and agricultural productivity and production will need to continue to increase to feed the world's growing population. This underlines the urgent need for "green growth", requiring growth to be much more efficient and sustainable in its use of the world's resources.
- **Addressing climate change also brings significant opportunities:** As climate change has begun to be mainstreamed into economic policies around the world, investments in innovative low and zero carbon energy technologies are paying off in terms of greater emission reductions and social and economic benefits. Global annual new investment in renewable energy and energy efficiency increased from US$ 7 billion in 2002 to around US$ 120 billion in 2008 and reached around US$ 430 billion in 2011, despite the global recession[5]. At the same time, fossil fuel subsidies still surpass those investments in renewable energy and energy efficiency. In addition the shale gas boom in the US as well as the phase out of nuclear energy in some countries in the next decade is considerably changing the global energy landscape. Staying below 2°C compared to pre-industrial levels requires a massive shift to carbon free energy sources and increased overall energy

2 United Nations Secretary-General's High-Level Panel of Global Sustainability (2012). Resilient People, Resilient Planet: A future worth choosing. Available through: http://www.un.org/gsp/.

3 http://www.un.org/millenniumgoals/poverty.shtml.

4 IEA (2011), World Energy Outlook 2011.

5 UNEP/ NEF (2009), Global Trends in Sustainable Energy Investment; IEA (2012), Renewable Energy Medium-Term Market Report 2012, IEA (2012), World Energy Outlook 2012.

efficiency. These technologies typically have higher investment needs up front but lower operating and fuel costs during their lifetimes. Such acceleration of the modernisation of the economies around the world often makes economic sense. Renewable energy for example generates more jobs per unit of installed capacity, per unit of power generated and per dollar invested compared to fossil-fuel power plants.[6] According to the IEA, investing in energy efficiency would require US$ 11.8 trillion in additional investments globally between now and 2035, but would be more than offset by a US$17.5 trillion reduction in fuel expenditures and US$5.9 trillion lower energy supply-side investments. The EU 2050 low carbon economy roadmap estimated that, on average, investment needs to increase by € 270 billion annually in the next 40 years, but that this reduces the EU's average fuel costs by between € 175 billion and € 320 billion per year depending on the future development of oil prices.[7] These extra investments provide a major opportunity for jobs creation in Europe. By 2020, the net employment potential from developing the renewable energy sector is estimated at 417,000 additional jobs.[8] Moreover implementing the full range of measures needed to raise energy efficiency by 20% could create 400,000 additional jobs.[9]

- **Increasing global trade will continue to raise issues about production-related emissions, and preventing carbon leakage (carbon intensive activities shifting from high ambition to low ambition countries):** Between 1995 and 2008, the world trade volume tripled. It now represents 30% of global GDP and employs a fifth of the world's working population. Trade barriers were coming down, allowing more and more countries to fully benefit from their comparative economic advantage, especially low labour costs. At the same time GHG emissions embedded in these global trade activities have doubled between 1995 and 2008, and are now around 9.6 $GtCO_2e$, but also pointing at a decoupling between world trade volume and embedded greenhouse gas emissions. In an increasingly global economy, carbon pricing or regulatory action by some, combined with inaction by others, may in the next decade give rise to the risk of carbon leakage. Increasing global trade and the increasingly global economy reinforce the need for a global framework to address climate change.

2. SOURCE MATERIAL

In addition to the references in this Staff Working Document, references to data in the Consultative Communication were drawn from the following source material (in the order used in the text):

– IPCC (2007), Climate Change 2007 - Mitigation of Climate Change, Contribution of Working Group III to the Fourth Assessment Report. Geneva. (especially chapter 3.3.5 on long-term stabilisation scenarios)

– UNEP (2012), The Emissions Gap Report 2012, United Nations Environment Programme (UNEP);

– World Bank (2012), Turn down the heat: why a 4ºC warmer world must be avoided;

6 UNEP (2008), Green Jobs: Towards decent work in a sustainable low-carbon world, p.6.

7 The Commission analysis is based on real oil prices starting at 2005US$ 70 in 2010 and ending in 2050 with prices between 2005US$ 69 in the global climate action scenario and 2005US$ 138 under business as usual, see Commission Communication, A Roadmap for moving to a competitive low carbon economy in 2050, Brussels, 8 March 2011, COM(2011)112 final.

8 Ecofys (2009), EmployRES final report.

9 Impact Assessment accompanying the Energy Efficiency Directive. 2011.

– Peters, G. et. al. (2013), "The challenge to keep global warming below 2 ºC", Nature Climate Change, Vol. 3, January;

– Rogelj, J. et al. (2012), "Global warming under old and new scenarios using IPCC climate sensitivity range estimates", Nature Climate Change, Vol. 2, April;

– European Commission (2013), Communication: A decent life for all: ending poverty and giving the world a sustainable future, Brussels, 27 February 2013, COM(2013) 92 final.

3. ACRONYMS

2°C	2 degrees Celsius
ADP	Durban Platform for Enhanced Action
BAU	Business As Usual
CDM	Clean Development Mechanism
CO_2	Carbon Dioxide
COP	Conference of the Parties to the United Nations Framework Convention on Climate Change
EU	European Union
EU-27	European Union with its 27 Member States
EU ETS	European Union greenhouse gas Emissions Trading System
G20	Economic forum consisting of the world's largest economies
GDP	Gross Domestic Product
GHG	Greenhouse Gas
$GtCO_2e$	Gigatonnes of Carbon Dioxide equivalent (10^9)
HFCs	Hydrofluorocarbons
IAR	International Assessment and Review
ICA	International Consultation and Assessment
IPCC	Intergovernmental Panel on Climate Change
JI	Joint Implementation
MDG	Millennium Development Goals
MRV	Measurement, Reporting and Verification
$MtCO_2e$	Megatonnes of Carbon Dioxide equivalent (10^6)
NAMA	Nationally Appropriate Mitigation Action
OECD	Organisation for Economic Co-operation and Development
PPP	Purchasing Power Parity
REDD+	Reducing Emissions from Deforestation and forest Degradation, as well as the conservation and sustainable management of forests and the enhancement of forest carbon stocks
QELRC	Quantified Emission Limitation or Reduction Commitment

Rio+20	2012 United Nations Conference on Sustainable Development
UN	United Nations
UNEP	United Nations Environment Programme
UNFCCC	UN Framework Convention on Climate Change
US	United States of America

Annex: Background Information

Table 1: Overview of the UN legal framework 2013-2020

Table 2: G20 GDP in 1990, 2000, 2010 and 2011

Table 3: G20 GDP per capita in 1990, 2000, 2010 and 2011

Table 4: G20 greenhouse gas emissions levels and share of aggregate global levels in 1990, 2005, 2010 and projected for 2020

Table 5: G20 per capita greenhouse gas emissions in 1990, 2000, 2010 and 2011 (without land-use emissions as not available for 2011)

Table 6: Summary of G20 pledges and effects on emissions levels

Table 1: Overview of the UN legal framework 2013-2020

	Commitments Kyoto Protocol	**Commitments under Copenhagen-Cancun**		
	Countries included in Annex I (developed countries)		*Countries not included in Annex I (developing countries)*	
	With Kyoto 2nd commitment period target	*With pledge under Convention*[10]	*With pledge*	*Without pledge*
Participation (mitigation)	EU, NO, CH, IS, LI, MC, HR, AU	US, RU, JP, CA, NZ, KZ, UA, BY	52 (eg CN, BR, ZA, IN, KR, MX)	101
% global Emissions	~ 13 %	~ 24 %	~ 46 %	~ 17 %[7]
Mitigation commitment	Emission budget (QELRC)	Economy-wide target	Actions (NAMAs)	No pledges
Inventory	IPCC, annual inventories and biennial reports (Jan 2012)		IPCC, biennial (Dec 2014)	
Reporting	Annex I National Communications (every 4 years, Jan 2014)		Non-Annex I National Communications (every 4 years, Dec 2014)	
Verification	Expert review	IAR (2014)	ICA (2015)	-
Accounting	Kyoto rules	-	-	-
Compliance	Fully elaborated	-	-	-
LULUCF	Improved accounting	-	REDD+	
Carbon markets	International emissions trading, CDM, JI, New Market Mechanism	New Market Mechanism	-	-
Adaptation		Adaptation Committee		
Technology		Technology Executive Committee, Center of Network of Climate Technology		
Finance	Adaptation Fund, Share of Proceeds	Green Climate Fund, Standing Committee		
Response measures	Specific reporting requirements	Forum		

[10] Turkey is the only country included in Annex I to the Convention and the only OECD country that has not put forward a mitigation pledge. It's emissions are included in those of countries without a pledge in the 4th column.

Table 2: G20 GDP in 1990, 2000, 2010 and 2011

EU27 and non-EU members of the G20 provide over 80% of total GDP (84% in 1990 to 82% in 2011).

GDP (2005 PPP US$) (trillion)	1990	2000	2010	2011	% 2011	Change/yr 1990-2011
World total	**36,0**	**48,1**	**67,6**	**70,1**	**100%**	**3,2%**
EU-27	**9,7**	**12,0**	**13,9**	**14,1**	**20%**	**1,8%**
US	8,0	11,2	13,0	13,2	19%	2,5%
China	1,2	3,4	9,1	10,0	14%	10,4%
India	1,1	1,8	3,7	4,0	6%	6,5%
Japan	3,3	3,7	3,9	3,9	6%	0,9%
Russia	1,9	1,3	2,0	2,1	3%	0,6%
Brazil	1,1	1,4	2,0	2,0	3%	3,1%
South Korea	0,5	0,9	1,3	1,4	2%	5,0%
Mexico	0,8	1,2	1,4	1,5	2%	2,7%
Canada	0,7	1,0	1,2	1,2	2%	2,4%
Indonesia	0,4	0,6	0,9	1,0	1%	4,8%
Turkey	0,4	0,6	0,9	1,0	1%	4,0%
Australia	0,4	0,6	0,8	0,8	1%	3,2%
Argentina	0,2	0,4	0,6	0,6	1%	4,6%
Saudi Arabia	0,3	0,4	0,6	0,6	1%	3,2%
South Africa	0,3	0,3	0,5	0,5	1%	2,7%

Source: World Bank, http://data.worldbank.org/ **GDP** (constant 2005 international $, PPP) (trillion) World Development Indicators

Table 3: G20 GDP per capita in 1990, 2000, 2010 and 2011

Russia, Turkey, Brazil and South Africa are rapidly catching up with, or surpassing the world average in 2010-2011, like all other G20 members, with the exception of China, India and Indonesia.

GDP per capita, PPP (constant 2005 international $) (thousands)	1990	2000	2005	2010	2011
World average	**6,8**	**7,9**	**8,8**	**9,8**	**10,1**
EU-27	**20,5**	**24,7**	**26,8**	**27,6**	**28,0**
US	31,9	39,5	42,5	42,1	42,5
China	1,1	2,7	4,1	6,8	7,4
India	1,2	1,7	2,2	3,0	3,2
Japan	26,5	28,9	30,4	31,0	30,7
Russia	12,6	8,6	11,9	14,2	14,8
Brazil	7,2	7,9	8,5	10,1	10,3
South Korea	11,4	18,7	22,8	26,8	27,5
Mexico	10,0	11,9	12,2	12,4	12,8
Canada	26,9	32,4	35,0	35,2	35,7
Indonesia	2,0	2,6	3,1	3,9	4,1
Turkey	8,1	9,8	11,5	12,6	13,5
Australia	23,8	29,7	32,7	34,4	34,5
Argentina	7,5	10,3	10,8	14,4	15,5
Saudi Arabia	19,3	20,3	20,4	20,5	21,4
South Africa	8,0	7,6	8,6	9,5	9,7

Source: World Bank, http://data.worldbank.org/ - **GDP per capita, PPP** (constant 2005 international $) (thousands) Worldbank Databank, World Development Indicators

Table 4: G20 greenhouse gas emissions levels and share of aggregate global levels in 1990, 2005, 2010 and projected for 2020

G20 countries and the EU27 were responsible for almost 75% of global GHG emissions in 2010, an increase from 70% in 1990. Global and G20 emissions are growing faster over the period 2000-2010 compared to 1990-2000 (scientific estimates indicate total global emissions grew from 36 $GtCO_2e$ in 1990 to at least 49 $GtCO_2e$ in 2010, and G20 emissions from 27 $GtCO_2e$ in 1990, to 29 $GtCO_2e$ in 2000, to 33 $GtCO_2e$ in 2005 and 36.6 $GtCO_2e$ in 2010). Under a "no policies" scenario, emissions would further sharply grow (to 59 $GtCO_2e$ in 2020, with 45 $GtCO_2e$ in G20 countries); whereas pledges could take emissions down to 52 to 54 $GtCO_2e$ (under strict accounting rules), with 39 to 40 $GtCO_2e$ emissions in 2020 in G20.

GHG (incl. land use, excl. bunkers)	1990	2000	2005	2010	2010	BAU2020	2020 under pledges		% 2020 total		
	$MtCO_2e$				%	$MtCO_2e$	Uncond.	Condit.	BAU	Uncond. pledge	Cond. pledge
World	36.547	40.200	44.656	48.855	100%	58.718	54.408	51.764	100%	100%	100%
EU-27	5.589	5246	5.149	4.620	10%	5.589	4.471	3.912	9%	8%	8%
US	6.164	6983	7.179	6.659	14%	7.105		5.964	12%	11%	12%
China	3.944	5073	7.466	9.924	20%	13.795		13.447	23%	25%	26%
India	1.373	1873	2.001	2.756	6%	3.857		3.760	7%	7%	7%
Japan	1.267	1412	1.352	1.258	3%	1.330		955	2%	2%	2%
Russia	3.399	2647	2.128	2.213	5%	2.500	2.861	2.565	4%	5%	5%
Brazil	1.712	1463	2.192	2.537	5%	3.126	1900 to 2.020		5%	4%	4%
South Korea	298	512	538	587	1%	745		569	1%	1%	1%
Mexico	472	569	728	691	1%	882		617	2%	1%	1%
Canada	591	728	752	775	2%	832		636	1%	1%	1%
Indonesia	845	1445	1.833	2.230	5%	2.533	1.816	1.548	4%	3%	3%
Turkey	223	235	271	392	1%			613	1%	1%	1%
Australia	494	605	534	576	1%	632	538	425	1%	1%	1%
Argentina	267		299	341	1%	391		n.a.	1%	1%	1%
Saudi Arabia	204		310	499	1%	793		n.a.	1%	1%	2%
South Africa	384	395	488	568	1%	715		493	1%	1%	1%
G20 aggregate	27.225	29.186	33.219	36.624	75%	45.439	39.944	38.708	77%	73%	75%
G20 share of total	74%	73%	74%	75%		77%	73%	75%			

Source: **UNEP emission gap report 2012** – Annex I Unharmonised emission levels / Updated pledges and policies analysis 2012 PBL Netherlands Environmental Agency and Ecofys / European Commission Joint Research Center, Emissions Database for Global Atmospheric Research (EDGAR), http://edgar.jrc.ec.europa.eu.

Estimates across all years in this table are not fully harmonised to 2005 levels as inventories for measurement and reporting are not yet available for all countries and all sources. Nonetheless, the estimate of the effect of the pledges is consistently undertaken across countries. From its analysis of the ambition gap, UNEP estimated to 50.1 $GtCO_2e$ the aggregated level of global emissions in 2010, taking into account an uncertainty of -0.3 $GtCO_2e$ to +1 $GtCO_2e$ around estimates across studies before harmonisation; associated with uncertainties around countries specific estimates (notably for countries with a significant amount or share of land-use and forestry related emissions).

Estimates of 2020 BAU levels for Brazil, South Korea, Indonesia and South Africa in national baseline projections have some differences with these international estimates, mostly due to uncertainties on land-use emissions and economic growth projections. Estimates of 2020 levels under BAU and under pledges are also uncertain, as some countries still have to clarify the assumptions and methodological elements attached to their pledges (variation over +/- 0.5 $GtCO_2e$ around median estimates, cf. UNEP emission gap report 2012).

Table 5: G20 per capita CO_2 emissions in 1990, 2000, 2010 and 2011 (tCO_2/cap)

Per capita emissions in China and South Africa are at levels comparable to those in the EU. Emissions of Japan, Russia, South Korea, US, Canada, Australia, Saudi Arabia are at 10 tonnes of CO_2 per capita or above, which is twice the world average

tCO_2/cap	**1990**	**2000**	**2010**	**2011**
World average	**3,27**	**4,03**	**4,8**	**4,9**
EU-27	**9,2**	**8,4**	**7,8**	**7,5**
US	19,7	20,8	17,8	17,3
China	2,2	2,8	6,6	7,2
India	0,8	1	1,5	1,6
Japan	9,5	10,1	10	9,8
Russia	16,5	11,3	12,4	12,8
Brazil	1,5	2	2,2	2,3
South Korea	5,9	9,7	12,2	12,6
Mexico	3,7	3,8	3,9	3,9
Canada	16,2	17,9	16	16,2
Indonesia	0,9	1,4	2	2
Turkey	2,75	3,55	3,64	3,79
Australia	16	18,6	17,9	19
Argentina	3,27	4,03	4,73	4,79
Saudi Arabia	10,2	13	15,8	16,5
South Africa	7,3	6,9	7,1	7,2

Source: European Commission Joint Research Center, Emissions Database for Global Atmospheric Research (EDGAR), http://edgar.jrc.ec.europa.eu

Table 6: Summary of G20 pledges and effects on emissions levels

Summary of 2020 pledges, their attached conditions and assumptions	
EU-27	Reduce emissions by 20% below 1990 level by 2020, through legally binding Climate and Energy Package (excl. land-use and forestry emissions/removals, with strict rules on use of mechanisms). *Reduce emissions by 30% below 1990 level by 2020 as part of a global comprehensive agreement for the period beyond 2012, provided that all Parties contribute their fair share to a cost-effective global emission reduction pathway, where other developed countries commit themselves to comparable emission reductions and developing countries contribute adequately according to their responsibilities and, respective capabilities*
US	*Reduce emissions in the range of 17% below 2005 level by 2020, as in legislation to be enacted, with net-net accounting of emissions/removals in land-use and forestry sector with 2005 base year, and under the assumption of other Annex I parties and more advanced non-Annex I Parties submit mitigation actions.*
China	Lower CO_2 emissions per unit of GDP by 40–45% by 2020 compared with the 2005 level; increase the share of non-fossil fuels in primary energy consumption to around 15% by 2020; and increase forest coverage by 40 million ha and forest stock volume by 1.3 billion m^3 by 2020 compared with the 2005 levels.
India	Reduce the emissions intensity of GDP by 20–25% by 2020 compared with the 2005 level (excl. emissions from the agriculture sector)
Japan	*Reduce emissions by 25% below 1990 levels, incl. forest management effects (possible contributions to target: -2.9% removals to +1.5% emissions), if under a fair and effective international framework with participation and ambition targets for all major economies*
Russia	*Reduce emissions by 15-25% below 1990 levels, if appropriate accounting of the emission reductions contributions of the forestry sector; and if all major emitters with legally binding obligations to reduce emissions*
Brazil	Implement mitigation actions expected to reduce emissions between 36.1% and 38.9% below projected emissions in 2020 (reduction in deforestation and agriculture emissions esp. with a plan to reduce the deforestation rate in the Amazon region by 80% between 2005 and 2020, energy efficiency, increase use of biofuels and of energy sources alternative to fossil fuels)
South Korea	Reduce national GHG emissions by 30% from the 'business as usual' emissions in 2020
Mexico	*Reduce GHG emissions by up to 30% compared to BAU by 2020, if means of implementation provided, with sector-based actions in the Special Climate Change Programme cutting yearly BAU emissions by 51 Mt CO_2e by 2012.*

Canada	*Reduce emissions by 17% below 2005 levels (excl. forestry emission changes from natural disturbances and accounting for harvested wood products emissions), without significant use of mechanisms, aligned with the US mitigation target as in enacted legislation, and with the expectation that other Annex I Parties and major non-Annex I Parties would submit information on their emission targets*
Indonesia	Actions reducing GHG emissions by 26% by 2020 (reduction in deforestation, land degradation, agriculture, transport and waste emissions, energy efficiency, increase of energy sources alternative to fossil fuels) *Previously, indicated actions reducing GHG emissions by 41% by 2020, depending on support.*
Turkey	No pledge
Australia	Reduce by 5% below 2000 level by 2020 net emissions from all sectors and sources listed in Annex A of Kyoto protocol and from afforestation, reforestation and deforestation activities. *Reduce emissions by 15% below 2000 levels by 2020 with access to deeper and broader carbon markets, and if progress to include land-use and forestry emissions* *Reduce emissions by 25% below 2000 levels by 2020 under global action incl. from major developing economies, and incl. land-use and forestry emissions*
Argentina	Developing sector-specific actions: Energy efficiency programme, Renewable energy law, National programme on biofuels, Forest management Law, Plan for management of urban solid waste, in the context of commitments by developed countries (targets, means of implementation)
Saudi Arabia	No pledge yet; readiness to put forward current economic diversification actions and plans with emission reduction co-benefits
South Africa	*Enable a 34% deviation below BAU emissions growth trajectory by 2020 (and a 42% deviation below BAU trajectory by 2025), with and to the extent of means of implementation provided, and if under a fair and effective international framework. A level of effort indicated as enabling South Africa's emissions to peak between 2020 and 2025, plateau for around a decade and decline in absolute terms thereafter.*

Sources:

- Quantified economy-wide emission reduction targets by developed country Parties to the Convention: assumptions, conditions, commonalities and differences in approaches and comparison of the level of emission reduction efforts, UNFCCC Technical paper FCCC/TP/2012/5

- Compilation of information on nationally appropriate mitigation actions to be implemented by Parties not included in Annex I to the Convention Note by the UNFCCC secretariat, FCCC/AWGLCA/2011/INF.1

- Draft decision -/CP.18 on economic diversification initiative, UNFCCC, 2012

Estimates of the effects of the pledges on deviation from projected 2020 levels and per capita emission levels

	BAU2020	2020 under pledges		Deviation from a base year emission levels			Eq. emission reductions from 2020 BAU (sensitive to the choice of BAU)	
	MtCO2e	Uncond.	Condit.	Base	Uncond. pledge	Cond. pledge	Uncond. pledge	Cond. pledge
EU-27	5.589	4.471	3.912	1990	-20%	-30%	1.118	1.677
US	7.105		5.964	2005		-17%		1141
China	13.795		13.447	2020	Deviation in emission intensity Estimated to -3% (sensitive to GDP)			348 (very uncertain, sensitive to GDP, BAU)
India	3.857		3.760	2020	Deviation in emission intensity Estimates to -2% (sensitive to GDP)			96 (very uncertain, sensitive to GDP, BAU)
Japan	1.330		955	1990		-25%		375
Russia	2.500	2.861	2.565	1990	-15%	-25%	Would allow for surplus: 64 to 364 above BAU	
Brazil	3.126	1900 to 2.020		2020	-36%	-39%	1.106	1.219
South Korea	745		569	2020		-30%		176
Mexico	882		617	2020		-30%		265
Canada	832		636	2005		-17%		196
Indonesia	2.533	1.816	1.548	2020		-26%	718	985
Turkey			613	No pledge				n.a.
Australia	632	538	425	2000	-5%	-15% -25%	94	207
Argentina	391		n.a.	No quantified pledge				n.a.
Saudi Arabia	793		n.a.	No pledge				n.a.
South Africa	715		493	2020		-34%		222

GHG/cap (incl. land use, excl. bunkers)	1990	2005	2010	2020 BAU	2020 under Uncondit. pledges	2020 under Condit pledges
EU27	11,9	10,5	9,2	10,9	8,8	7,7
USA	24,3	24,0	21,5	21,1		17,7
China	3,5	5,7	7,4	9,9		9,7
India	1,6	1,8	2,3	2,8		2,7
Japan	10,3	10,6	9,9	10,7		7,7
Russia	22,9	14,9	15,5	17,7	20,3	18,2
Brazil	11,4	11,8	13,0	14,9	9,6	9,1
South Korea	7,0	11,2	12,2	15,0		11,4
Mexico	5,7	7,1	6,1	7,0		4,9
Canada	21,3	23,3	22,8	22,4		17,1
Indonesia	4,7	8,3	9,3	9,6		6,9
Turkey	4,1	4,0	5,4	7,6		n.a.
Australia	28,9	26,2	25,9	25,0	21,3	16,8
Argentina	8,2	7,7	8,4	8,9		n.a.
Saudi Arabia	12,6	12,9	18,2	23,7		n.a.
South Africa	10,9	10,4	11,3	13,6		9,4

Source: **Emissions** – **UNEP emission gap report 2012** Section 2.5; **Population -** United Nations, Department of Economic and Social Affairs, Population Division (2011). World Population Prospects: The 2010 Revision.