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GLOBAL CLIMATE NEGOTIATIONS: SETTING THE AGENDA

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Introduction

This article deals with mechanisms for effective protection of climate globally. To do so, it analyses the economics of environmental policy. It discusses the United Nations Framework Convention on Climate Change signed in Rio de Janeiro in 1992 (hereafter UNFCCC), the Vienna Convention on the protection of the ozone layer of 1986 (after which the UNFCCC was modelled), and the famous Montreal Protocol to the Vienna Convention which was signed in 1987.

The Montreal Protocol has effectively established a division of the world into the rich and the poor. The former were supposed to pay for the transition of the latter towards 'ozone-friendly' technologies. As the annual cost of this transition was estimated at less than $100M, the division was not contested at that time. Moreover, the Montreal Protocol introduced trade sanctions to enforce its provisions. The sanctions were very simple: a signatory was not supposed to trade ozone-depleting substances with a non-signatory. As the USA was the world largest producer and buyer of freons (the most important ozone-depleting substance, often used as a propellant in sprays) and a signatory, virtually all the countries found it rational to sign the Protocol. Thus, the Montreal Protocol became the first truly 'self-enforcing' environmental agreement[1]. The Protocol set declining country-specific limits to emit freons. As a result, the fragile stratospheric ozone layer, which protects us from the

[1] S. Barrett, *Self-Enforcing International Environmental Agreements*, Oxford Economic Papers, vol. 46, p. 878-894.

excessive ultraviolet radiation, began to be protected. The Montreal Protocol is considered a success story in the world's struggle to fix the 'ozone hole'.

If there were a global declining ceiling for the carbon dioxide emission, the climate problem could have been solved. However, repeating the logic of the Montreal Protocol is not possible for at least two reasons. First, the Protocol introduced trade sanctions which are strictly prohibited by the World Trade Organization (WTO) principles adopted after the 1987. Second, the cost of abating carbon dioxide is roughly thousand times higher than in the case of freons. Consequently, rich countries are reluctant to accept a principle similar to that they accepted in Montreal in 1987.

Exposure to excessive noise depends on organizing the social life in a relatively small area. Access to safe potable water typically depends on how its scarce resources are managed in one or a few neighbouring countries. Air pollution depends on what happens in many countries, since atmospheric emissions can migrate – propelled by the wind – hundreds of kilometres. In contrast, the 'ozone hole' has been caused (among other things) by the emission of freons, irrespective of where the emission took place. Also global warming is caused (among other things) by carbon dioxide releases, irrespective of where the emission took place.

Economics makes a fundamental distinction between two kinds of goods: private and public ones. The former – such as apples and computers – users acquire individually and hence they are responsible for how many units they have. In contrast, the latter – such as clean environment and especially clean air– imply a *sui generis* joint responsibility: the quantity and quality of an available public good depends not only on what a user decides, but also on how other co-users behave.

Economics studies the so-called *free riding* problem. A user may be interested in environmental clean-up or installing an air defence system, but pretends otherwise and does not contribute to financing the necessary projects. They expect that somebody else will provide the financing, the good will became available, and they

will benefit for free. This is the essence of *free riding* which implies that the supply of public goods is doomed to be below what is socially desirable.

Climate protection is a typical example of a public good. Spoiled climate affects everyone, irrespective of whether one did or did not do anything to protect it. Likewise, climate protection benefits all, irrespective of their actions. Continued spoiling of the global climate is caused by the lack of individual responsibility for its protection; as in the case of any public good this responsibility is joint (and unfortunately diluted).

The paper consists of three sections and conclusions. The first one argues why the approach adopted by the UNFCCC cannot be effective. The second section discusses ways to improve its effectiveness without abandoning the existing principle of dividing the world into two distinct categories – the rich and the poor – and freeing the latter from abatement obligations. Last section looks at how choosing convenient agendas shapes contemporary public debates about climate protection and how these approaches do not help in solving the problem.

Berlin Mandate

The UNFCCC does not protect the world's climate. Between 1992 and 2012 the global emission of carbon dioxide has grown by 40% from 25 billion tonnes to 35 billion tonnes annually. Of course, the mere time sequence is not identical with establishing a cause-effect relationship, but one thing is beyond any doubt: the UNFCCC has proven ineffective as a climate protection instrument.

As the attempts to protect the climate have been so evidently ineffective, it is imperative to identify the cause of the lack of success. Many interpretations have been put forward but instead of firm analyses, ideological judgements tend to prevail and questions who is guilty are raised routinely. The two main culprit countries appear to be the US and China. The latter has become (since 2007) the world's largest carbon dioxide emitter. Its emissions have grown so drastically that they now overshadow levels recorded by any other 'old' industrialized economy. In order to

understand why the UNFCCC has been ineffective, one needs to look at how it has been implemented.

The UNFCCC too hastily replicated the logic of the Montreal Protocol of dividing the world into the rich and the poor. In the struggle against the 'ozone hole' it implied letting the rich pay for the poor to adopt freon-free technologies. The reason this solution proved effective was that the cost of the entire endeavour was fairly low; the rich did not object to assuming the responsibility for the bill. Applying the same pattern to climate protection turned out to be unwise.

A decisive blow for climate protection was the so-called *Berlin Mandate*. The UNFCCC came into force quickly, having obtained the required number of ratifications, and at the first *Conference of Parties* (COP-1) in 1995, it was decided that only the Annex 1 countries (a closed list of thirty plus industrialized economies) will ever take commitments to limit carbon dioxide emissions. Non-Annex 1 countries including China, India, Brazil, South Korea, Malaysia which also included more than 150 members of the United Nations would never make any commitments to limit their emissions. It should be stressed that the emissions from Annex 1 have not grown in absolute terms and in relative terms they have shrunk quickly; it accounts for much less than a half now. Moreover, some 50 of the non-Annex 1 countries are wealthier and more industrialized than the poorest among the Annex 1 ones. Nevertheless, the *Berlin Mandate* is still binding and perhaps it is the most important obstacle to achieving progress in climate protection. It was not 'the first step in the right direction,' as considered by many environmentalists, but a wrong step into an area that has proven difficult to abandon.

European enthusiasts of the *Berlin Mandate* have preached that the industrialized countries have an ethical obligation to bear the burden of climate protection because of their sins committed in the 19th century. They have also claimed that unilateral emission reduction will trigger such enormous technological progress that non-Annex 1 countries without any coercion, just motivated by cost considerations, will decrease emissions and that Europe should continue its policy of

unilateral emissions reduction in order to provide an example and inspiration for the rest of the world.

This ideology is not only ineffective, but it is also incorrect. First, the rich developed in the 19th century indeed recklessly and behaved badly. Nevertheless, their carbon dioxide emission was small compared to the present emission in China or other 'Asian Tigers'. Thus, let the rich do penance for their sins, but if one is concerned about climate protection, instead of looking back, one should limit emissions where they have the highest growth potential. Second, technological progress does take place, but it is not so fast as expected. Consequently, non-Annex 1 countries will rely on cheaper but more carbon-intensive technologies for many years to come. Third, showing a good example is a perfect method of raising children, but it is not appropriate in international negotiations.

Two years after adopting the *Berlin Mandate* – at COP-3 – UNFCCC parties signed the notorious Kyoto Protocol which put into effect its idea of the unshakeable division of the world into two categories: the rich and the poor. The Protocol absolved the 'poor', some of whom were not so poor at that time, from making any commitments. The protocol required the Annex 1 countries (i.e. the 'rich') to reduce their carbon dioxide emission by several percent by 2012. Estimates of global emission are difficult, since non-Annex 1 countries do not have reporting obligations. Nevertheless, the European Bank of Reconstruction and Development compiled data for the last two decades[2], which indicate that the annual growth of emission prior to signing UNFCCC was 0.6%; after the UNFCCC but prior to signing the Kyoto Protocol it increased to 1.2%; and after the Protocol it climbed to 2.6%. Obviously the coincidence cannot be interpreted as a causal relationship, but economists provide an explanation as to why the sequence is not just incidental.

Climate protection is a public good and it can be provided effectively only in the case where all beneficiaries participate. The main defect of the Kyoto Protocol becomes evident here: the non-Annex 1 countries do not make emission reduction

[2] *The Low Carbon Transition*, Special Report on Climate Change, London 2011, http://www.ebrd.com/downloads/research/transition/trsp.pdf, 9.10.2013.

commitments. As a result, carbon dioxide abatement – which requires certain cost to be borne – makes production more expensive only in the countries that took commitments. Elsewhere production becomes relatively cheaper and larger (…) emissions move to these countries. This is called 'carbon leakage'. It does not confine to shutting down factories in one region and building them elsewhere. Economists have identified several alternative mechanisms of 'carbon leakage' by applying a complicated analytical tool called *Computable General Equilibrium*, CGE[3]. These are questioned by the supporters of the unilateral reduction ideology. Independently of academic disputes concerning the adequacy of CGE models, two facts are undeniable: the global emission grows at an unprecedented rate and carbon dioxide emission embodied in imports to the Annex 1 countries grows too, while the domestic emission goes down there[4].

Ideas for climate protection

The fact that unilateral reductions imply that the demand shifts to foreign goods suggests imposing tariffs called *Border Tax Adjustments*, BTA. They are supposed to work in the following way. A customs officer checks the origin of an imported good, estimates how much of it was produced subject to a carbon dioxide emission limit, and how much took advantage of conditions that would have been illegal in the importing country. Based on the outcome of this estimation, a tariff is decided. However, apart from the technical difficulties of such an estimation, the entire procedure contradicts WTO ban on trade sanctions (even though they were applied by the Montreal Protocol).

Even worse, according to most recent analyses, under some assumptions, BTA are likely to increase rather than decrease global emission[5]. This may happen if the

[3] L. Kąsek, O. Kiuila, K. Wójtowicz, T. Żylicz, *Regional economic effects of differentiated climate action, carbon leakage, and anti-leakage measures*, Report for the World Bank, Warsaw University Discussion Paper No. WP12(78).

[4] R. Aichele, G. Felbermayr, *What a Difference Kyoto Made: Evidence from Instrumental Variables Estimation*, IfO Working Paper No. 102.

[5] M. Jakob, R. Marschinski, M. Hübner, *Between a Rock and a Hard Place: A Trade Theory Analyses of Leakage Under Production and Consumption-Based Policies*, Environmental and Resource Economics 56 (1), p. 47-72.

penalty imposed on exporters provides incentives to switch to domestic markets which imply a higher carbon intensity.

The socially justified scale of global climate protection obviously depends on the benefits and costs implied. Both are subject to controversies which are not fundamental. The problem results from an exceptionally long time horizon: the effects of present actions will be observed after several decades. The cost of climate protection needs to be borne now, but its benefits will be seen in a distant future. This is not an obstacle to comparing the two; a discount rate lets the two balance each other. Even though economists disagree about the appropriate level, in the case of a short period of, say, five years, a consensus can be easily reached: in wealthy economies, where saving for the future does not require serious sacrifices, the rate can be 4% or less; in poor economies, on the contrary, where people are starving, the rate can be 8% or more. The prospect of much higher benefits must be evident in order to let a deprived person save for the future.

A specific problem for climate protection is that an exceptionally long time horizon invalidates much of the prior findings on discounting. There are important reasons to believe that an appropriate rate for such issues is much lower than in typical economic applications – perhaps 1% or 2%[6]. It turns out that even such a narrow uncertainty implies profound differences for processes that last several decades. A couple of years ago, a debate between two distinguished economists – William Nordhaus and Nicholas Stern – attracted significant attention worldwide. The former adopted a somewhat higher discount rate to argue that by the end of the 21st century the cost of reducing carbon dioxide emission by one tonne should be between one and two hundred dollars. By adopting a somewhat lower discount rate, the latter argued that this cost should be several times higher, so the scale of global abatement should be larger.

Such analyses concern the entire planet. One can question specific details, but one thing is beyond any doubt: it is global emissions as whole that need to be

[6] M. L. Weitzman, *Gamma discounting*, American Economic Review, Vol. 91, p. 260-271.

decreased not the emissions from a limited group of countries, especially if this group emits much less than the half of the total. Comparing the cost of abatement in a group of countries with damages caused by climate change does not make any sense. Climate protection is a public good and someone's unilateral action cannot provide it.

So why is the *Berlin Mandate* still binding if it was identified as a key obstacle to climate protection? By spoiling the climate, the world risks damages that are higher than the required protection costs. Moreover, the most acute damages are likely to hit non-Annex 1 countries to which some of the least developed economies belong. One could argue that these economies should be most interested in taking effective protection measures. The answer refers to the fact that climate protection is a public good, so there are incentives to *free ride*: beneficiaries of such a good prefer not to participate in its provision since – perhaps – the good will be provided so the benefits will be available for free. This tendency is even stronger in a poor economy with a short time horizon: people are preoccupied with what will happen in a couple of months; this corresponds to a high discount rate which undermines the rationale for making investments that provide benefits for a distant future.

The 'public' nature of climate protection explains why it has not succeeded so far. The repeated argument that the damage is likely to be higher than the prevention cost is true at the planetary level. From an individual country's point of view the argument is wrong, since the damage will occur irrespective of whether the country takes preventive measures or not. A global abatement – not a unilateral one – is necessary for a positive impact. The global emission may even grow as a result of unilateral abatement if the carbon 'leaks' somewhere else. Therefore, the solution based on the *Berlin Mandate* is not effective.

It is fairly obvious that, because of climate protection, the cost of carbon dioxide abatement may rise to several hundred dollars per tonne by the end of the 21st century. However, this rise makes sense in the case of the entire planet only. Economists explain that this may be reached in two ways. Either by establishing

a common charge (tax) on the emission or by establishing a cap for the emission and letting emitters trade their individual allocations. Theoretically, this first way is more adequate in this case, but the revenues collected have to be spent on something. Therefore, even though a country could implement such a charge nominally, its revenues could be spent on indirect subsidies compromising the incentive effect of the original charge. That is why international community gave up this instrument and chose emission caps instead. Unfortunately, the Kyoto Protocol limited the application of these caps to a narrow group of countries thus compromising the effectiveness of this solutions and the resulting local 'emission trading' systems. The well known European ETS (*Emission Trading System*) is a prime example of the genre. The ETS was supposed to minimize the cost of meeting the Kyoto requirements by the European Union countries. Some analysts expected that at the same time it would also facilitate the transition to renewable energy. In order to enable this to happen, the price of a carbon dioxide emission permit would (…) be sufficiently high. On the contrary, they turned out to be low. Having learnt this, renewable energy producers launched an unprecedented campaign demanding to take measures to artificially elevate the ETS price. Consequently, the original poor design of the instrument has been spoiled even further[7]. It will be referred to in environmental economics textbooks as an example of how a good theory can be implemented badly.

Hidden agenda

It is astonishing that most documents on climate protection – such as reports of the *Intergovernmental Panel on Climate Change*[8] – ignore the blunder of the *Berlin Mandate*. They focus on why the global warming is a threat and how fast the global emission should decline. While both issues are obviously important, the documents overlook the fact that an international regime needs to be in place in order to stop – and eventually revert – the carbon dioxide emission growth. Instead, they contemplate hypothetical regional abatement scenarios and lament that even

[7] M. Miros, T. Zylicz*, Poland's perspective on EU ETS in 2005-2007.* http://www.cdcclimat.com, 12.09.2013
[8] *Fourth Assessment Report*, Cambridge 2007.

ambitious unilateral emission reduction targets are not sufficient to stop the global warming. They overlook the fact that even a complete disappearance of emission from the Annex 1 countries would not be sufficient for climate protection.

It is remarkable that many policy analysts avoid the embarrassing ineffectiveness of the climate protection measures undertaken so far and they focus on tangible benefits – so-called *co-benefits* – of carbon dioxide abatement. Indeed, in addition to (potentially) affecting the climate, carbon dioxide abatement often implies reducing the emission of pollutants that affect immediate neighbourhoods of emitters, such as noise, particulate matter and volatile organic compounds. Hence, from the economic theory point of view, *co-benefits* can be considered a private good. A closer scrutiny proves that they are too small to revert incentives of *free riding* explained in earlier sections[9].

Much of the scientific research on climate change and most of the media coverage addresses the problem of economic consequences for countries which undertake carbon dioxide abatement projects. Most often the topics of climate-related academic publications and conferences deal with economic repercussions of unilateral abatement actions. For instance, analysts persuade coal-dependent countries, like Poland, that abandoning coal extraction may provide longer term advantages in terms of health protection, economic innovativeness, export success.

Such claims are difficult to question and they effectively switch public debate from climate issues towards vaguely understood competitiveness. Many politicians – including the Polish government officials – are motivated by this rhetoric and instead of questioning the logic of UNFCCC (and *Berlin Mandate*), they discuss whether shutting the coal mines does or does not imply certain consequences for the economy.

At the European Union level analysts discuss whether contemplated administrative changes in the ETS market will or will not help windmill investors. They avoid addressing the really relevant question whether the changes are good or bad

[9] T. Żylicz, M. Czajkowski, *Sustainability and co-benefits of climate protection*, [in:] D. J.Klaus, D. T. G. Ruebbelke (eds.), *Benefits of Environmental Policy*, London 2009, p. 24-35.

for the global carbon dioxide emission, that is whether they are good or bad for climate protection.

Some analysts have claimed that lobbying for climate protection has a hidden agenda serving providers of low-carbon technologies. Such a claim cannot be effectively verified, since climate protection is indeed an important challenge. What is surprising is that the flagship political initiative in this area, namely the UNFCCC, proved totally ineffective. However, instead of modifying the initiative, which means abandoning the *Berlin Mandate*, many politicians ignore the climate protection and focus on surrogate issues such as the local economic benefits of abandoning fossil fuels.

By focusing the public debate on economic issues, they can continue the current international regime indefinitely, since their claims are difficult to disapprove. As economic modelling is not conclusive on these issues, one can debate forever whether an economy does or does not benefit from limiting the use of fossil fuels. This helps to understand why some politicians prefer the technology adoption rather than climate protection as the topic of public debate.

Summary and conclusions

Climate protection has emerged as one of the most difficult, and still unsolved, global environmental problems. The failure to solve the problem was caused by expectations that it could be tackled in a similar way as the so-called 'ozone hole' fixed by the Montreal Protocol of 1987. For several reasons climate protection requires a totally different approach. In particular, it cannot be solved by limiting abatement to rich countries, as envisaged by the *Berlin Mandate* of 1995.

Despite their blatant ineffectiveness, UNFCCC principles are fiercely defended by some politicians. In particular, they call for deep unilateral emission reductions, hoping that they will help the global climate in the long run. As such claims are not convincing, the politicians try to redefine their agendas; instead of discussing climate protection effectiveness, they focus on local consequences of abandoning fossil fuels

or related actions. Those who do care about the global climate should insist on restoring the original agenda.

In November 2013, the COP-19 in Warsaw is planned. Many people are afraid that – like previous ones – the meeting will not be a breakthrough in climate protection. In order to bring the breakthrough, abandoning the *Berlin Mandate* is necessary. Signatories of the UNFCCC should acknowledge that climate is a public good, and its protection calls for establishing caps on carbon dioxide emission where it is likely to grow.

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Abstract

The paper addresses ways to protect the climate which seems to be adversely affected by the global carbon dioxide emission. In economic terms, climate protection is a 'public good,' which means that it calls for international cooperation since unilateral actions are not only ineffective, but may even be harmful. Despite that, some politicians try to set a global climate protection agenda focusing on non-climate benefits accruing to individual countries or regions. Such an approach postpones reaching an international agreement which is necessary to stop global warming.

ŚWIATOWE NEGOCJACJE KLIMATYCZNE. WYBÓR AGENDY

Abstrakt

Artykuł dotyczy sposobów ochrony klimatu, który wydaje się być zmieniany przez globalne emisje dwutlenku węgla. W żargonie ekonomicznym ochrona klimatu stanowi „dobro publiczne", co oznacza, że wymaga współpracy międzynarodowej, jako że działania jednostronne są nie tylko nieskuteczne, ale mogą być wręcz szkodliwe. Nie zważając na to, część polityków próbuje skierować debatę na temat

ochrony klimatu w stronę korzyści poza klimatycznych, przypadających poszczególnym krajom lub regionom. Podejście takie opóźnia osiągnięcie międzynarodowego porozumienia, niezbędnego dla powstrzymania globalnego ocieplenia.