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Climate change and the international regulation

I. Short history of climate change science, policy and law

As Joseph Fourier said in 1824: „The earth receives the rays of the sun, which penetrate its mass, and are converted into non-luminous heat; it likewise possessed an internal heat with which it was created, and which is continually dissipated at the surface; and lastly, the earth receives rays of light and heat from innumerable stars, in the midst of which is placed the solar system. These are the three general causes which determine the temperature of the earth."

Jean Baptiste Joseph Fourier is best known for his Fourier series. He was a mathematics teacher and he was probably the first person, in 1827, to allude to the greenhouse effect when he compared the influence of the atmosphere to the heating of a closed space beneath a pane of glass. Fourier may also be credited with the suggestion that human activities could influence the climate.[2] The final footnote of his memoir was a reference to his „Theorie analytique de la chaleur", which was published in 1822 and was translated in English in 1878. In this book, Fourier introduces the elements of a comprehensive mathematical theory of heat: the differential equations describing the movement of heat in solids and fluids, the variations introduced by external periodic heat sources, and the transmission of heat by diaphanous substances.[3]

Svante August Arrhenius is best known as an electrochemist (he received the Nobel Prize for Chemistry in 1903.), who was born near Uppsala, Sweden, on February 19, 1859. He published numerous articles and several books on earth science and cosmology. Arrhenius developed a theory to explain the ice ages, and in 1896, he was the first scientist to attempt to calculate how changes in the levels of carbon dioxide in the atmosphere could alter the surface temperature through the greenhouse effect. The following equivalent formulation of Arrhenius' greenhouse law is still used today[4].

The world's first climate conference was in 1979 and it was organized by World Meteorological Organization (WMO). It was followed by the Intergovernmental Panel on Climate Change (IPCC). On 3-14th June 1992, the United Nations (UN) organized the first international „Earth Summit", or officially United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro with 172 participant governments. It is also called the Rio Conference[5]. The "Rio Convention", officially the United Nations Framework Convention on Climate Change (UNFCCC)[6], is one of three adopted at the "Rio Earth Summit" in 1992.

[1] Szent István Egyetem Ybl Miklós Építéstudományi Kar, Építőmérnöki Intézet, tanársegéd.

[2] Jones, Mervyn and Henderson-Sellers, Anne: History of the Greenhouse Effec 5p. In Progress in Physical Geography (PPG) 1. March 1990, 14 no.1, 1-18 p.

[3] Fleming, James Rodger: Historical Perspectives on Climate Change. Oxford University Press, New York, 1998., 62. p.

[4] Example: The Intergovernmental Panel on Climate Change (IPCC): Climate Change 2013. The Physical Science Basis s. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 1535 pp.

[5] The series of Rio Conference or Rio process also famous, it repeats every 5th year: Rio, Rio+5: New York, Rio+10: Johannesburg, Rio+15: Rio and Rio+20: Rio.

[6] UNFCCC available at http://unfccc.int/files/essential_background/convention/background/application/pdf/convention_text_with_annexes_english_for_posting.pdf (last visited 22 December 2016).

II. International legislation in climate change

II.1. Intergovernmental Panel on Climate Change

The IPCC established by WMO and the United Nations Environment Programme[7] (UNEP) has currently 195 member countries[8] in its intergovernmental body. The IPCC is a scientific body under the support of the United Nations, but Arthur C. Patersen[9] identified it like a border body, which exists on the border of science and politics.

The reason for the establishment of IPCC was to find out whether there is anthropogenic contribution to the climate change, and if so, to what extent. The IPCC collects data, creates databases, makes analysis and provides scientific information about climate change. In 1990 the IPCC published its First Assessment Report (Working Group I–Climate Change: The IPCC Scientific Assessment; Working Group II–Climate Change: The IPCC Impacts Assessment; Working Group III–Climate Change: The IPCC Response Strategies). The UN General Assembly noted the report findings and decided to initiate negotiations for a framework convention on climate change. The Second Assessment Report in 1995 provided important material drawn on by negotiators in the run-up to the adoption of the Kyoto Protocol in 1997. The Third Assessment Report came out in 2001 and the Fourth in 2007. The Fourth Assessment Report paid greater attention to the integration of climate change with sustainable development policies and relationships between mitigation and adaptation.[10] Recently, the IPCC presented the Fifth Assessment Report[11] (AR5 was released in four parts between September 2013 and November 2014.). The IPCC won the Nobel Peace Prize in 2007 (with Albert Arnold Gore Jr), the prize motivation was: "for their efforts to build up and disseminate greater knowledge about man-made climate change, and to lay the foundations for the measures that are needed to counteract such change"[12].

Monica Bauhr cited some other scientis opinion when she identified the problem[13] that, the IPCC's scientists disagree in climate change sometimes and some of them are not politically neutral because of the connection with the United Nation Framework Convention on Climate Change.

II.2. The United Nation Framework Convention on Climate Change (UNFCCC)

Shelton[14] defined the international organization's normative regulations as soft law regardless to its form. A multilateral treaty is a similar soft law to other normative regulations and he finds that these treaties rarely impose direct obligations on any entities for example states.

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[7] UN General Assembly Resolution 43/53 of 6 December 1988.

[8] See more: http://www.ipcc.ch/pdf/ipcc-faq/ipcc_members.pdf (last visited 6 June 2017).

[9] Petersen, Arthur: Climate Simulation, Uncertainty, and Policy Advice – The Case of the IPCC. In Johann Feichter and Gabriele Gramelsberger (eds.): Climate Change and Policy, The Calculability of Climate Change and the Challenge of Uncertainty. Springer-Verlag, Berlin Heidelberg, 2011., 93. p.

[10] See more: http://www.ipcc.ch (last visited 22 March 2017).

[11] The decision to prepare a Fifth Assessment Report (AR5) was taken by the members of the IPCC at its 28th Session (09-10 April 2008, Budapest, Hungary). See more: http://www.ipcc.ch/report/ar5/index.shtml (last visited 22 March 2017).

[12] See more: http://www.nobelprize.org/nobel_prizes/peace/laureates/2007/ipcc-facts.html (last visited 30 November 2016).

[13] Bauhr, Monika: Explaining Public Trust in Institutions. The Role of Consensual Expert Ideas. In Lennart J. Lundqvist and Anders Biel (eds.): From Kyoto to the Town Hall Making International and National Climate Policy Work at the Local Level. Earthscan, London, 2007., 30. p.

[14] Shelton, Dinah: Soft law. In David Armstrong (ed.): Routledge Handbook of International Law. Routledge Press, Abingdon, 2008., 68-80 p.

The UNFCCC came into force on 21 March 1994, 195 countries have ratified the Convention, ('Parties to the Convention'). The UNFCCC was the first international agreement which defined[15] that the climate change has anthropological causes directly or indirectly. Sands[16] differentiated 7 principles with connection to the Convention and maybe the most wellknown is the „common but differentiated responsibilities and respective capabilites." This principle is enshired in the Rio Declaration[17] and it is very popular, appearing in many of the EU's basic documents on climate change policy.[18]This principle was the base of disagreement about antrophogenic causes[19] which divided the countries. The Convention gave the definition of dangerous human interference, only in Costa Rica, 1999 with connection the IPCC's third assessment report[20]. Grasso[21] thinks that this principle is not efficient, because the northern countries don't enforce it.

The UNFCCC provides for some obligations, but, as an international agreement, the UNFCCC lacks the tools of enforcement, as Sheldon pointed out as well. One of the most important objectives is that the Parties to the Convention will stabilize greenhouse gas concentrations "at a level that would prevent dangerous anthropogenic (human induced) interference with the climate system." This is a frame of the combat against climate change, but it is doesn't entail strict obligations. When the Convention was signed, the countries had disagreed[22] with its tools. The EU tried to find a solution with exact regulation, targets with timeframe, whereas the USA and oil-producing countries reckoned that its tools narrow the opportunity of the execution.

The industrialized countries (Annex I countries and countries belonging to the Organization for Economic Cooperation and Development (OECD) are expected to do their utmost to cut emissions on home ground. They also include the European Economic Community (it means today EU) and the Central and Eastern European countries with economics under transition process to market economy, like Hungary. Annex I countries were expected to reduce emissions to 1990 levels by the year 2000. Each developed and Annex I countries shall adopt national policies on climate change and take corresponding measures on mitigation for limiting the GHG's anthropogenic emissions and protecting and enhancing GHG's sinks and reservoirs. These nations agreed to support climate change activities in developing countries by providing financial support for action on climate change and share technology with them. A system of grants and loans has been set up and is managed by the Global Environment Facility. Annex I's countries have to report regularly on their climate change policies and measures under the Convention by submitting an annual report of their greenhouse gas (GHG) emissions. The Framework Convention made a large contribution towards the establishment of key principles of the international fight against climate change. In particular, it defines the principle of "common but differentiated responsibility". It also helped to make people all over the world more aware of the problems linked to climate change. It only encourages the commitment of the industrialized countries to stabilize greenhouse gas emissions under the Convention. The binding emission reduction targets for 37 industrialized countries and the European community is set in another agreement, the Kyoto Protocol.

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[15] See UNFCCC Article 1. The definitions: 2. „climate change": means a change of climate which is attributed directly or indirectly to human activity… or Article 2. Objective.

[16] Sands, Philippe, Peel, Jacqueline, Fabla, Adriana and MacKenzie, Ruth: Principles of International Environmental Law. Cambridge University Press, Cambridge, 2012., 187-236. p.

[17] UNEP: Rio Declaration on Environment and Development, 1992, Rio de Janeiro.

[18] Example: Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committe of the Regions: Limiting Global Climate Change to 2 degrees Celsius The way ahead for 2020 and beyond; Brussels, 10.1.2007, COM (2007) 2 final.

[19] See more: Bodansky, Daniel: The History of the Global Climate Change Regime. In Urs Luterbacher and Deflet Sprinz (eds): International Relations and Global Climate Change. MIT Press, Cambridge, 2001.

[20] Watson, Robert Tony and the Core Writing Team (eds): Climate Change 2001. Synthis Report, Summary for Policymakers. Cambridge University Press, Cambridge, 2001., 37. p.

[21] Grasso, Marco: Justice in Funding Adaptation under the International Climate Change Regime. Springer-Verlag, Berlin Heidelberg, 2009., 65. p. and 72. p.

[22] See Bodansky, above n. 23 at 29.

The Convention established the Conference of the Parties (COP), as the supreme body. It follows and regulates the implementation and makes the implementation more efficient by legal instruments if necessary. Furthermore, the Parties, the UN and its specialized agencies, the International Atomic Energy Agency, or any other non-party states could have the observer status, but they must inform the Secreteriat if they want to practice this right.

II.3. The Kyoto Protocol

The Kyoto Protocol is one of the chief instruments for tackling climate change. The Kyoto Protocol is an international agreement linked to the UNFCCC, where the Parties are committed to set internationally binding emission reduction targets. It was adopted in Kyoto, on 11. December in 1997, in the 3th Conference of the Parties (COP 3 which was established by the Convention for the Parties)[23], but it only came into force only on 16 February 2005.

In 1997 the Kyoto Agreement was established by 38 states and one regional economic integration, the EU. Its entry into force was regulated by Article 25 „on the ninetieth day after the date on which not less than 55 Parties to the Convention, incorporating Parties included in Annex I which accounted in total for at least 55 per cent of the total carbon dioxide emissions for 1990 of the Parties included in Annex I, have deposited their instruments of ratification, acceptance, approval or accession.". The problem with coming to force was some countries's reluctance to ratify it such as United States of America or Australia The causes behind lack of ratification are multiple, for example David G. Victor[24] identified the hot air syndrome or the high cost of mitigation for countries (like China) which were developing countries at the time they signed the agreement but became developed (Annex 1) countries in the meantime. In the end, Australia ratified the Protocol on 3 December 2007 but the USA didn't (although later it signed the Paris Agreement).

The most important rule in the Protocol, was the reduction obligation. Annex B to the Protocol contains the quantified commitments of the Annex I parties[25]ensuring that their aggregate anthropogenic carbon dioxide equivalent emissions of the greenhouse gases do not exceed their assigned amounts and reduce their overall emissions of GHGs by at least 5 per cent. The EU's reduction target (8 per cent, arbitrarily set by any given country) was broken down into legally binding national targets, so the EU's reduction target was legally more enforcable than the basic Protocol for any other Parties. The European Union approved the Kyoto Protocol by Council Decision 2002/358/EC[26].

Other important obligation is in connection with the energy, the enhancement of energy efficiency of the Parties in the relevant sectors of the national economy. The EU measured some important directives with connection to the energy policy like energy efficiency, biofuels, renewable resources, etc.

The commitment period was between 2008 and 2012, and the baseline year was 1990 for most of the parties, the countries under economic transition process had legal opportunity to divergence[27]. The assigned amounts are calculated pursuant to their quantified emission, limitation and reduction commitments are prescribed in Annex B. The GHGs are listed in Annex A. The list

[23] COP1.: 1995. Berlin, COP2.: 1996. Genf.

[24] Victor, David: The Collapse of the Kyoto Protocol and the Struggle to Slow Global Warming. Princetown University Press, Princeton and Oxford, 2001., 33. p.

[25] The Protocol use „Party" unless the context otherwise indicates, a Party to this Protocol, and "Party included in Annex I" means a Party included in Annex I to the Convention, as may be amended, or a Party which has made a notification under Article 4, paragraph 2(g), of the Convention

[26] Council Decision 2002/358/EC (OJ L130/1).

[27] The Parties included in Annex I undergoing the process of transition to a market economy whose base year or period was established pursuant to decision 9/CP.2 of the Conference of the Parties at its second session shall use that base year or period for the implementation of their commitments under this Article.

consists of four gases and two groups of gases: carbon dioxide (CO_2); methane (CH_4); nitrous oxide (N_2O); sulphur hexafluoride and (SF_6) hydrofluorocarbons (HFCs); perfluorocarbons (PFCs) respectively. Each GHG is characterized by its total warming impact relative to CO_2 over a set period – usually a hundred years. Equivalent CO_2 is a standard unit for measuring carbon footprints, its calculation is based on global warming potential (GWP) and it gives the concentration of CO_2 that would cause the same level of radiative forcing as a given type and concentration of GHG. The six greenhouse gases tackled by the Kyoto Protocol are not controlled by the Montreal Protocol. This mitigation obligation are confirmed with other measures like promoting policies, limitation or reduction of methane emission, and research, promotion, development and increased use of new and renewable forms of energy, of carbon dioxide sequestration technologies and of advanced and innovative environmentally sound technologies.

To achieve this goal, the Protocol has some interesting rules. If you compare the UNFCCC and the Protocol you can find that the goals or targets are more or less the same, but the methods to achieve them are very different. The Protocol is potentially more efficient by setting the goals as obligations and/or opportunity. Each Annex I party has the responsibility, „in achieving its quantified emission limitation and reduction commitments under Article 3, in order to promote sustainable development", under Article 2. Annex I Parties should implement and/or further elaborate policies and measures in accordance with its national circumstances. They have to promotion of sustainable forest management practices, afforestation and reforestation, sustainable forms of agriculture in light of climate change considerations as well. This complex sector is also known as LULUCF[28]. Activities in the LULUCF sector can provide a relatively cost-effective way of offsetting emissions, either by increasing the removals of greenhouse gases from the atmosphere, or by reducing emissions. But, unfortunately, it is very difficult to estimate greenhouse gas removals and emissions resulting from activities of LULUCF and greenhouse gases may be unintentionally released into the atmosphere if a sink is damaged or destroyed by a forest fire or disease. Under Article 3.3 of the Kyoto Protocol, Parties decided that greenhouse gas removals and emissions through certain activities are accounted for in meeting the Kyoto Protocol's emission targets. Emissions from deforestation activities will be subtracted from the amount of emissions that an Annex I Party may emit over its commitment period. Under Article 3.4 of the Kyoto Protocol, Parties could elect additional human-induced activities related to LULUCF, specifically forest management, cropland management, grazing land management and revegetation, to be included in its accounting for the first commitment period. The LULUCF rules are more wide than those of the Kyoto Protocol's, so it has an own agreement, the Marrakesh Accords.

Article 2 outlines the obligation for research on promotion, development and increased use of new and renewable forms energy, carbon dioxide sequestration technologies and of advanced and innovative environmentally sound technologies. It also encourages reforms in relevant sectors aimed at promoting policies and measures which limit or reduce emissions of GHG. It includes measures are to limit and/or reduce emissions of GHG in the transport sector. The issue of limitation and/or reduction of methane emissions through recovery and use in waste management, as well as in the production, transport and distribution of energy are also dealt with.

The most interesting task in the Article 2 is the fifth: „progressive reduction or phasing out of market imperfections, fiscal incentives, tax and duty exemptions and subsidies in all greenhouse gas emitting sectors that run counter to the objective of the Convention and application of market instruments." This rule is older than the Protocol, stipulated by Organisation for Economic Co-operation and Development (OECD). It implies to make the polluter financially responsible for the environmental damage caused. Unfortunately the original rule is very strict, so the modern environmental law and policy uses it with large exceptions, because in the original form, it excludes even subsidies to the polluter to reduce the pollution.

[28] LULUCF is Land Use, Land-Use Change and Forestry.

Even though the countries didn't agree[29]to the economical solution, the Protocol has three tools to achieve the goals of Article 2. These are: clean development mechanism – CDM, join implementation – JI and emission trade. As Labatt and White[30] wrote in their book, the EU disagreed with the economical tools, it encouraged the command and control-type rules.

A CDM project must provide emission reductions that are additional to what would have occurred otherwise. The projects must qualify through a rigorous and public registration and issuance process. The JI allows a country with an emission reduction or limitation commitment under the Kyoto Protocol (Annex B Party) to earn emission reduction units (ERUs) from an emission-reduction or emission removal project in another Annex B Party, each equivalent to one ton of CO_2, which can be counted towards meeting its Kyoto target. Paterson[31] points out the problem between Northern and Southern countries with regards to the JI when the developed countries agreed but the developing countries were sceptic. Bohm finds that a flexible mechanism like JI is difficult to measure[32]. Other authors, like Streck and Lin[33] criticized the CDM, because of the complexity of the system. The most well-known tool is the third one, the emission trade. This resort of Article 6 is the base of the GHG markets of ome country and one economical integration, the EU's GHG markets. Although the EU didn't agree with the economical tools in the Protocol, few years later it established the best emission trade scheme, the EU ETS.

Emission trade has an economical base, the bubble policy and the theory by Ronald Coase. Coase[34] tried to find a solution how to internalize the environmental problems to the economy, like pollution, which is an externalia. The theorem is: that in a word of perfect competition, perfect information, and zero transaction costs the allocation of resources in the economy will be efficient and will be unaffected by legal rules regarding the initial impacts of cost resulting from externalities. The theory unfortunately has some problems, as Stigler[35] pointed out: the reality is more complex than in the economics examples, and Coase disregarded the high number of participants and the cost of transactions. The most interesting question in connection with the Coase Theorem is the legal opportunity of pollution if you have money in the market to buy the emission permission. This issue is more complex than this simple sentence, the regulation is always mitigation. The opportunity is only about choosing the solution to reach the mitigation target.

The Protocol established the opportunity to enforce the implementation in the Article 18, by setting up the Conference of the Parties as its basic body. In the first session they have to approve appropriate and effective procedures and mechanisms to determine and to address cases of non-compliance with the provisions of this Protocol through among others the development of an indicative list of consequences, taking into account the cause, type, degree and frequency of non-compliance.

III. Post-Kyoto Era

After the Protocol entered into force, in Copenhagen, in 2009 the first COP meeting was held where the most important topic was the post-Kyoto. This was the 15th COP and the result was

[29] See more: Labatt, Sonia and White, Rodney: Carbon Finance: The Financial Implications of Climate Change. John Wiley & Sons Inc., Hoboken, 2007., 141. p.
[30] Ibid at 141.
[31] Paterson, Matthew: Global warming and global politics. Routledge, London, 2003., 66. p.
[32] Bohm, Peter: On the feasibility of joint implementation of carbon emissions reductions. University of Birmingham, Birmingham, 1994., 94. p.
[33] Streck, Charlotte and Lin, Jolene: Making Markets Work: A Review of the CDM Performance and the Need for Reform, 1p. In European Journal of International Law 1. April, 2008., Vol. 19. No.2., 409-410. p.
[34] Coase, Ronald Harry: The problem of Social Cost. In Journal Law and Economic, October 1960., Vol. III., at 1-44. p.
[35] Stigler, George Joseph: The theory of price, 3rd ed. University of Chicago, Chicago, 1966. 371 pp.

the Copenhagen Accord[36]. The Accord had been signed by 114 countries and it is just a decision. It declared the 2020's objective of holding the increase in global temperature below 2 degrees Celsius, but the expected objective of increase of not more than 1,5 °C was only mentioned as a long term target and the Accord didn't settle the details, only transmitted it to a future implementating document. The Accord acknowledged the small islands and the least developed states as most vulnerable countries by climate change and differentiated the Annex I and non Annex I countries. The Parties agreed that the pledges must be more in force in mitigation for Annex I coutries and the execution could be effected by alone or together. The non-Annex-I parties just need to implement their mitigation pledges. For this target they pursue various approaches, including opportunities to use markets for example. The developed countries have to provide adequate, predictable and sustainable financial resources, technology and capacity-building to support the implementation of adaptation action in the developing countries and to support the technology transfer they established as Technology Mechanism. They declared an amount for adaptation and mitigation and the adaptation will be prioritized for the most vulnerable developing countries, the least developed countries, small islands, developing states and Africa. They declared another amount for meaningful mitigation and transparency on implementation in developing countries. They established the Copenhagen Green Climate Fund for the financial mechanism of the Convention to support projects, programme, policies and other activities in developing countries.

In 2010 the COP held the meeting in Cancun, Mexico. A consensual legally-binding international agreement failed to be achieved, therefore, the Cancun Agreement defined the base year in the second commitment period of the Kyoto Protocol. (which was about to expire in 2012), thus creating a baseline to be followed by Annex I Parties to reach their mitigation targets using the Kyoto Protocol's based mechanisms such as emission trading. The global warming potentials shall be used to calculate the carbon dioxide equivalence of anthropogenic emissions by sources and removals by sinks of GHGs in the second commitment period and the reference level by Annex I Parties in the Agreement's Appendix I. The 2nd decision of CMP.6 was engaged to LULUCF. Annex I Parties have to submit the information on the forest management reference level[37] to the secretariat, by 28 February 2011 and this submisson shall be subject to the technical assessment by a review team. And it established an ad hoc working group for application in the second commitment period with connection to LULUCF. In order to scale up the provision of long-term financing for developing countries. They decided to establish a Green Climate Fund declared that the scope of capacity-building needs improvement in developing countries and they encouraged the Parties to improve the implementation in capacity-buildings. The 1/CP 16 decision established the Cancun Adaptation Framework. The Framework declared that the priorities of the adaptation are to mitigation, to incentivize the implementation of adaptation actions, including finance, technology and capacity-building and other ways to enable climate-resilient development and to reduce vulnerability, including the operating entities of the financial mechanism of the Convention.

In 2011 the COP's 17th meeting was in Durban, South-Africa. The most significant solution[38] was that the countries reached the agreement that in 2015 they will conclude are new binding international agreement and they established the second commitment period of the Protocol. The Parties created a new working group, the Durban Platform for Enhanced Action (WG DP), to prepare the new binding international agreement. The second commitment period's target is to secure the mitigation measures for the Annex I's countries by 2020, at least by 25-40% compared to the base 1990[39]. The Parties' measures are in the Appendix B where the weak targets for certain countries are easily recognized. They replaced the list under the heading "Greenhouse gases" in

[36] Copenhagen Accors is 2/CP.15.
[37] The Guidelines in the Appendix II.
[38] 1/CMP.7. Outcome of the work of the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol at its sixteenth session, FCCC/KP/CMP/2011/10/Add.1
[39] Ibid at 4.

Annex A to the Protocol by adding nitrogen trifluorid and they established some other rules for LULUCF and improved the Compliance Committee.

In 2012 the Parties established the Doha Amendment, which modified the Kyoto Protocol. They changed the Annex B because of the quantified emission limitation or reduction for second commitment period, the Annex A because of the NF_3. The Parties included in Annex I that their GHG measures shall result in reducing their overall emissions of such gases by at least 18 per cent below 1990 levels in the commitment period 2013 to 2020.

By the COP's 19th meeting in Warsaw the Parties asked[40] the WG DP to accelerate the work for the new binding international agreement to 2015, Paris. The draft was finalized by the end of 2014 and in Lima, 2014, the COP20 accepted the draft for the Paris Agreement.

IV. Paris Agreement

The Paris Agreement was adopted in the COP 21th session in Paris[41], between 30th November and 11th December 2015. The conference was organised for 50,000 participants including 25,000 official delegates from government, intergovernmental organisations, UN agencies, NGOs and civil society[42]. Finally 188 countries have committed to reducing their greenhouse gas emissions.

The article 2 of the agreement included the goals based on intergovernmental agreement. First of all „holding the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change*"*. The „under the 2°C" rule is the most important and concrete pledge. According to the Intergovernmental Panel on Climate Change a temperature increase of over 2°C would lead to serious consequences, such as a greater frequency of extreme climate events. In COP15, in 2009 Copenhagen, the parties agreed to, to keep global warming to 2 °C compared to the preindustrial era. As the IPCC's Synthesis Report[43] declared, stabilizing the temperature increase to below 2°C relative to pre-industrial levels is necessary.

How can the parties achieve this goal? To meet this target, climate experts estimate that global greenhouse gas (GHG) emissions need to be reduced by 40-70% by 2050 and that carbon neutrality (zero emissions) needs to be reached by the end of the century at the latest[44]. According to the Stern Review[45], published by the UK Government in 2006, managing global warming would cost 1% of global GDP every year, while inaction could cost at least 5% and up to 20% of global GDP in a worst-case scenario. The agreement does not give specified tools to reach the 2°C target, only general rules, like „*aim to reach*" „*as soon as possible*" or „*should take actions*", but each Party will prepare, communicate and maintain successive nationally determined contributions that it intends to achieve and communicate the nationally determined contribution every five years. In communicating their nationally determined contributions, all Parties shall provide the information

[40] 1/CP.19. 1., Further advancing the Durban Platform, FCCC/CP/2013/10/Add.1.

[41] The COP3 where the Kyoto Protocol was adopted, COP11 where the Montreal Action Plan was produced, COP15 in Copenhagen where an agreement to success Kyoto Protocol was unfortunately not realised and COP17 in Durban where the Green Climate Fund was created.

[42] See more: http://www.cop21paris.org/about/cop21 (last visited 20 March 2017).

[43] IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp.

[44] Ibid at 151 pp.

[45] Stern Review is The Stern Review on the Economics of Climate Change is a report for the British government by economist Nicholas Stern.

necessary for clarity, transparency and understanding and shall be recorded in a public registry administrated by the secretariat.

For planning, the countries have to prepare and submit their national climate action plans (INDCs). The INDCs are published on the UNFCCC website[46]. Unfortunately as the United Nations Climate Change Secretariat wrote in the INDCs's web page[47], the efforts declared in the INDCs are not yet enough to reach the goal of 2°C. In Warsaw (from 11 to 23 November 2013.) during the COP 19th session, the parties decided that they will start or intensify their preparations of their INDCs[48] and the COP declared[49] that the INDCs have to be clear, transparent and understandable, so for example it must have quantifiable information on the reference point.

The European Union and its Member States have common INDCs, accepted in Riga, on 6 of March 2015. As it is wellknown the EU supported a new binding agreement in Paris with the target of the „below 2°C objective" and was ready to make pledges alone in the GHG's mitigation. The main objective in the EU's plan's did not come as a surprise. EU has a binding target[50] of an at least 40% domestic reduction in greenhouse gas emissions by 2030 compared to 1990 (the exact time period is 1 January 2021 – 31 December 2030). So it assigns the economy wide absolute reduction from base year emission and it is in the context of necessary reductions according to the IPCC by developed countries as a group, to reduce their emissions by 80-95% by 2050 compared to 1990. The domestic legally binding legislation is already in place for the 2020 climate and energy package[51]. The package sets three key targets: 20% cut in greenhouse gas emissions, 20% of EU energy from renewables and 20% improvement in energy efficiency. By the INDCs the EU and its Member States have already reduced their emissions by around 19% on 1990 levels. The gases are more than Kyoto's six, because of nitrogen trifluoride (NF_3).

Under the process of UNFCCC whatever removes GHGs from the atmosphere is identified as a sink. Human activities in land use and land-use change and forestry (LULUCF) activities modify the exchange of CO_2 between the terrestrial biosphere system and the atmosphere. For example the forests are one part of the global carbon stock. Article 4 of the UNFCCC identifies commitments of all Parties, their „*common but differentiated responsibilities*" into account and their specific national and regional development priorities, objectives and circumstances, the paragraph 1(d) establishes the commitment to promote sustainable management and cooperates in the conservation and enhancement of sinks and reservoirs of all GHGs, which are not controlled by the Montreal Protocol[52]. These sinks and reservoirs are including biomass, forests and oceans and any other terrestrial, coastal and marine ecosystems. This paragraph identifies further commitment to develop, periodically update and publish. At the end, the states have to make available their national inventories of anthropogenic emissions by sources and removals by sinks of all greenhouse gases (also not controlled by the Montreal Protocol), using comparable methodologies.

The LULUCF is a field of existing legislation[53], but the EU assumed that the GHG mitigation framework will be established as soon as technical conditions allow it, before 2020 under Article 5 of the Agreement. Parties are encouraged to take action to implement and support, including through results-based payments, the existing framework as set out in related guidance and decisions already agreed under the Convention for: policy approaches and positive incentives for activities relating to reducing emissions from deforestation and forest degradation, and the role of

[46] http://www4.unfccc.int/submissions/indc/Submission%20Pages/submissions.aspx (last visited 20 March 2017).
[47] http://unfccc.int/focus/indc_portal/items/8766.php. (last visited 20 March 2017).
[48] FCCC/SBI/2013/L.10 and Add.1.
[49] In the decision 1/CP. 20.
[50]See the I. 2. point at the Conclusion by European Council of October 2014., Brussels. EUCO 169/14; CO EUR 13. CONCL 5.
[51] European Parliament and Council Directive 2009/28/EC, (OJ 2009, L140/1).
[52] The Vienna Convention for the Protection the Ozon Layer's protocol: Montreal Protocol on Substances that Deplete the Ozon Layer, Montreal, 16 September 1987., entered into force: 1 January 1989.
[53] European Parliament and Council EU Decision 529/2013 (OJ 2013 L165).

conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries; and alternative policy approaches, such as joint mitigation and adaptation approaches for the integral and sustainable management of forests, while reaffirming the importance of incentivizing, as appropriate, non-carbon benefits associated with such approaches.

Article 2 of the Paris Agreement declared to increase „the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production". The IPCC[54] fifth assessment report found highly convincing that negative impacts of climate change on crop yield have been more common than positive impacts and that impacts from recent climate-related extremes, such as heat weaves, droughts, floods, cyclones and wildfires reveal significant vulnerability and exposure of some ecosystems and many human systems to current climate variability. The parties will be „making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development". Of course as UNFCCC or the Kyoto Protocol, the Paris agreement declares „the common but differentiated responsibilities and respective capabilities, in the light of different national circumstances". The agreement differentiated the parties as developed, developing and least developed countries and small islands. Parties must recognize that peaking will take longer for developing countries. These countries could continue to augment their mitigation efforts, and they are encouraged and supported to move towards economy-wide emission reduction or limitation targets over time.

V. The Difference between international and regional law

The binding factor of international law remain an important problem. Every international agreement obligates, however, non-compliant countries face no real repercussions. Generally international agreements are more about diplomacy rather than enforcement. For example many major emitters who are part the UNFCCC, are not part of Kyoto, so it only covers about 18% of global emissions. The period for signature was from 16 March 1998 to 15 March 1999 at United Nations Headquarters, New York and it had received just 84 signatures. The Protocol entered into force on 16 February 2005, ninety day after the date when not less than 55 Parties to the UNFCCC (incorporating Parties included in Annex I) which accounted in total for at least 55 % of the total carbon dioxide emissions for 1990 (of the Parties included in Annex I), have deposited their instruments of ratification, acceptance, approval or accession.

The problem is that signature does not equal to ratification. The United States of America signed the Protocol but never ratified for various reasons like „hot air syndrome". Australia delayed ratification but eventually ratified the Protocol in 2007.

The Treaty on the Functioning of the European Union set out combatting climate change as an explicit objective under the Article 191. The EU has adopted many directives like Directive 2009/29/EC[55] or Directive 2009/31/EC[56], etc. regarding this issue When the EU was founded, the Member States had limited their legislative sovereignty and created a self-sufficient body of law which is binding on them. The autonomy of the EU's legal order is the only guarantee that the Union law will not be degraded by national law, and that it will be applied uniformly in the Member States. Member States and the Union institutions have established indissoluble connection to achieve their common objectives. It eventuates that national authorities are required not only to

[54] 2014: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 1132 pp.

[55] European Parliament and Council Directive 2009/29/EC, OJ 2009 L140/63.

[56] European Parliament and Council Directive 2009/31/EC OJ 2009. L140/114.

observe the Union Treaties and secondary legislation; they must also implement them. That is why the EU's law and legal order is stronger than international law: it is a supranational integration, not just an international organization.

And this is the reason why the EU's climate change law is more succesful than the UN's, but every climate change law have the same base, the UNFCCC, more precisely the Kyoto Protocol. The Kyoto Protocol is an international agreement linked to the UNFCCC, and it has internationally binding emission reduction targets. The climate change is an international problem, not just a regional, so the solution must to be applied at international level with a common agreement, not just on the EU's level.

VI. Synthesis

The current global average temperature is 0.85ºC higher than it was in the late 19th century. Each of the past three decades has been warmer than any preceding decade since records began in 1850. The world's leading climate scientists, as IPCC think human activities are almost certainly the main cause of the warming observed since the middle of the 20th century. An increase of 2°C compared to the temperature in pre-industrial times is seen by scientists as the threshold beyond which there is a much higher risk of dangerous and possibly catastrophic changes in the global environment. In 2012, the EU was responsible for some 10% of world greenhouse emissions. Pending final assessment of compliance by the Kyoto Protocol, the EU has achieved an overall cut of 11.8% domestically, without counting the additional reductions coming from carbon sinks (LULUCF) and international credits. This figure can be misleading due to the financial crisis of 2008 and the resulting underperformance of the industrial sector. The EU has set itself targets to reduce its greenhouse gas emissions progressively up to 2050. Thus 2020 climate and energy package, 2030 climate and energy framework, 2050 low carbon roadmap and finally the EU has an European Climate Change Programme, including Emission Trading System (ETS). It could be the most effective solution in the war against climate change. While it still has many flaws such as „the law for pollution" or „hot air syndrome". Nowadays ETS is the most effective tool in EU's climate change policy. Although to reach at least a 25% reduction in emissions for target 2°C.in eleven years its measures may still not be sufficient.

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