Updated development of global greenhouse gas emissions 2012

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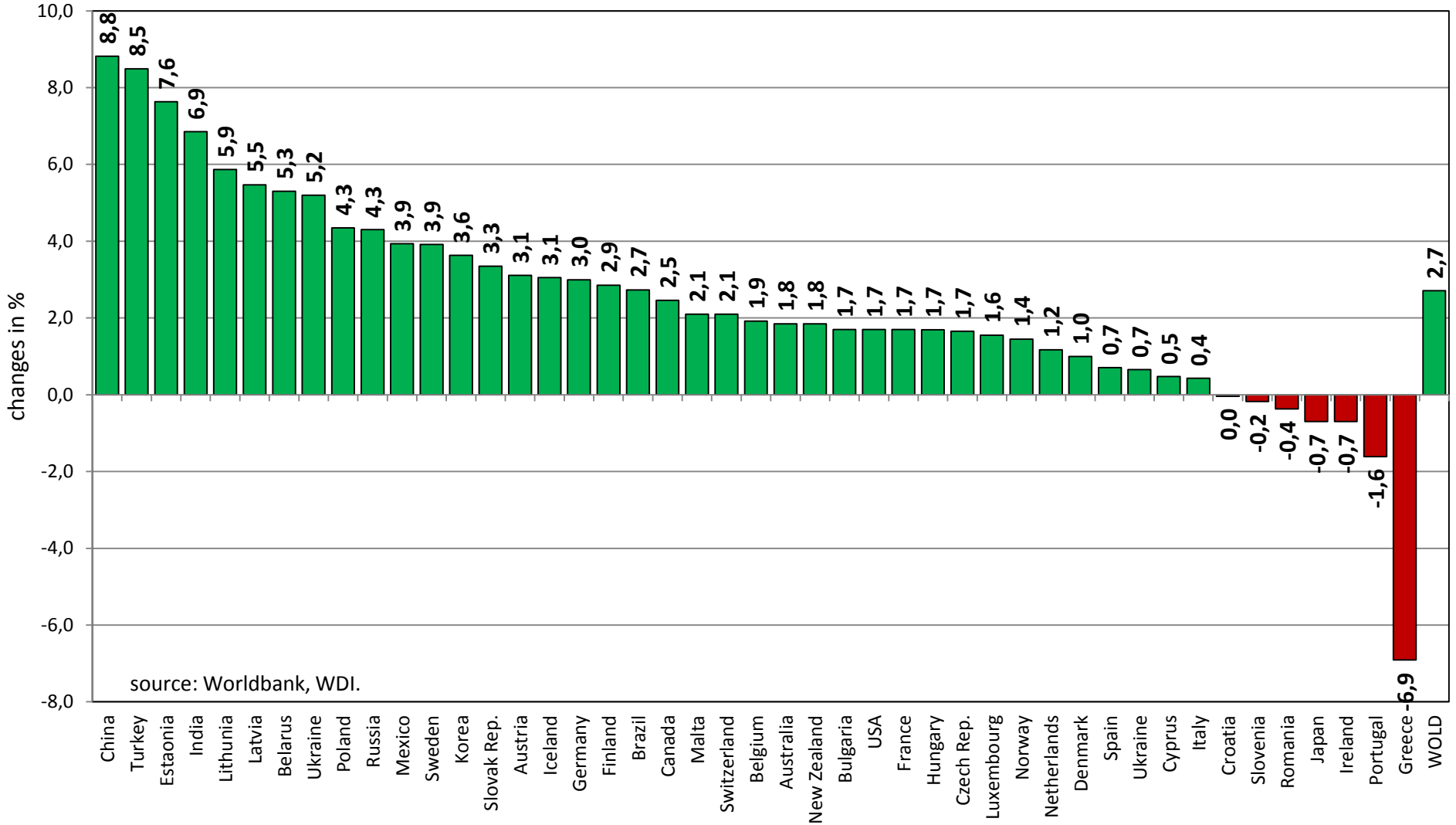
Main data for estimating GHG emissions for 2012

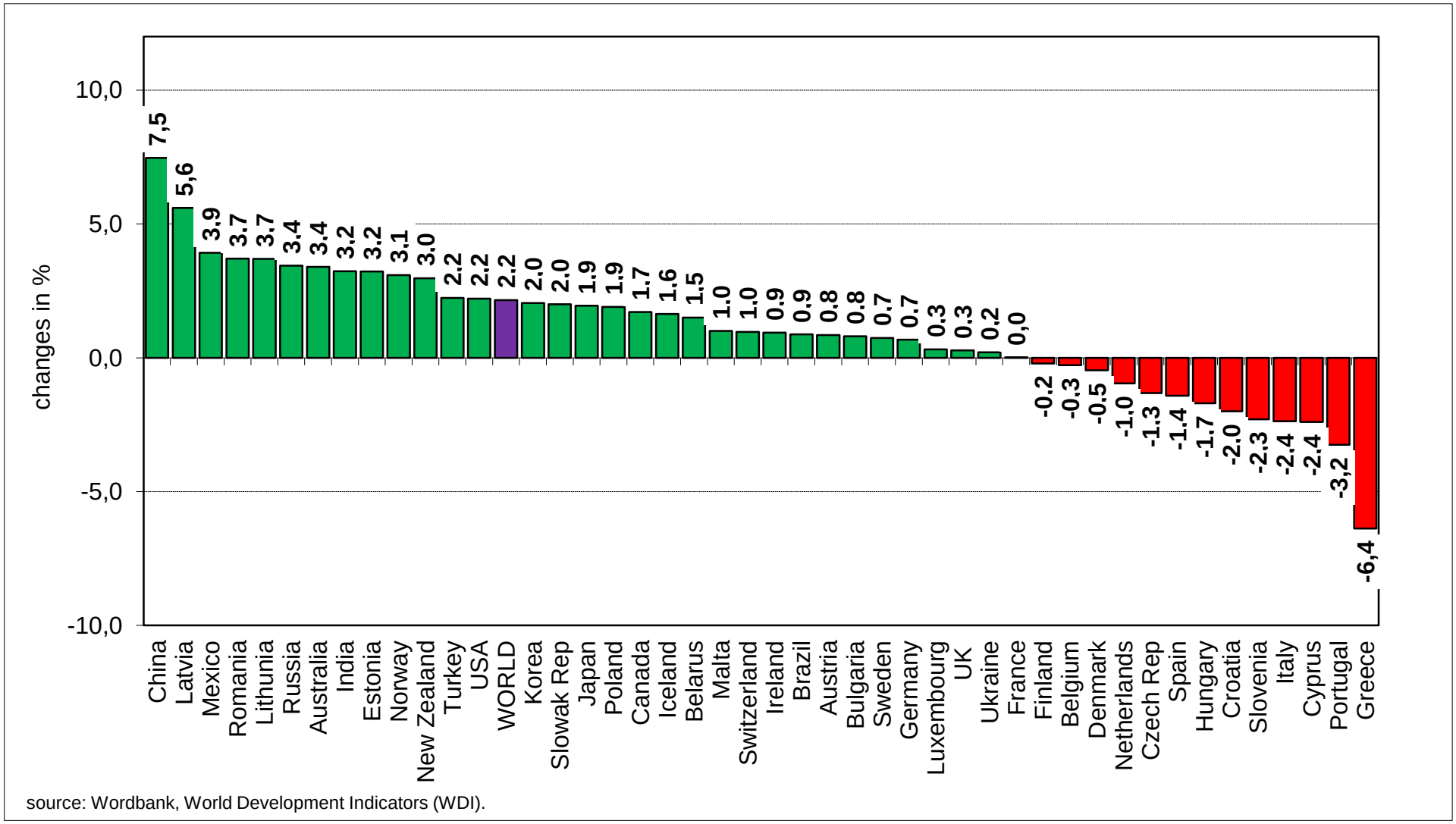
- **UNFCCC: National Communications from Parties included in Annex I to the Convention; National Greenhouse Gas Inventory Data from Annex I Parties for 1990 to 2011**
- **International Energy Agency (IEA): CO_2 Emissions from Fuel Combustion, 2012 Edition, Paris 2012; (up to 2010)**
- **BP Statistical Review of World Energy 2012, June 2013**
- **The World Bank, World Development Indicators, Database July 2013**
- **Eurostat Database**

CO_2 emissions up to 2012 are extrapolated from the 2012 data on energy consumption published in the BP Statistics, June 2013, which are shown by country and energy source.

Changes of real GDP 2011 versus 2010 in Annex I countries and others

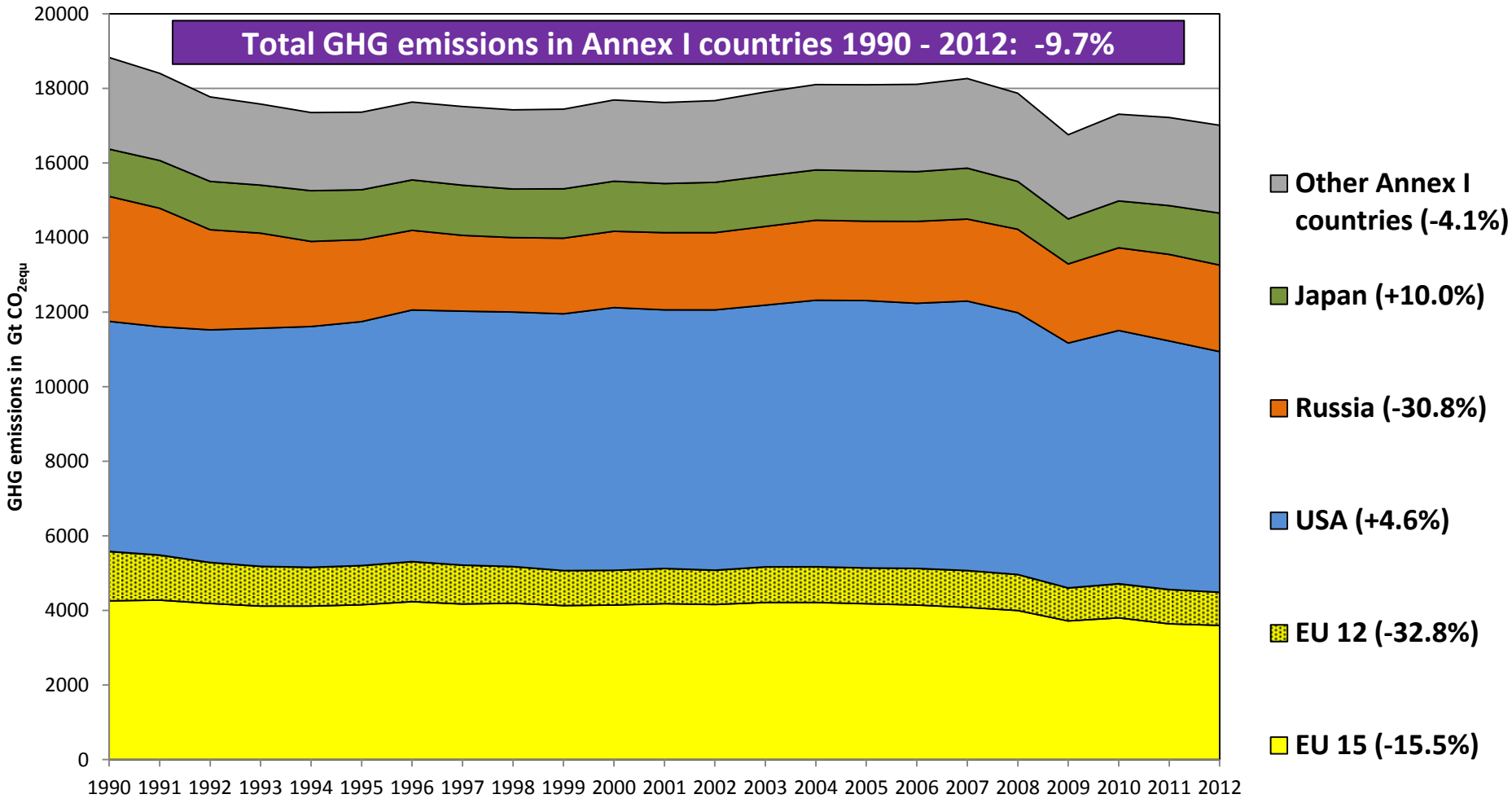


Changes of real GDP 2012 versus 2011 in Annex I countries and others



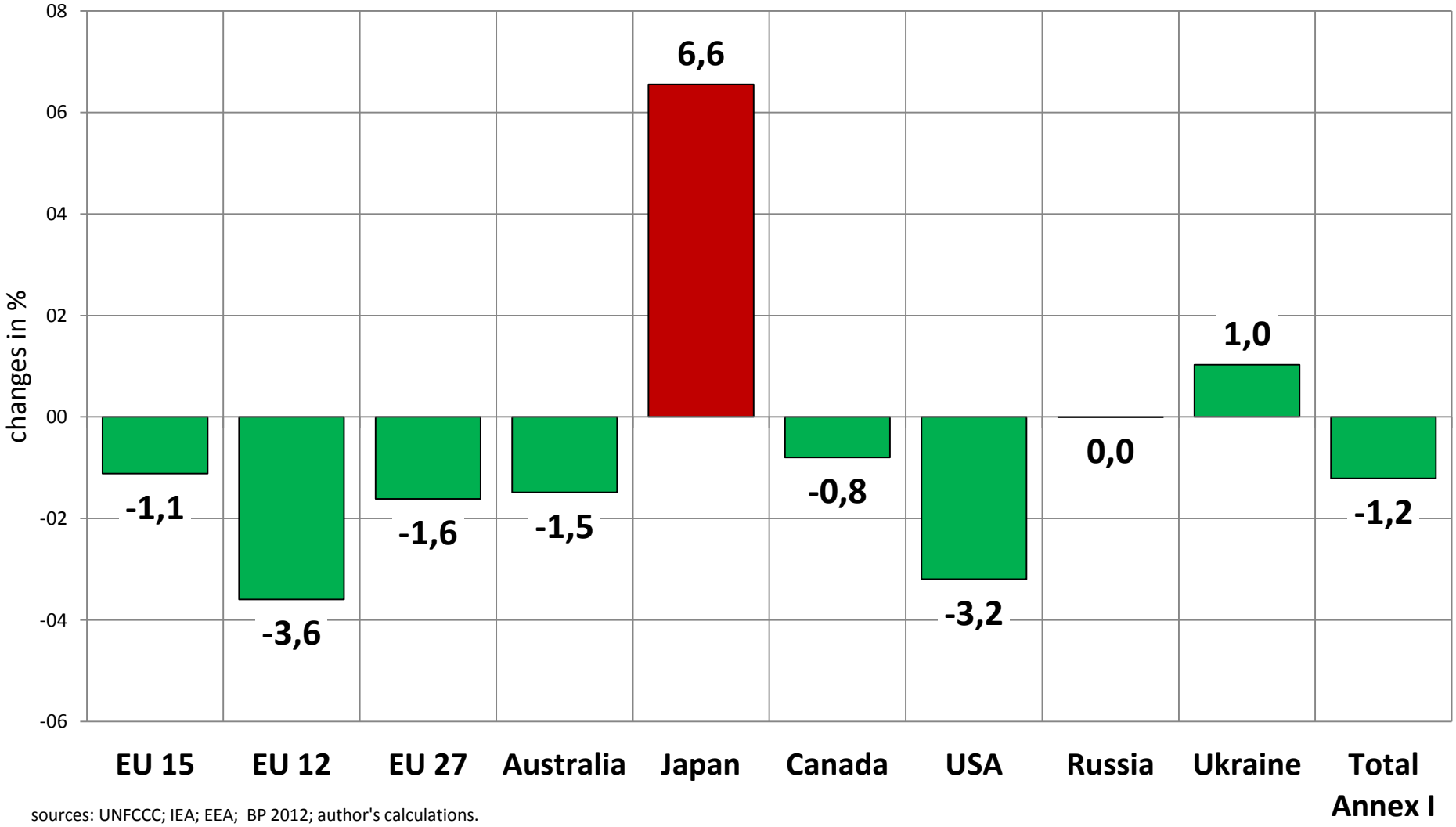
source: Wordbank, World Development Indicators (WDI).

GHG emissions in Annex-I countries 1990 - 2012



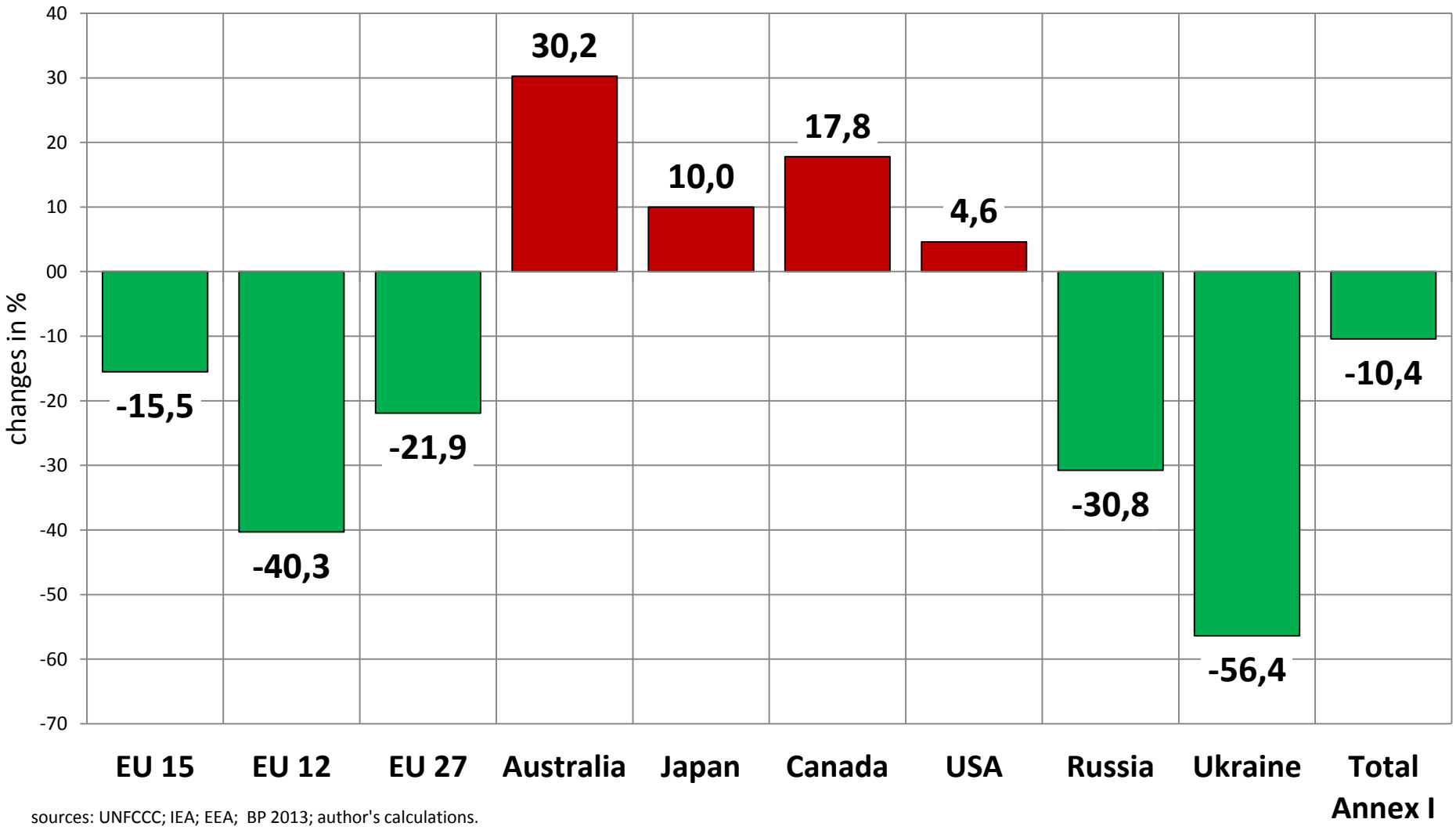
sources: UNFCCC; IEA; EEA; BP 2011; author's calculations.

GHG emissions in Annex I countries: 2011 – 2012



sources: UNFCCC; IEA; EEA; BP 2012; author's calculations.

GHG emissions in Annex I countries: base year - 2011

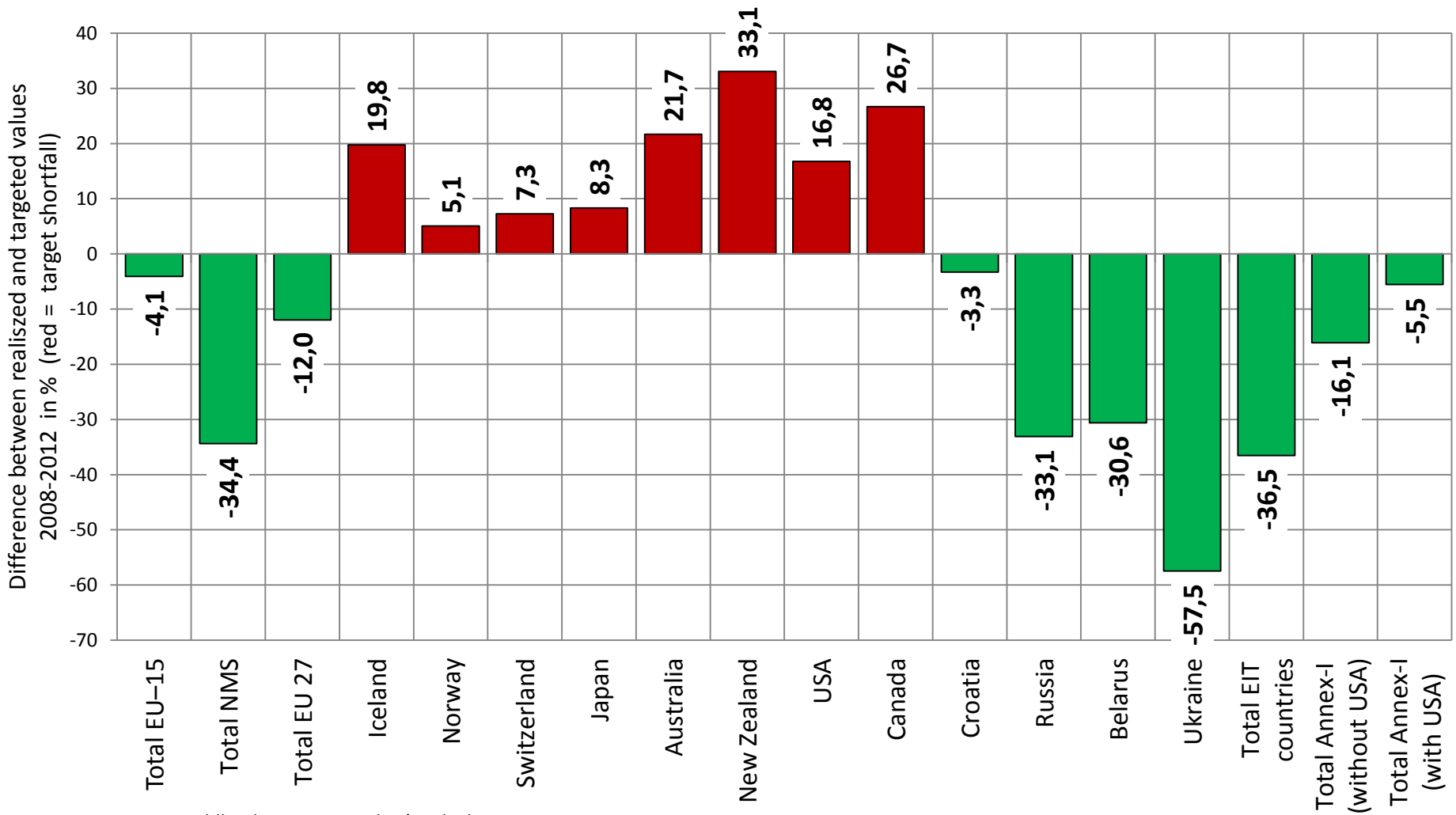


sources: UNFCCC; IEA; EEA; BP 2013; author's calculations.

GHG emissions in Annex I countries base year to 2012

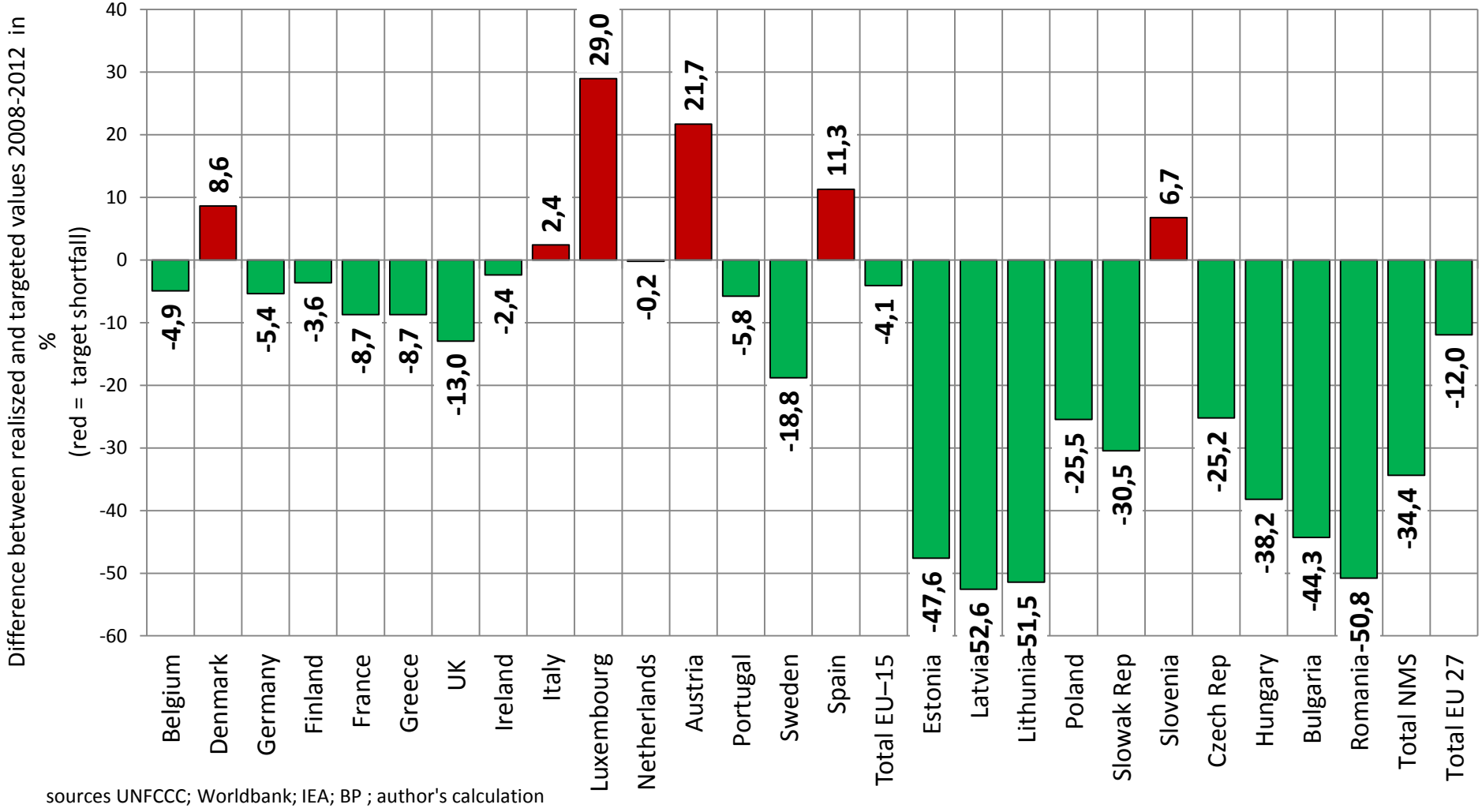
	Base year 1990 (1995)[2]	2011*	2012*	2011 - 2012	Base year to 2012	Emissions targets 2008/2012 vs. base year	Emisssions target averaged over 2008 - 2012	Actual emissions averaged over 2008 - 2012	Differences between emissions targets and actual emissions
	GHG emissions in Gt CO2eq.			Changes in %			GHG emissions in Gt $CO_{2eq.}$		%
EU 15	4262.4	3642.0	3601.3	-1.1	-15.5	-8.2	3921.4	3753.0	-4.3
EU NMS	1485.4	919.6	886.5	-3.6	-40.3	-7.1	1380.0	913.5	-33.8
EU 27	**5747.8**	**4561.5**	**4487.8**	**-1.6**	**-21.9**	**-7.8**	**5301.3**	**4666.5**	**-12.0**
Japan	1266.7	1307.7	1393.4	6.6	10.0	-6.0	1190.7	1289.5	8.3
Australia	417.7	552.3	544.1	-1.5	30.2	8.0	451.2	548.9	21.7
USA	6169.6	6665.7	6452.9	-3.2	4.6	-7.0	5737.7	6699.4	16.8
Canada	591.1	701.8	696.2	-0.8	17.8	-6.0	555.6	703.8	26.7
Total Annex II	**12874.2**	**13050.3**	**12872.0**	**-1.4**	**0.0**	**-6.7**	**12015.1**	**13178.1**	**9.7**
Russia	3351.9	2320.8	2320.6	0.0	-30.8	0.0	3351.9	2243.5	-33.1
Ukraine	929.9	401.6	405.7	1.0	-56.4	0.0	929.9	395.4	-57.5
Total EIT	**5930.0**	**3745.4**	**3717.9**	-0.7	-37.3	**-2.8**	**5764.0**	**3657.8**	**-36.5**
Total Annex I	**18992.6**	**17218.1**	**17009.9**	**-1.2**	**-10.4**	**-6.1**	**17835.0**	**16848.4**	**-5.5**
sources: UNFCCC; IEA; EEA; BP 2013; author's calculations.									

Annex I: Difference between realized and targeted emissions 2008/2012



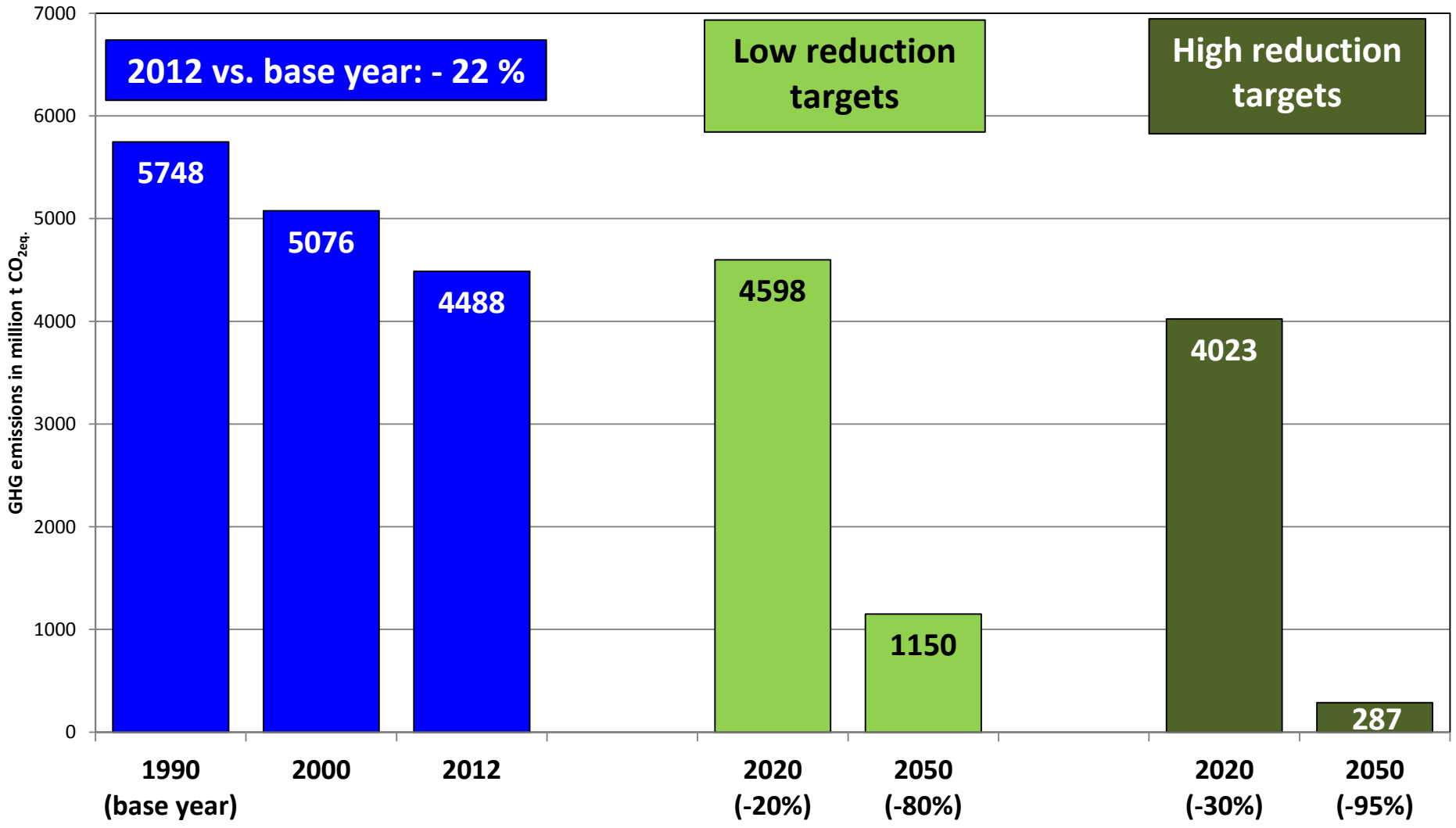
sources UNFCCC; Worldbank; IEA; BP ; author's calculation

EU 27: Difference between realized and targeted emissions 2008/2012

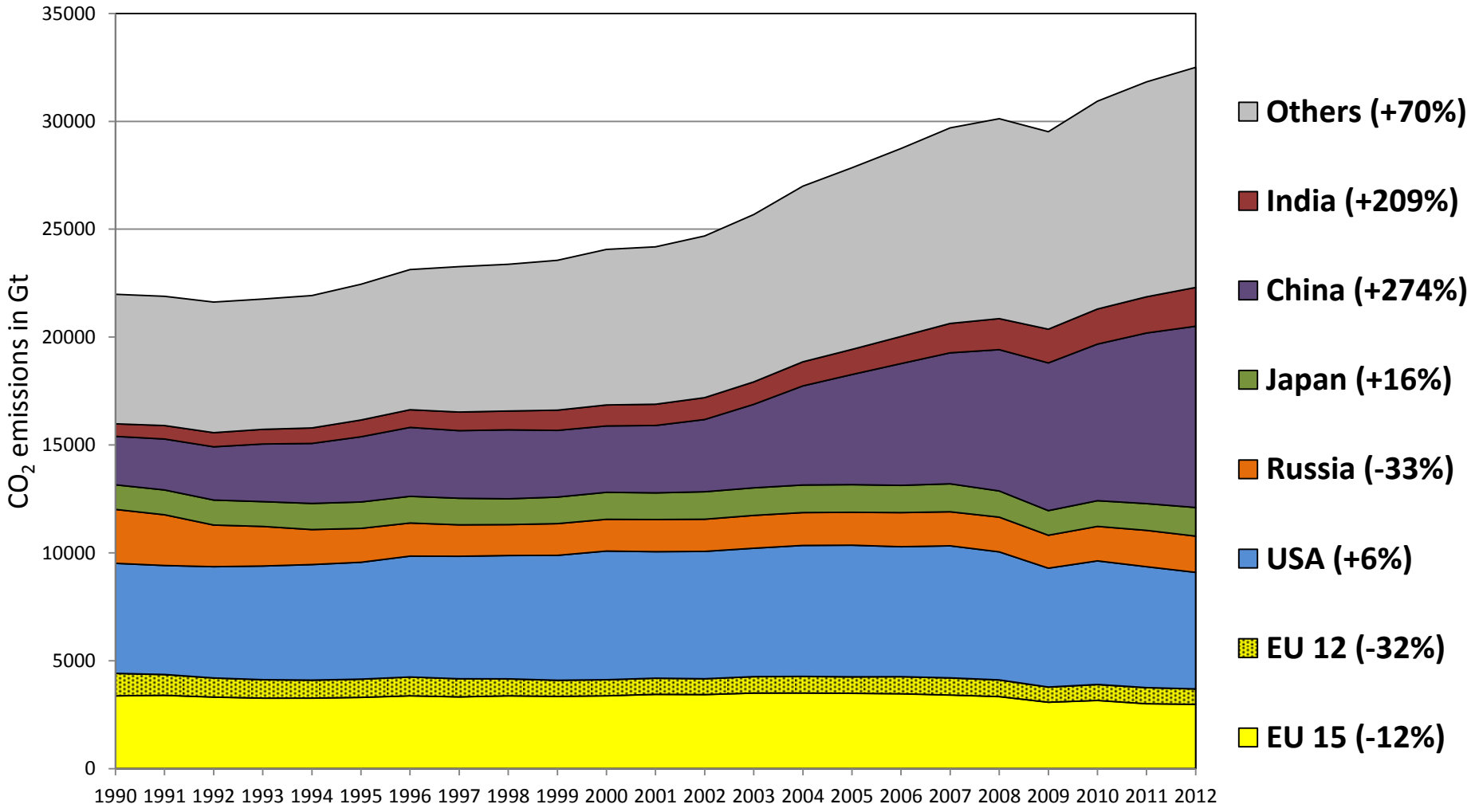


sources UNFCCC; Worldbank; IEA; BP ; author's calculation

EU 27: GHG emissions targets by 2020 and 2050

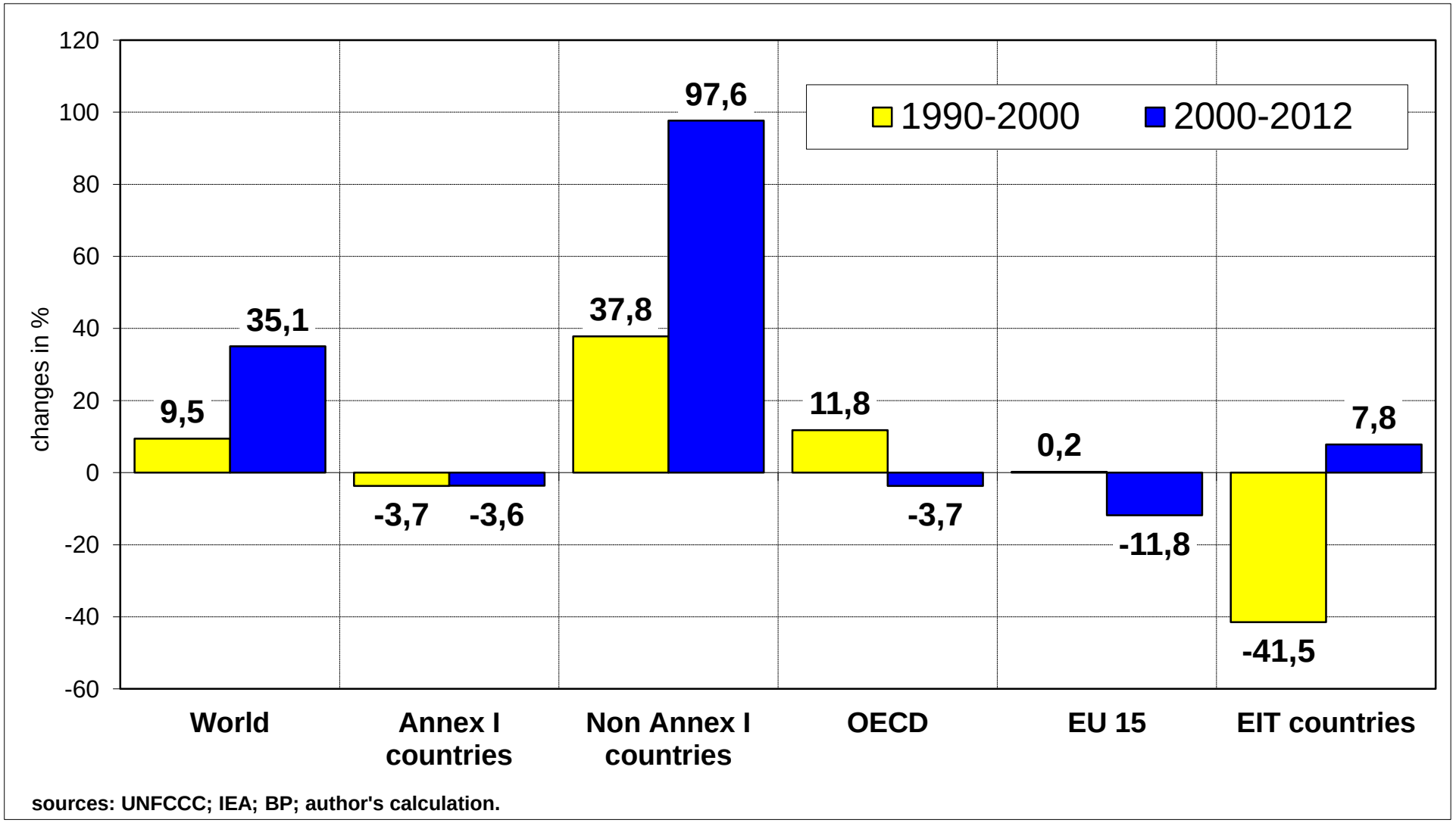


World-wide CO_2 emissions 1990 - 2012



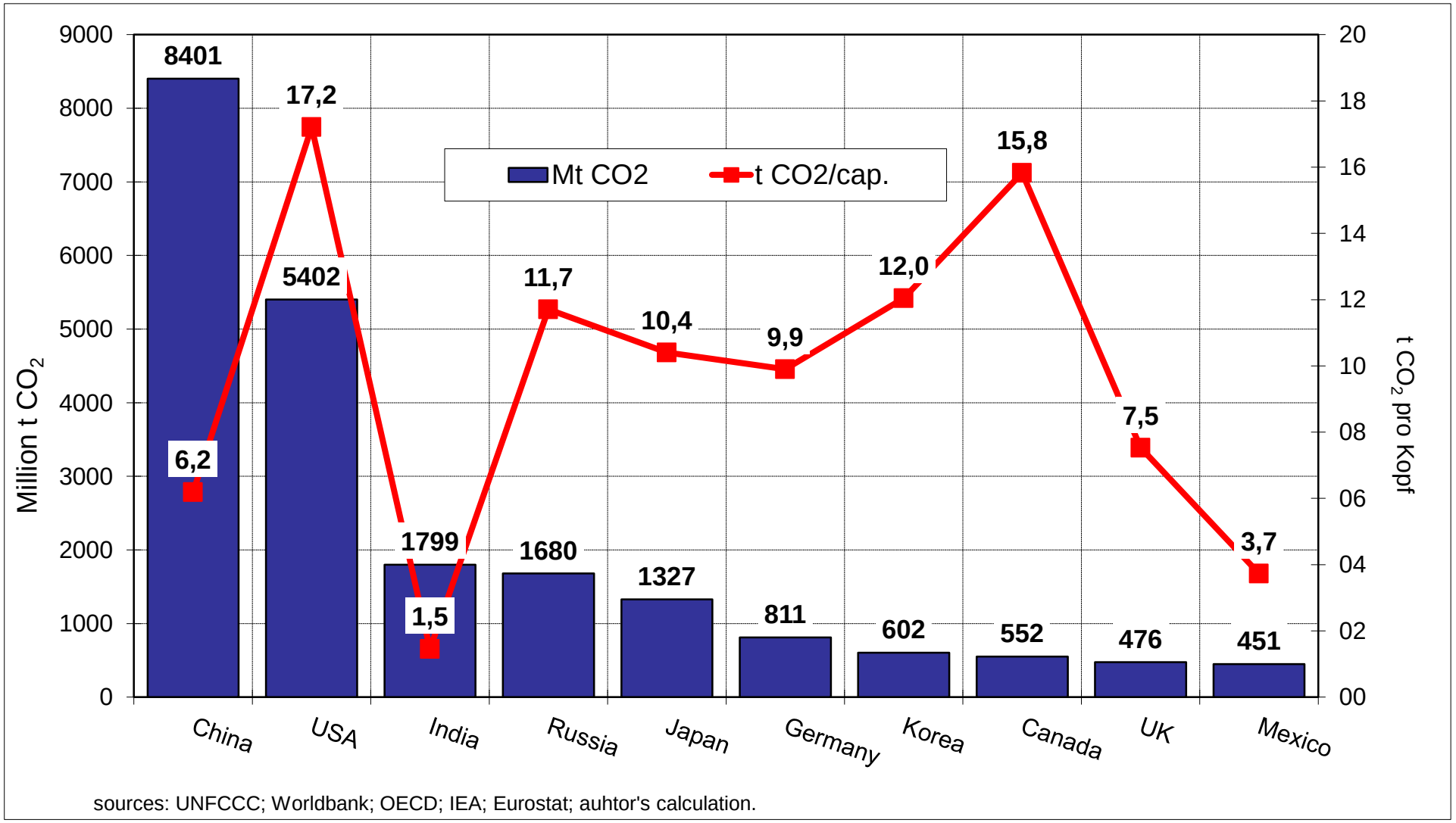
sources: UNFCCC; IEA; EEA; BP 2013; author's calculations.

World-wide CO_2 emissions by regions 1990 - 2012



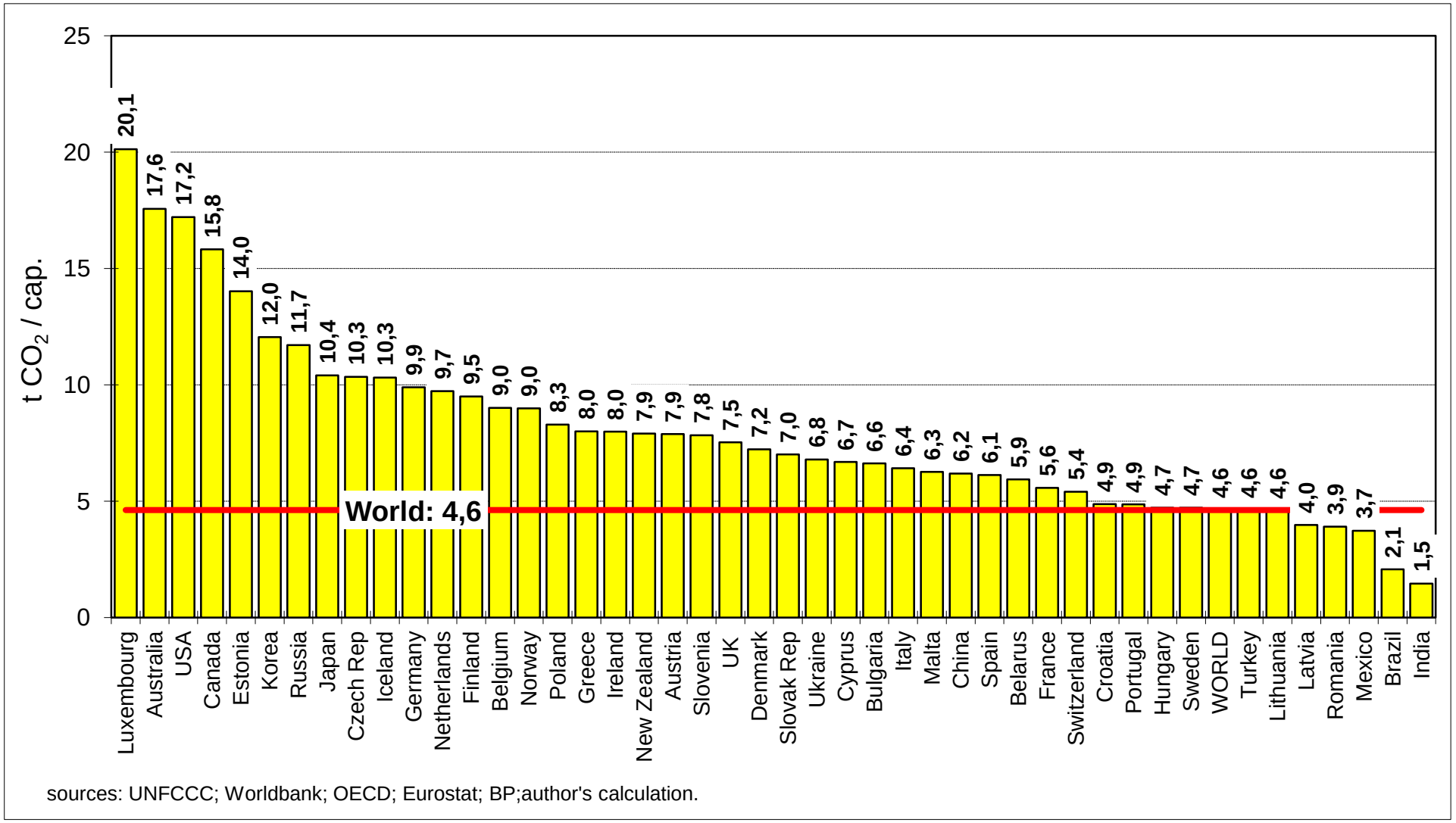
sources: UNFCCC; IEA; BP; author's calculation.

The ten major emitters world-wide 2012



sources: UNFCCC; Worldbank; OECD; IEA; Eurostat; auhtor's calculation.

Per capita CO_2 emissions: EU-27 and selected countries 2012



sources: UNFCCC; Worldbank; OECD; Eurostat; BP;author's calculation.

World-wide CO_2 emissions 1990 – 2012 by regions

	1990	1995	2000	2005	2010	2011*	2012*	1990 to 2012	2011 to 2012
	CO_2 emissions in million tons							changes in %	
WORLD	**21984**	**22449**	**24065**	**27849**	**29309**	**31830**	**32503**	**47.8**	**2.1**
Total Annex II	**14979**	**13865**	**14422**	**14904**	**14191**	**14084**	**13896**	**-7.2**	**-1.3**
Total Non-Annex I	**6388**	**7878**	**8804**	**11965**	**14019**	**16572**	**17400**	**172.4**	**5.0**
EIT	**4354**	**2823**	**2547**	**2653**	**2671**	**2776**	**2747**	**-36.9**	**-1.0**
Annex B	**9764**	**8291**	**8244**	**8553**	**8150**	**8149**	**8167**	**-16.4**	**0.2**
OECD	**11817**	**12307**	**13214**	**13662**	**13052**	**12880**	**12729**	**7.7**	**-1.2**
EU 15	**3374**	**3305**	**3381**	**3493**	**3165**	**3013**	**2981**	**-11.6**	**-1.0**
EU 27	**4413**	**4146**	**4120**	**4254**	**3901**	**3753**	**3693**	**-16.3**	**-1.6**

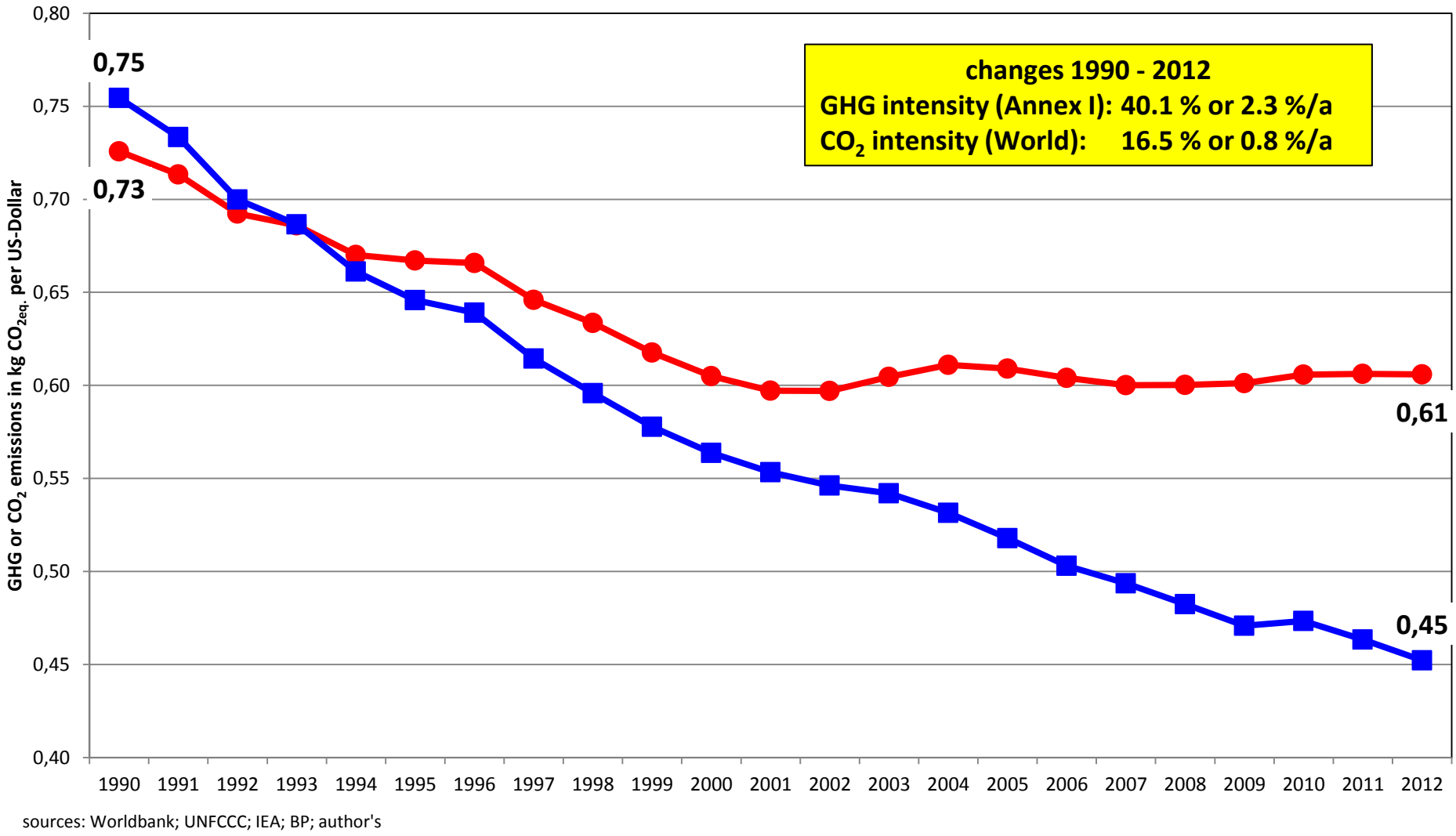
sources: UNFCCC; IEA; EEA; BP 2013; author's calculations.

World-wide CO_2 emissions 1990 – 2012 by selected countries

	1990	1995	2000	2005	2010	2011*	2012*	1990 to 2012	2011 to 2012
	CO_2 emissions in million tons							changes in %	
EU 15	3373.6	3304.6	3380.8	3492.8	3165.1	3012.8	2981.3	-11.6	-1.0
EU NMS	1039.9	841.1	738.7	761.6	735.6	740.6	711.6	-31.6	-3.9
EU 27	**4413.5**	**4145.7**	**4119.5**	**4254.4**	**3900.7**	**3753.4**	**3693.0**	**-16.3**	**-1.6**
Japan	1141.1	1223.7	1251.5	1282.1	1191.1	1240.7	1326.9	16.3	6.9
Australia	277.9	303.9	349.4	384.7	406.2	406.6	398.4	43.4	-2.0
USA	5100.7	5416.2	5962.7	6100.4	5727.0	5603.8	5401.9	5.9	-3.6
Canada	459.3	491.1	564.6	579.0	554.0	555.6	551.9	20.2	-0.7
Total Annex II	**10459.5**	**10850.8**	**11629.1**	**11967.8**	**11171.9**	**10942.7**	**10787.1**	**3.1**	**-1.4**
Russia	2498.5	1572.6	1471.3	1524.8	1598.2	1684.4	1680.2	-32.8	-0.3
Ukraine	719.0	360.4	293.5	320.6	289.7	305.5	309.5	-56.9	1.3
Brazil	194.3	240.4	303.5	322.5	387.7	399.8	410.9	111.5	2.8
Korea	229.3	358.6	437.7	469.1	563.1	594.5	602.4	162.7	1.3
China	2244.1	3022.1	3077.2	5103.1	7258.5	7907.0	8400.7	274.4	6.2
India	582.3	776.6	972.5	1164.8		1678.4	1798.8	208.9	7.2
Africa	544.4	596.6	678.8	826.0	929.7	923.7	963.7	77.0	4.3
Middle East	557.1	774.5	912.3	1198.9	1546.3	1583.7	1657.6	197.6	4.7
Latin America	383.8	444.7	511.7	577.8	677.7	703.3	726.1	89.2	3.2
Asia	696.5	937.1	1162.3	1455.8	1704.8	1771.5	1802.6	158.8	1.8
Other Countries	684.3	422.2	389.0	451.3	523.5	569.1	576.4	-15.8	1.3
International bunkers	617.8	706.3	838.9	979.5	1099.0	1174.0	1206.5	95.3	2.8
WORLD	**21984.4**	**22449.3**	**24064.9**	**27849.1**	**29308.8**	**31830.3**	**32503.0**	**47.8**	**2.1**

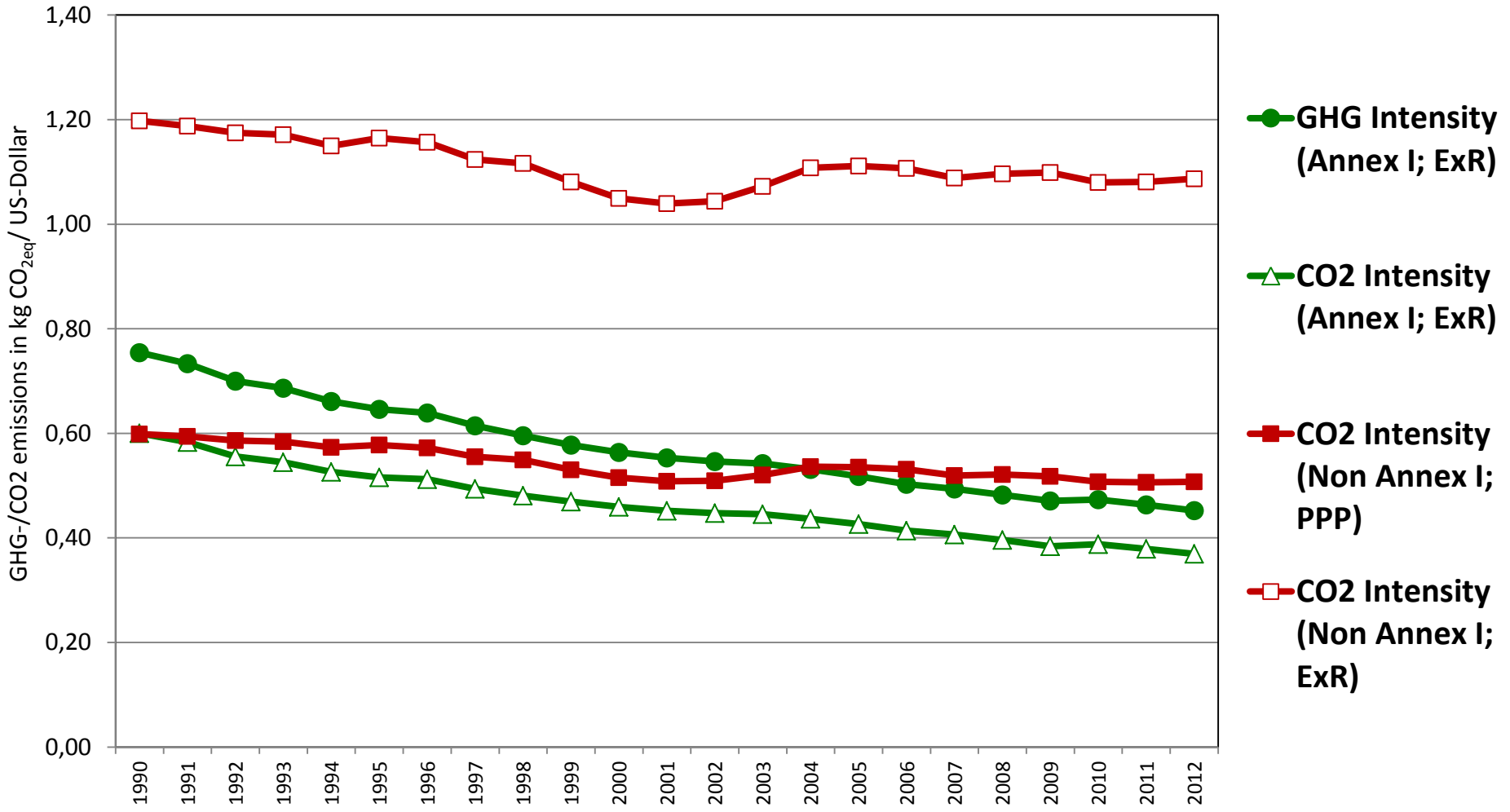
sources: UNFCCC; IEA; EEA; BP 2013; author's calculations.

GHG intensity in Annex I countries/world-wide CO_2 intensity 1990 - 2012



sources: Worldbank; UNFCCC; IEA; BP; author's

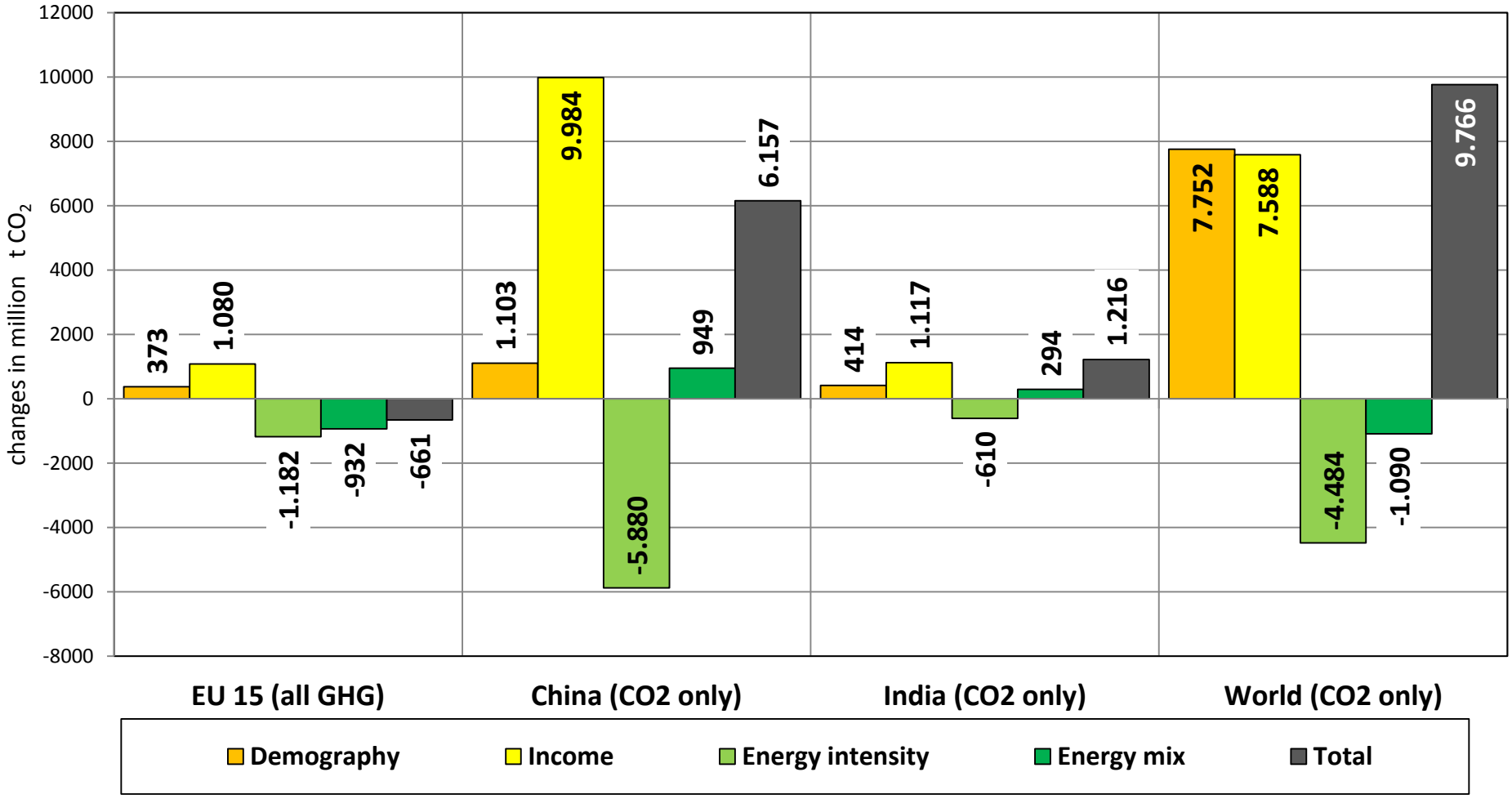
GHG/CO_2 intensity in Annex I and Non-Annex I countries 1990 - 2012



sources: UNFCCC; Worldbank; IEA; BP; auhtor's calculation.

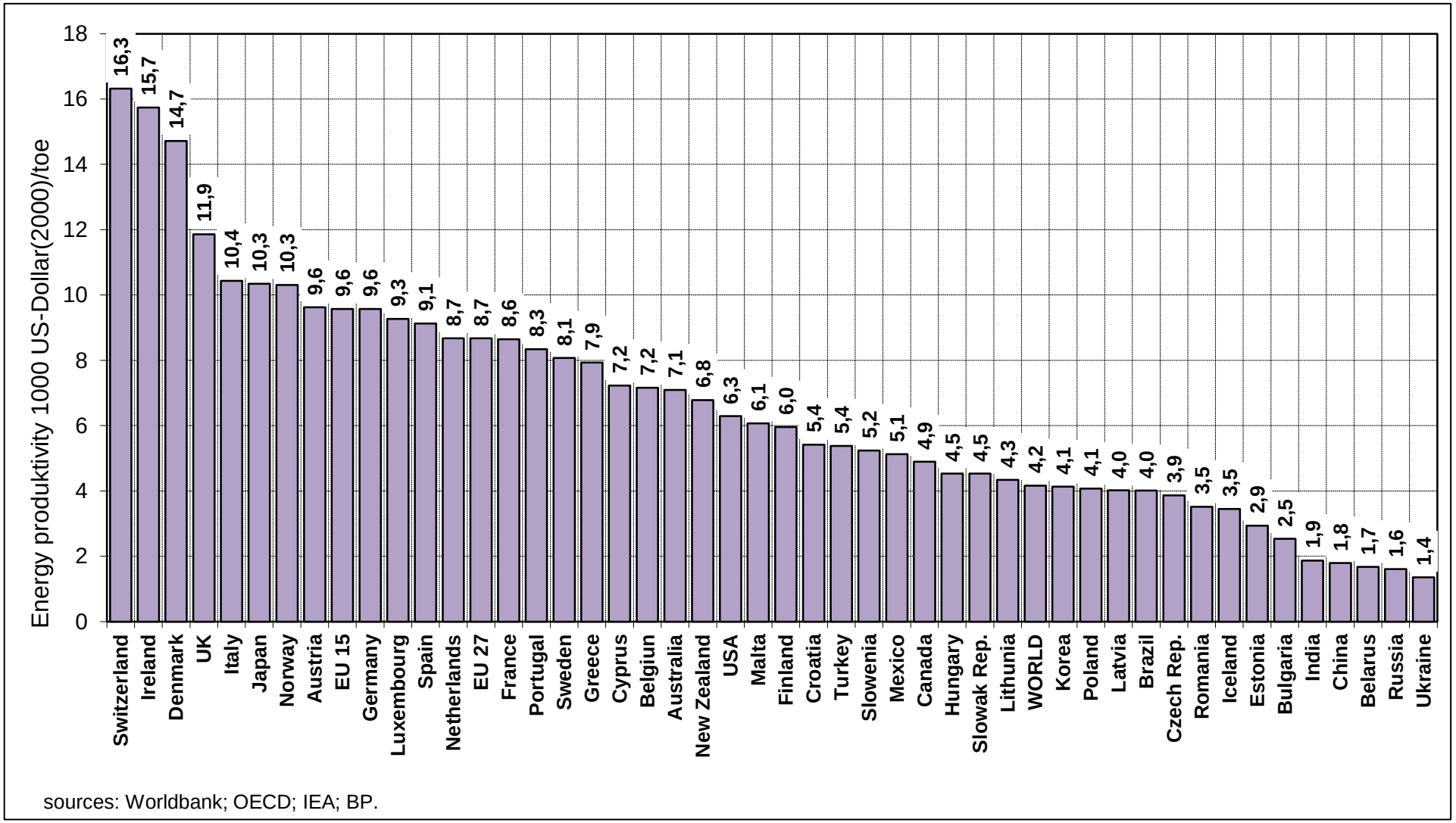
ExR = Exchange Rate; PPP = Purchasing Power Parity

Components influencing GHG emissions 2012 vs. base year (1990)



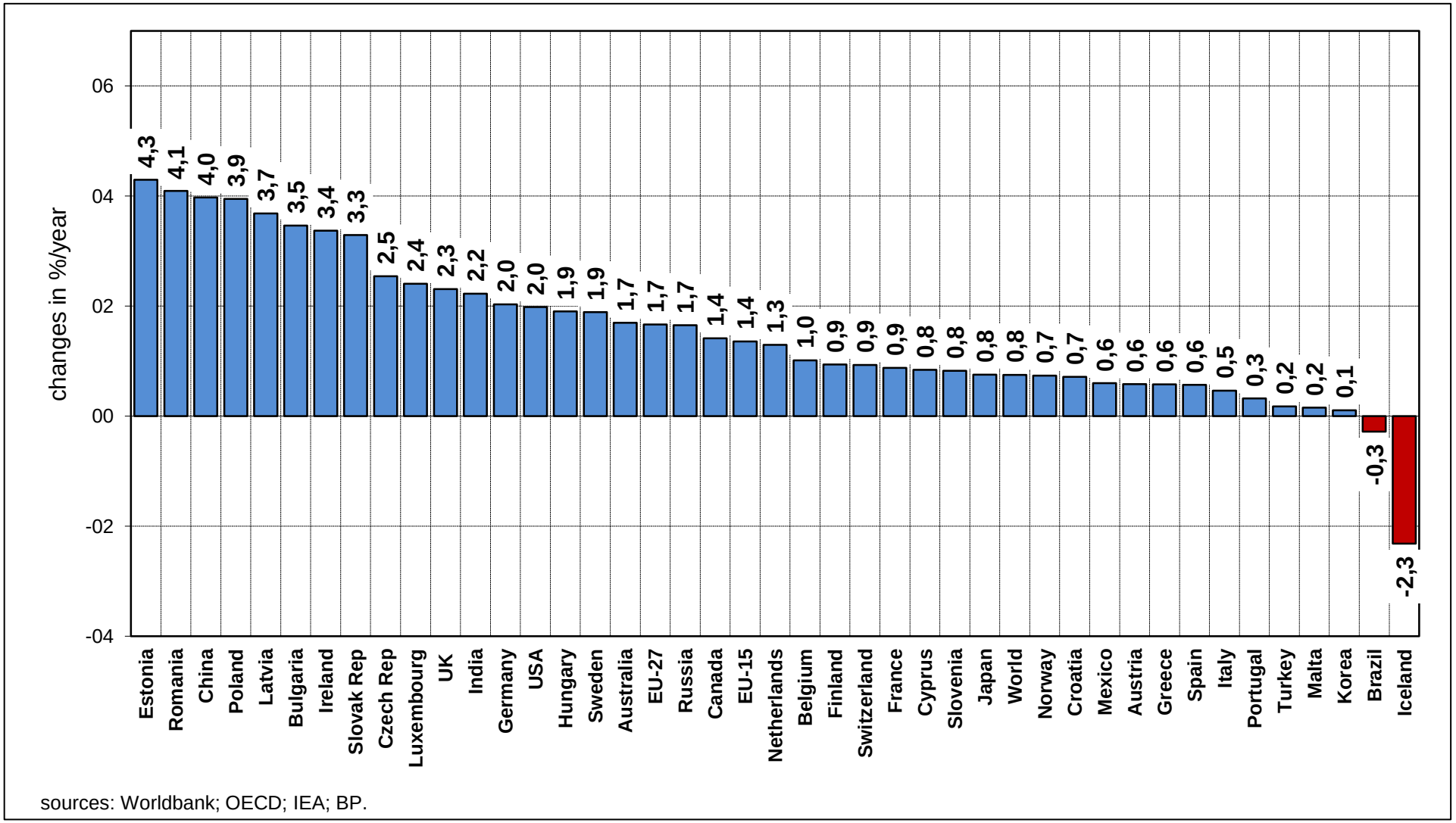
sources: UNFCCC; Worldbank; IEA; BP; author's calculation.

Energy productivity in selected countries 2012



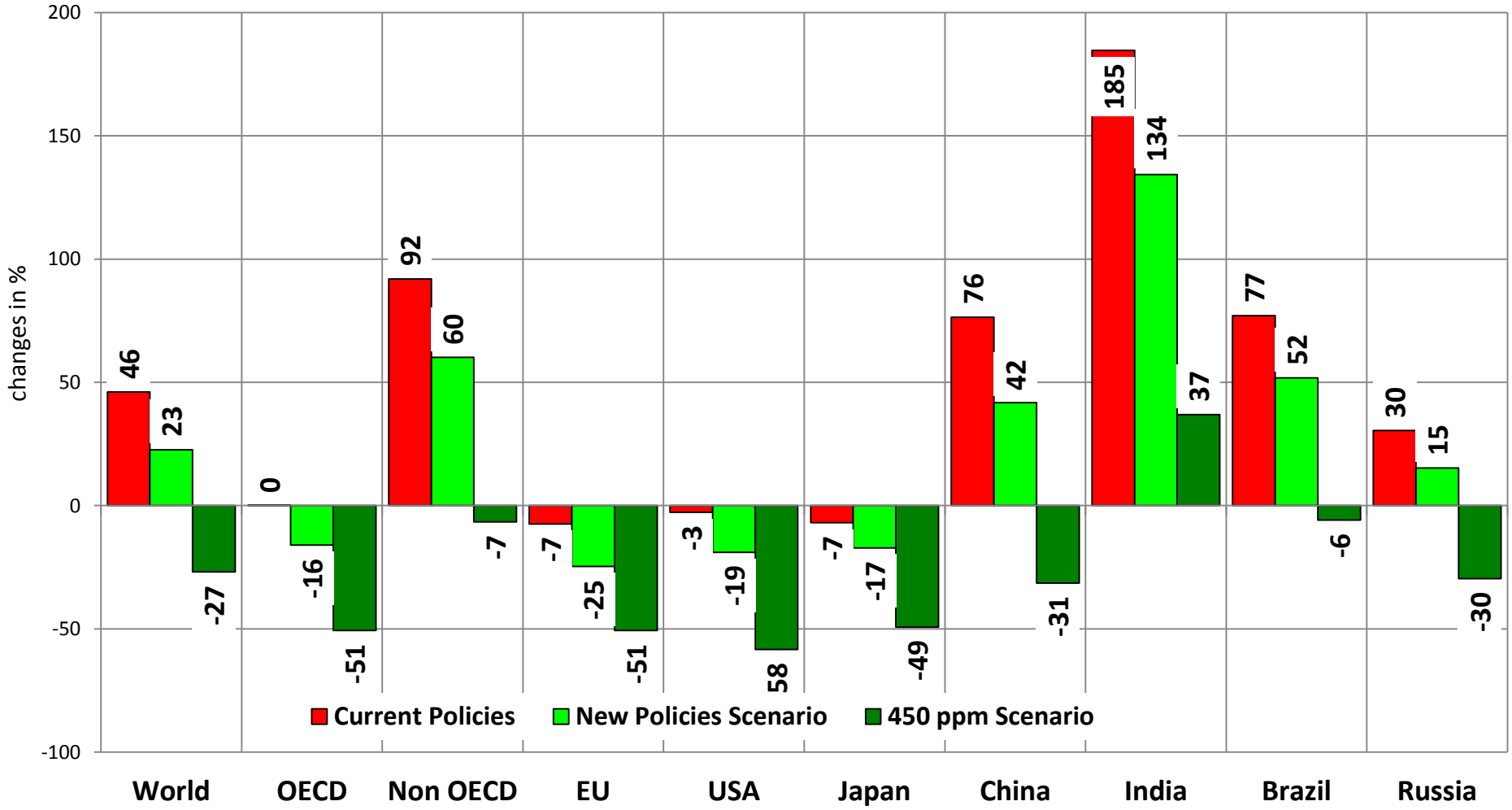
sources: Worldbank; OECD; IEA; BP.

Changes of energy productivity in selected countries 1990 - 2012



sources: Worldbank; OECD; IEA; BP.

World-wide CO_2 emissions by countries/regions 2010 - 2035



source: IEA, World Energy Outlook 2012, OECD/IEA 2012.

Conclusions – almost the same as all the previous years

- The discussion mostly concentrates on emissions targets. This is necessary and has to be pursued in the future - **but**
- The real emission's development and their business-as-usual-perspectives should not be neglected.
- The gap between the desired targets and the expected real development can only be filled with an appropriate policy and effective measures for more energy efficiency and renewable energies.
- Targets are necessary but not sufficient: It needs policies and measures. That's the proof for an effective climate protection policy and not only the target setting!

The paper will be published in September in: „Energiewirtschaftliche Tagesfragen“, 9/2013 (in German only)

Thanks for listening

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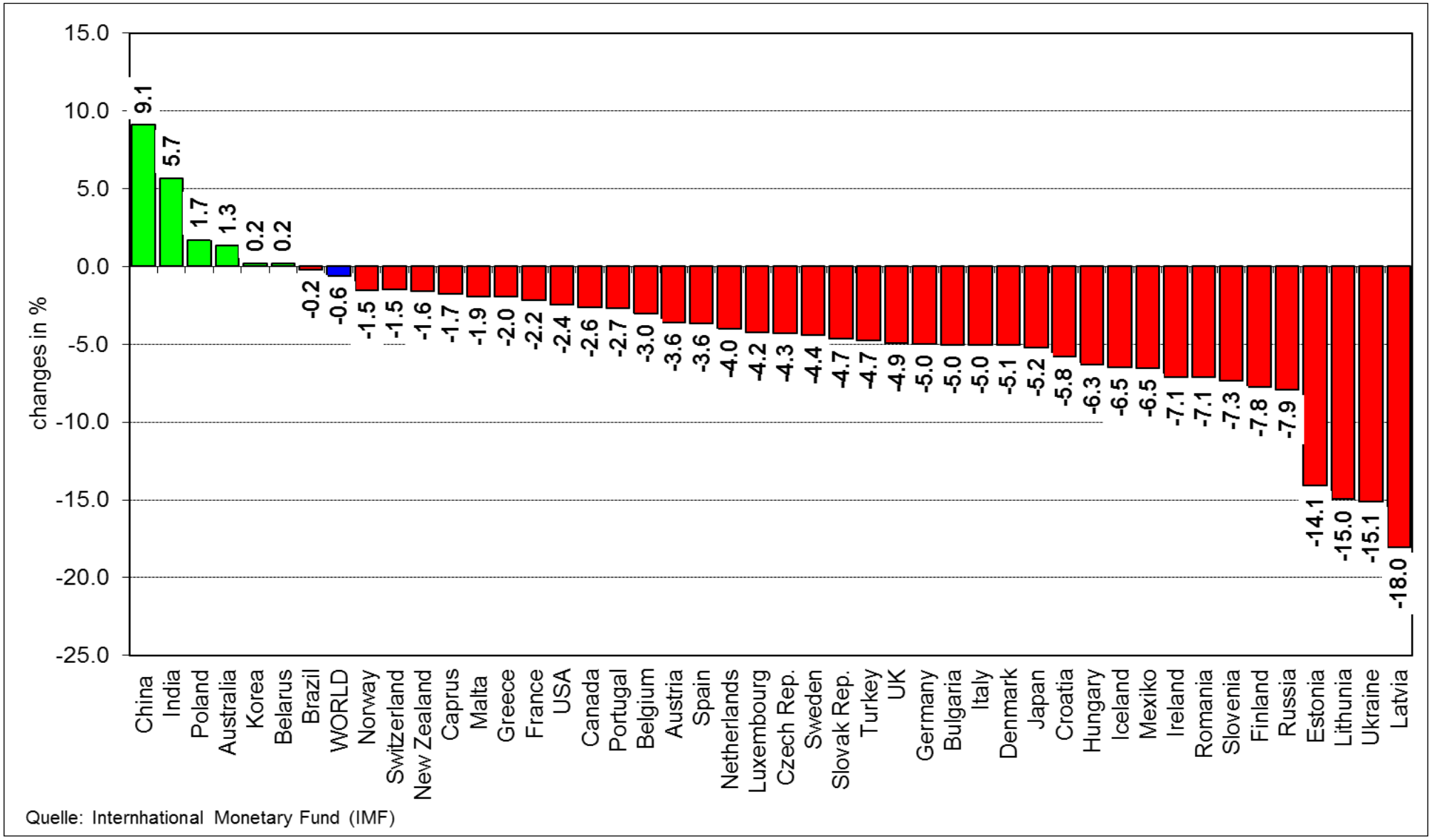
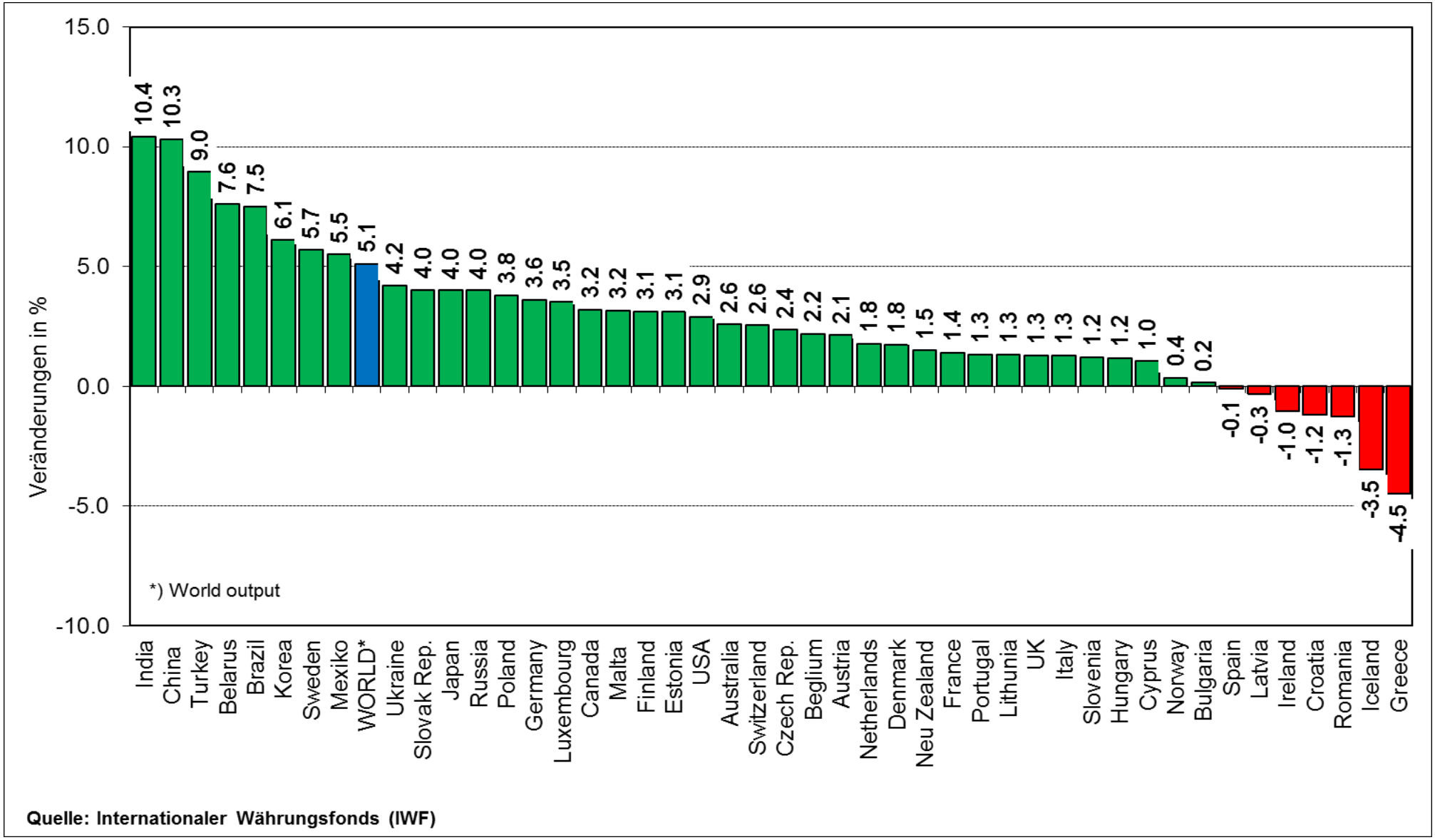
Changes of GDP 2009 vs. 2008 in Annex I Parties and selected other countries



Changes of GDP 2010 vs. 2009 in Annex I Parties and selected other countries



Quelle: Internationaler Währungsfonds (IWF)