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SIXTH NATIONAL COMMUNICATION AND FIRST BIENNIAL REPORT FROM THE EUROPEAN UNION UNDER THE UN FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC)

(required under the United Nations Framework Convention on Climate Change and the Kyoto Protocol)

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1. INTRODUCTION

The European Union (EU) and its 28 Member States, both individually and jointly, have been implementing domestic and international actions against climate change now for a considerable number of years, which resulted in significant emission reductions.

The Staff Working Documents accompanying this Communication constitute the 6th National Communication and the 1st Biennial Report of the EU, as required under Article 12 of the United Nations Framework Convention on Climate Change (UNFCCC) and Article 7 of the Kyoto Protocol, and under Decision 2/CP.17 of the Conference of the Parties under the UNFCCC, respectively. This Communication is an executive summary of these documents.

2. NATIONAL CIRCUMSTANCES

The EU comprises 28 Member States with a population of 508 million. Croatia joined the EU as the 28th Member State on 1st July 2013. After the economic downturn due to the global financial and economic crisis in 2009, the EU saw economic growth in 2010 and 2011.

Energy policy since 1990 has resulted in a significant shift to less carbon-intensive energy use. Since the last National Communication, energy use per capita has continued to decrease even more strongly, with a short interruption in 2010. In addition, energy intensity has decreased steadily since 2006, except in 2010.

3. GREENHOUSE GAS INVENTORY: THE EU ON TRACK TO OVERACHIEVE THE KYOTO TARGET FOR THE 2008-2012 PERIOD

In 2011, total EU-28 greenhouse gas (GHG) emissions without emissions and removals from land use, land-use change and forestry (LULUCF) and excluding emissions from international aviation, were 18.3 % lower compared to 1990 levels. Emissions per capita in the EU dropped by 24% between 1990 and 2011, from 11.8 t/capita, to 9 t/capita. Between 2010 and 2011, emissions decreased by 3.3 % in the EU-28, largely due to a strong emission decrease in households and services.

Emissions in the EU-28 have been decreasing while the economy has grown; the decoupling of economic growth from GHG emissions has been progressing steadily since 1990. Gross Domestic Product (GDP) growth for the 1990-2011 period was approximatively 44 % for the EU-15 and 45 % for the EU-28. Between 2010 and 2011 the EU-28 GDP increased by 1.4%, while GHG emissions fell by 3.3 %.

Under the Kyoto Protocol, the EU-15 has agreed to reduce its GHG emissions by 8 % compared to base year levels, during the first commitment period (2008–2012). Based on the latest available inventory data for 2011, total GHG emissions in the EU-15 were on an annual average 14.9 % below base year levels (without LULUCF). The EU-15 is therefore not only on track to achieve its Kyoto target, but will overachieve it. This is confirmed by the approximate data for 2012.[1] Furthermore, all the eleven Member States which acceded to the EU as from 2004 and which have an individual Kyoto target, are expected to meet or over-achieve their commitments.

[1] European Commission's Report on the Progress towards achieving the Kyoto and EU-2020 Objectives: http://ec.europa.eu/clima/policies/g-gas/docs/com_2013_698_en.pdf and EEA's Trends and Projections report: http://www.eea.europa.eu/media/newsreleases/climate-and-energy-targets-2013

4. POLICIES AND MEASURES

The EU sets its climate change mitigation objectives within the international commitment to limit the average global temperature increase to less than 2°C compared to pre-industrial levels.

At the 18th session of the Conference of the Parties (COP 18) in Doha in December 2012, the EU decided to take a 2nd commitment period of the Kyoto Protocol which will run from 2013 until 2020. As of 1st January 2013, all EU Member States implement the subsequent obligations. The EU's Climate and Energy package[2], adopted in 2009, provides an integrated package of policies and measures to implement these obligations and to tackle climate change up to 2020 and beyond.

The EU is continuously developing additional policies and measures to further reduce its emissions and to meet its emission reduction target to reduce its GHG emissions by at least 20 % compared to 1990 by 2020, with a conditional offer to move to a 30% reduction, provided that other developed countries commit themselves to comparable emission reductions and developing countries contribute adequately according to their responsibilities and respective capabilities.

Since the last National Communication, the main policies and measures at EU level include the full implementation of the Climate and Energy package, a new adopted Monitoring Mechanism Regulation, a new Energy Efficiency Directive, new 2020 targets for the CO_2 emissions of light commercial vehicles, a similar proposal for cars and a proposal to phase down hydrofluorocarbons (HFCs) sold.

Cross-cutting

The Climate and Energy package constitutes the backbone of the EU policies and measures to reduce GHG emissions. It includes the following 2020 headline targets:

- to reduce EU greenhouse gas emissions by at least 20 % compared to 1990 by 2020;.
- to supply 20 % of energy from renewable sources by 2020 (as a share of total EU gross final energy consumption), supplemented by a target to achieve a minimum of 10 % renewable energy in transport; and
- to reduce by 20 % the total primary energy consumption by 2020, compared to a business as usual baseline.

Many existing EU-level policies and measures are being strengthened to meet these targets. This includes in particular the following cross-cutting legislative developments:

- The EU Emissions Trading System (ETS) has been revised and strengthened based on lessons learned. The third phase (2013-2020) has successfully started. The changes include a single, EU-wide emissions cap, auctioning of new allocations as default allocation method, harmonised allocation rules based on EU-wide performance benchmarks for free allocation, additional sectors and gases included. The EU ETS covered on average 41 % of total EU-28 GHG emissions during the period 2008-2012. Due to the financial crisis and the significant use of emission reduction credits from abroad, a surplus in allowances has accumulated in recent years leading to a drop in the price. The Commission has made a proposal on how to address this issue in the short term, and explores structural reform measures.

[2] http://ec.europa.eu/clima/policies/package/index_en.htm; The six corresponding legislative acts were published in the Official Journal of the European Union in June 2009 (5.06.2009 L40) and are already in force.

- In the context of the EU Effort Sharing Decision, EU Member States have taken on binding annual targets (for each year from 2013 to 2020), reducing their GHG emissions from the sectors not covered by the EU ETS, such as housing, agriculture, waste and transport (excluding aviation), and a thorough annual compliance system has been established.
- The revised and strengthened Monitoring Mechanism Regulation entered into force in 2013. It enhances current reporting rules on GHG emissions to implement the Climate and Energy package and to meet requirements arising from current and future international climate agreements.

With regard to the EU's future climate strategy, the Commission adopted policy documents to promote the discussion on the long-term framework of climate and energy policies in Europe. It includes a roadmap on moving towards a competitive low carbon economy in 2050, a White Paper on competitive and efficient transport systems, a roadmap on energy and a bioeconomy strategy. Furthermore, the Commission adopted a Green Paper to launch a public debate on the preparation of the EU climate and energy framework for 2030.

Energy

Significant progress has been made to meet the 20% renewables target by 2020 laid down in the Climate and Energy Package. The share of gross final consumption of energy met by renewables has increased substantially over the last ten years to around 13 % in 2011. A substantial increase can be seen from renewable heat production, wind power generation and photovoltaics whereas hydro power production has been relatively constant. At national level, EU Member States prepared National Renewable Energy Action Plans and most Member States experienced significant growth in renewable energy, and are on track to meet their national binding targets. At present, many Member States are reviewing their national support schemes to improve the overall cost efficiency of policies on renewables. The Strategic Energy Technology Plan is guiding Member States since 2007 in prioritising the development of innovative solutions which will respond to the needs of the European energy system by 2020, 2030 and beyond.

A wide range of policies and measures were also introduced to promote energy efficiency, most recently the Energy Efficiency Directive. This Directive aims at keeping the EU's energy efficiency target on track and explicitly sets goals for primary and final energy consumption by 2020.

Overall, a de-carbonisation of the energy sector has been experienced, as highlighted by the following data: the consumption of carbon-intensive coal and lignite decreased by 37 % by 2011, compared to 1990, while gas consumption increased by more than 30 %. Renewables have seen the most marked increase with consumption increasing by over 120 % in 2011 from 1990 levels.

Transport

CO_2 emissions of new light duty vehicles are targeted by recent regulations which aim at reducing emissions of the new passenger cars by 40 % and emissions of new light commercial vehicles by 28 % by 2020, compared to the average of new light duty vehicles in 2007. These efforts are supplemented by environmental performance requirements such as tyre pressure monitoring systems and gear shift indicators.

In order to reduce fossil fuel consumption, the Fuel Quality Directive also introduced a binding target for fuel suppliers to reduce life-cycle GHG emissions per unit of energy by up to 6 % by 2020, compared to 2010. In addition, in 2013 the Commission adopted the Clean

Power for Transport Package which supports the broad deployment of alternative fuels vehicles and vessels and the relevant infrastructures in Europe.

As a result of the regulations, significant progress has been made to reduce the average CO_2 emissions of the new passenger car fleet and meet the binding targets set at 130 g CO_2/km by 2015 and 95 g CO_2/km by 2020. Average emissions decreased to 132.2 g CO_2/km in 2012, compared with the 2007 fleet average of 158.7 g CO_2/km.

Transport activity has steadily increased in the EU since 1990 up until the economic crisis in 2008. Freight transport growth was largely in line with real GDP growth until the economic crisis, followed by a strong decline in 2008 and 2009 and a recovery in 2010. Passenger transport has grown slower than real GDP since 1995. Overall, GHG emissions from transport have grown until 2007, albeit at a slower pace than real GDP, and are decreasing since, showing the decoupling of transport emissions from GDP.

Industry

Emissions from industrial processes have significantly decreased by 27.5% since 1990 and have continued to decrease since the last National Communication. Most GHG emissions from industry are covered under the EU ETS.

Furthermore, emissions from Fluorinated gases are regulated, leading to a cumulative reduction of 2,861 kt CO_2 eq by 2010, since the corresponding legislation was adopted in 2006. Furthermore, a proposal to strengthen this legislation is under consideration by the European Parliament and the Council. It aims at limiting the use of F-gases in new equipment and introducing a phase-down measure of HFCs combined with some bans on use.

The new Industrial Emissions Directive (IED) also aims at achieving significant benefits to the environment and human health by reducing polluting emissions to the atmosphere, water and soil, as well as waste from industrial and agricultural installations, in particular through better application of Best Available Techniques (BAT).

Agriculture

Total GHG emissions from the agricultural sector decreased by 23.1% between 1990 and 2011.

In recent years, environmental considerations including climate change mitigation have gradually been integrated into the EU's Common Agricultural Policy (CAP). The new CAP (covering the period 2014-2020) will further enhance the existing policy framework for sustainable management of natural resources, contributing to both climate change mitigation and enhancing the resilience of farming to the threats posed by climate change and variability.

Furthermore, legislation (the Nitrates Directive) is in place, to contribute to decreasing CH_4 and N_2O emissions from agricultural activities. The European Soil Thematic Strategy also aims at preventing soil degradation and preserving soil as an important carbon pool.

Forestry

The new EU Forest Strategy provides a framework that coordinates and ensures coherence of forest-related policies and allows synergies with other sectors that influence forest management. Member States are asked to consider the principles and goals of this strategy when setting up and implementing their action plans and national forest programmes. The new EU legislation on GHG accounting rules for LULUCF activities (going beyond forestry) lays down rules for the robust accounting in this sector. It will support the mitigation potential of this sector by improving the visibility and tracking progress of mitigation efforts.

Waste

Since the last National Communication, focus has been put on the full and timely implementation of the EU waste legislation, which contributes directly or indirectly to a reduction of GHG emissions.

5. PROJECTIONS: THE EU ON TRACK TO MEET THE KYOTO TARGET FOR 2020

The latest available GHG projections by Member States (which take into account the implementation of the Climate and Energy Package) show that the EU-28 will collectively overachieve its 2020 target.

- Under the "With Existing Measures" (WEM) scenario, total GHG emissions (excluding international aviation) are projected to be 22 % lower in 2020 than in 1990 and 24% lower in 2030 compared to 1990.
- Under the "With Additional Measures" (WAM) scenario, as reported by Member States, the projected GHG emissions compared to 1990 would decrease by 26% in 2020, and 30% in 2030.

The WEM sensitivity analysis confirms the projected 2020 target achievement. The 2030 results are more uncertain and more dependent on the assumptions made. However, the sensitivity analysis confirms for 2030 the order of magnitude indicated by the WAM scenario results.

The most significant sectoral contribution in absolute GHG emission reductions in the EU-28 WEM scenario from 1990 to 2020 is projected to stem from the energy sector (1051 Mt CO_2eq), followed by agriculture, industry and the waste sector. GHG emissions in the transport sector are projected to increase by 18 % compared to 1990 levels. If additional measures are also considered (WAM scenario), the pattern of sectoral shares in emission reductions remains the same, while the emissions growth in the transport sector in EU-28 is less prominent (12 % increase by 2020 compared to 1990 levels).

Reductions in CO_2 emissions are expected to contribute most to overall emission reductions in the EU-28. Under the WEM scenario, CO_2 contributes to 70% of the aggregate GHG emission reductions in 2020 compared to 1990, followed by CH_4, and N_2O.

6. IMPACTS, VULNERABILITY AND ADAPTATION

While reducing GHG emissions is of paramount importance to avoid dangerous climate change, the EU also recognises that some climate change impacts are unavoidable because of past emissions. The EU has therefore undertaken research and taken action to understand these impacts, develop adaptation responses and assist developing countries in strengthening their capacity to cope with climate change. Since the 5th National Communication, progress has been made on assessing the impacts of climate change and developing adaptation policies across Europe. Comprehensive information on past and projected climate change and related impacts has been published for Europe, in particular as part of the European climate adaptation platform (Climate-ADAPT).

Action has been strengthened since the 5th National Communication in particular through the EU Strategy on adaptation to climate change, which was adopted in 2013. ***The strategy aims at contributing to a more climate-resilient Europe, by encouraging and supporting actions by Member States, promoting adaptation in key vulnerable sectors at EU level, and ensuring better-informed decision-making.***

7. FINANCIAL RESOURCES AND TRANSFER OF TECHNOLOGY

The information reported refers in principle to financial resources and transfer of technology by the EU alone. Information on financial resources and transfer of technology by the EU's Member States can be found in their respective National Communications.

Improved access to funding will be a critical factor in building a climate-resilient Europe. As a result, all EU institutions have agreed that at least 20% of the overall EU budget for the period 2014-2020 should be climate related. This represents nearly a tripling of the current climate related share of the EU budget.

The EU is strongly committed to continue assisting developing countries in the fight against poverty and the achievement of the UN Millennium Development Goals. Combating climate change forms an integral part of this agenda. In recent years specific cooperation on climate change has been strengthened significantly across a range of different frameworks.

Providing more than half of the world's total Official Development Assistance (ODA) and with the fight against poverty at the core of the EU's external and development cooperation policies, the EU attaches an increasing importance to climate finance in its ODA. The EU has increased the amount of financial support to mitigation and adaptation action in developing countries.

EU multilateral and bilateral financial contributions related to climate change have steadily increased over the last few years, peaking at € 734 million in 2012. Between 2008 and 2012, the EU commitments to support climate relevant activities in developing countries amounted to € 3.0 billion.

The EU and its Member States also committed € 7.3 billion for "Fast-Start Finance" over the period 2010-2012, thus exceeding its goal adopted at the Conference of the Parties in 2009 (COP15) of € 7.2 billion.

The EU has also increased its focus in supporting the poorest and most vulnerable countries, especially by the implementation of initiatives such as the Global Climate Change Alliance (GCCA) and increased financial support to adaptation.

In 2007, the EU pioneered the establishment of the GCCA. The GCCA is now a well-established mechanism and a reference for future actions. Back in 2008, the GCCA was working with four countries. By the end of 2012, over 45 GCCA programmes are either up and running or in preparation in more than 35 countries within an envelope of € 290 million.

Support to adaptation action has seen increased importance during the reporting period. Most of the climate change support provided by the EU is channelled through projects in which climate change is not the principal policy objective, thus demonstrating the success of the climate change mainstreaming efforts.

Furthermore, a number of climate change activities involving technology transfer are funded through the EU budget, most notably in the area of research.

Capacity development is also at the heart of the EU development assistance. In line with this policy, the EU supports a wide range of climate-related capacity development actions in third countries, including strengthening local institutional capacity for adaptation, mitigation, climate financing, integration (mainstreaming) of climate change into national policies, as well as support to the participation in the international climate change negotiation process.

As part of the EU budget for 2014-2020, new external financial programmes have been set up to support developing countries, with climate change as a key objective. This concerns in particular key instruments such as the Development Cooperation Instrument and the

Partnership Instrument, where the already mentioned objective of climate action objectives representing at least 20% of EU spending in the period 2014-2020 equally applies.

8. RESEARCH AND SYSTEMATIC OBSERVATION

Research is a shared competence of the EU and its Member States. Only actions coordinated at EU level are reported in the EU National Communication.

The EU contributes to Research and Systematic Observation (RSO) through the involvement of multiple actors and through a suite of instruments, tools and programmes and across multiple sectorial policies including:

- EU Framework Programmes (FPs) for Research and Technological Development
- LIFE+ (EU's funding instrument for the environment)
- Competitiveness and Innovation Framework Programme
- International Development Cooperation
- Contribution to and/or financial support for major international institutions, research initiatives and programmes such as the UNFCCC, the Intergovernmental Panel on Climate Change (IPCC) and the Global Climate Observing System (GCOS), among others.

A suite of instruments, tools and programmes such as the Seventh Framework Programme for Research and Technological Development (FP7) – to be continued from 2014 with the Framework Programme for Research and Innovation (Horizon 2020), the Strategic Energy Technology (SET) plan, and NER300, provide funds for research and technology development across multiple sectorial policies in the EU.

FP7 has been the most important EU financial mechanism to support research on climate change and the development of energy technologies, including cooperation with non-EU countries. While some calls are still open and a final figure cannot yet be given, a rough estimation indicates that from 2007 to 2013 in FP7 over € 800 million were spent on supporting climate change research. The majority of the funding was provided for collaborative research projects within the 'Cooperation[3]' programme, complemented by other funding for research infrastructures for climate observations and modelling and for investigator-driven 'frontier' research awarded by the European Research Council (ERC)[4]."

A new EU research and development programme (Horizon 2020) has been set up for the period 2014-2020. It contains the objective of reaching 35% climate related expenditures.

9. EDUCATION, TRAINING AND PUBLIC AWARENESS

The EU has been investing a significant amount of effort and resources to increase the awareness of the Europeans to the challenges posed by the impacts of climate change and to the opportunities arising from, in particular, climate change mitigation. In that respect, actions in the field of education and training, in addition to EU-wide awareness raising campaigns, have played a major role. Of such activities, the communication campaign – A World you like with a Climate you like - can be highlighted.

3 http://cordis.europa.eu/fp7/cooperation/home_en.html

4 http://erc.europa.eu/

10. CONCLUSION

The domestic and international actions implemented by the EU and its Member States against climate change through the climate and energy package, resulted in significant emission reductions, and the GHG reduction trends continue, with a clear decoupling of economic growth from GHG emissions. Enhanced action has also been taken to assess the impacts and to adapt to climate change, in particular through the new EU strategy on adaptation to climate change. Furthermore, by strengthening the support and assistance provided to developing countries, the EU has helped enhanced action globally.