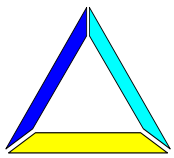
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Ukraine and the Kyoto Protocol
Large Prospects, but an Unfinished Agenda

Executive Summary

Under Kyoto protocol Ukraine has committed itself to reduce its emissions of Greenhouse gas to the level of 1990. Since current emission levels are—due to the industrial decline of the 1990s—substantially below the level of 1990, Ukraine could sell a considerable part of unused emission rights. As we show in the paper, the corresponding revenue is estimated to about USD 740 m to 2.9 bn per year in 2008-2010. Furthermore, joint investment projects by Ukrainian and foreign firms to reduce emissions—as it is also foreseen in the Kyoto protocol—could generate additional revenues. However, both mechanisms are complex and their details are not completely specified by now. Thus, most of the countries that signed the protocol are currently lobbying to shape future decisions according to their—mostly contradictory—benefits. However, despite promising economic benefits and potential problems the Ukrainian government neither has actively participated in international negotiations thus far, nor have they generated the internal conditions, e.g. preparation of emission auditing, necessary to participate in the emission-trading schemes. This "relaxed" attitude is problematic as it not only aggravates the participation of Ukrainian firms in beneficial, emission-reducing investment projects, but it might also result in decisions to reduce the amount of unused assigned emission rights of transition countries.

To improve the situation we recommend a more active role for Ukraine. In particular, we suggest to

- **Complete pre-ratification activities** necessary to ratify the Protocol (cost/benefit analysis),
- **Prepare for fulfilling requirements of the Kyoto protocol** (conduct required emission inventory, develop a domestic program on climate change mitigation) and
- **Prepare for full participation in Emission Trading mechanisms of the Kyoto protocol** (set up a Joint-Implementation office and develop corresponding rules for trade with emission rights, participate actively in international negotiations, especially coordinate own position with Russia, which faces similar problems and perspectives).

Outline:

I. Introduction

II. The main mechanisms of the Kyoto protocol

III. The benefits of the two mechanisms for Ukraine

IV. Seizing the benefits of the two mechanisms: policy recommendations

V. Conclusions

I. Introduction

Due to the economic decline of the 1990s Ukraine's current level of emissions of Greenhouse Gas (GHG)[1] is substantially below the level admitted by its international commitments as specified in the so-called Kyoto protocol. Since the assigned emission rights within this protocol are defined as tradable between countries, Ukraine could sell a considerable part of unused emission rights. As we show in the paper, the corresponding revenue is estimated to about USD 740 m to 2.9 bn per year in 2008-2010. Furthermore, joint investment projects by Ukrainian and foreign firms to reduce emissions—as it is also foreseen in the Kyoto protocol—could generate additional revenues. However, both mechanisms are complex and their details are not completely specified by now. Thus, most of the countries that signed the protocol are currently lobbying to shape future decisions according to their—mostly contradictory—benefits. For example, in an attempt to strengthen prices for emission rights by cutting potential supply, some countries argue that the amount of unused emission rights assigned to transition countries should be reduced as their emission reduction has been due to economic collapse rather than environmental measures. Such international discussions—as well as the promising economic benefits—notwithstanding, the Ukrainian government neither has actively participated in international negotiations thus far, nor have they generated the internal conditions, e.g. preparation of emission auditing, necessary to participate in the emission-trading schemes. This "relaxed" attitude is problematic as it not only aggravates the participation of Ukrainian firms in beneficial, emission-reducing investment projects, but it might also result in decisions to reduce the amount of unused assigned emission rights of transition countries.

Based on this assessment, our paper intends to stress both, the economic and environmental benefits from different mechanisms foreseen in the Kyoto protocol as well as the need for a more active participation of Ukraine in national and international preparations in order to fully benefit from the protocol. We will proceed in four parts. First, we will discuss the different mechanisms of the protocol in detail. Second, we will present some economic analysis of the consequences of Ukraine's ratification of the protocol. In the third section we will give policy recommendations, the final section will conclude.

[1] The most important greenhouse gases are methane (CH^4), nitrous oxide (N^2O), carbon monoxide (CO), oxides of nitrogen (NOx), non methane volatile organic compounds (NMVOCs), sulphur dioxide (SO2) and—most importantly—carbon dioxide (CO^2).

II. The main mechanisms of the Kyoto protocol

On March 15, 1999 Ukraine signed the **Kyoto protocol** within the **United Nations Framework Convention on Climate Change** (UNFCCC).[2] The main goal of the UNFCCC is to achieve "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system" (UNFCCC). Within this convention, the Kyoto protocol contains specific country quotas, timeframe and mechanisms to achieve emission reductions. The gist of the protocol is that every country got its assigned amount of emissions for the period of 2008-2012 based on the emission inventory in 1990.

The process of international negotiations is as follows: Countries demonstrate their general willingness to participate in global reduction of GHG emissions[3] by signing the Kyoto protocol. Afterwards, they start to prepare full participation, which eventually requires ratification of the protocol. During this time—and to a lesser extent also after ratification—the detailed specification of mechanisms within the protocol is subject to constant political negotiations between the prospective parties, in particular as long as the protocol as such is not yet in force. At present, the Kyoto protocol will be activated with its ratification by Russia, expected for 2003 or 2004.[4]

OECD countries carry the main burden of GHG emission reduction.[5] To ease protocol ratification of such countries, two main provisions, the so-called ***flexibility mechanisms***, were designed to reduce costs at a given level of emission reduction so as to raise efficiency levels. Those two flexibility mechanisms are:

- ***Emission trading*** (Inventory based mechanism). Under the Kyoto protocol each country is assigned an emission amount based on its historic emission levels in 1990, the so-called Assigned Amount Units (**AAUs**). Once the protocol comes into force countries are obliged to reduce their emissions up to the assigned levels. If emissions in a country are below the assigned level, the unused **AAUs** can be sold to countries that have difficulties meeting their emission quotas.
- ***Joint Implementation*** (JI, Project-based mechanism). If a country that has ratified the Kyoto protocol and is listed in Annex I[6] of the protocol has difficulties meeting its emission reduction target, it is possible to buy Emission Reduction Units (**ERUs**). **ERUs** are generated through joint projects of foreign and host country firms, located in Annex I countries. For ERUs to be valid, such projects need to reach and verify a sustainable reduction in emission levels.[7]

The main difference between those two mechanisms is that while **Emission Trading** specifies the exchange of fixed emission quotas—the **AAUs**, determined by historic emission levels—between countries, **Joint Implementation (JI)** generates additional reduction of GHG emissions—the **ERUs**—within a joint investment project between two companies (in the remainder of the paper we will constantly use **AAUs** relating to **Emission Trading** while **JI** and **ERUs** refer to **Joint Implementation**). For example, if country A emits say 10 m t of

[2] Ukraine ratified the UNFCC framework on May 13, 1997. For a detailed description of the Kyoto protocol process see http://unfccc.int/resource/guideconvkp-p.pdf

[3] The most important GHGs are methane (CH^4), nitrous oxide (N^2O), carbon monoxide (CO), oxides of nitrogen (NOx), non methane volatile organic compounds (NMVOCs), sulphur dioxide (SO2) and—most importantly—carbon dioxide (CO^2).

[4] Officially, the protocol will be in force if the ratifying countries together account for at least 55% of global GHG emissions. After Canada and Poland ratified it in December 2002, ratification by Russia will be sufficient.

[5] OECD countries are responsible for more than 50% of the overall GHG emissions.

[6] Countries, listed in Annex I of the Kyoto protocol, are meant to be the driving force behind its implementation, provided their quotas of GHG emissions are explicitly stated in the protocol. Ukraine is also an Annex I country.

[7] Clean Development Mechanism (CDM, Project-based mechanism) is another flexibility mechanism akin to Joint implementation, however it is specifically designed for the Non-annex I parties (mainly developing countries) to the Kyoto protocol.

GHG less than it is assigned to, while country B exceeds its emission quota by 15 m t, than A can sell its unused 10 m t of **AAUs** to B (**Emission Trading)**. However, the firm in B (assume for simplicity that there is only one firm per country) has to reduce its emissions by another 5 m t. Provided that reducing emissions in A is less costly than in B (e.g. because the firm in A uses outmoded technology), than the firm in B sets up a joint project with the one in A to sustainably reduce emissions levels in A by 5 m t, and can subtract the resulting 5 m t of **ERUs** from its own obligations, which it exceeds by 15 m t. Thus, while **Emission Trading** only seeks to re-allocate the historic emission level of 1990 in an economically efficient manner between the countries (but does not lead to reduction of emissions beyond the 1990-level), **Joint Implementation** actually creates new reductions (e.g. by 5 m t of GHG in A) and allocates them efficiently between firms through trading **ERUs**.

III. The benefits of the two mechanisms for Ukraine

Ukraine, as well as other countries in transition, has a unique opportunity to substantially benefit from Emission trading. Due to the sharp economic decline in the 1990s net emission of CO^2 in 1998 has dropped to 55% of its 1990-level.[8] This reduction, contemptuously called "hot air", makes Ukraine together with the Russian Federation where CO^2 emissions contracted by some 38.5% between 1990 and 1999[9] the two biggest potential sellers of AAUs on the emission-trading market. By some estimates[10] Ukraine will reach 84% usage of its quota, while Russia 93% by 2010, which means that these countries will have about 148 (Ukraine) and 304 (Russia) million t CO^2 per year available for sale as AAUs (some estimates are even higher).[11]

Although both the general principles and mechanisms of the Kyoto protocol as well as the general directions of benefits for a country like Ukraine are quite clear already, many specific details of the implementation procedure are still subject to political discussion, both internationally as well as within Ukraine. Thus, the main task of Ukrainian policy makers should be to ensure that protocol's ratification and subsequent design of the specific implementation mechanisms benefit Ukraine. Therefore, a thorough quantification of the gains from the two flexibility mechanisms is necessary for both ratification of the Kyoto protocol in Verkhovna Rada and for subsequent design of the national capacity to handle creation and implementation of climate-change policies.

Ratification of the Kyoto protocol by Ukraine is not advisable without a thorough economic analysis of its costs and benefits verified by the Ukrainian government. The Ministry of Economy and European Integration – in cooperation with the Ministry of Ecology and Natural Resources as well as with other ministries – is responsible for the execution of such analysis, but the work stalls due "to the uncertainty of the future production structure and rates of its improvement… [and] the lack of sufficiently sound predictions of development of relevant industries, which must be the basis of calculations."[12]

[8] Climate Change and the Bonn Agreement: Questions and Answers from the IEA. Paris, August 2001.

[9] Third National Communication of Russian Federation to UNFCCC

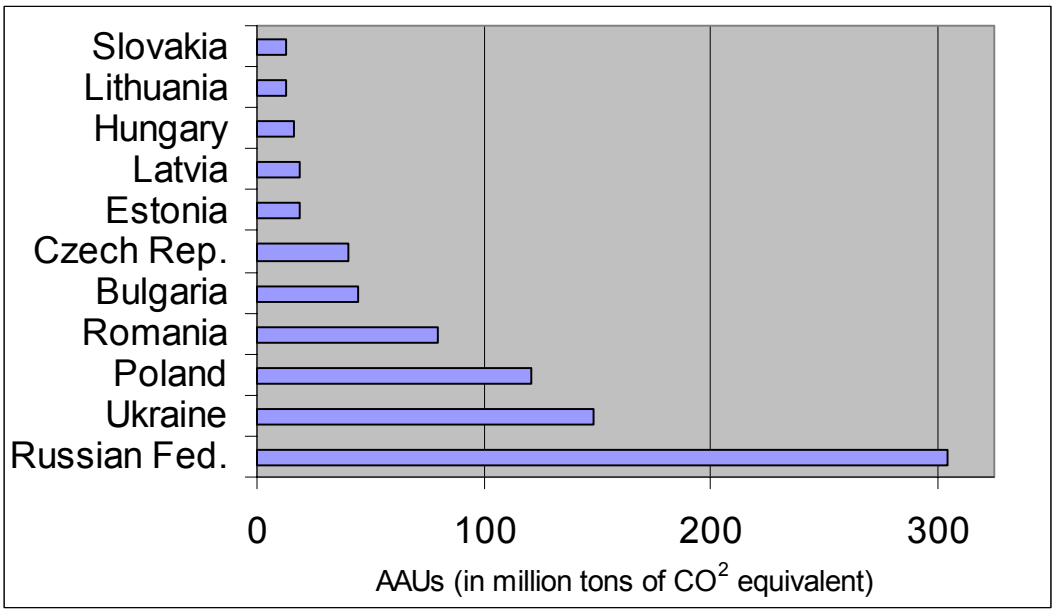
[10] Jan Pretel 'PCF JI Project Cycle after CoP7 and Preparedness of EIT Countries'. http://www.prototypecarbonfund.org/

[11] With global supply of AAUs estimated at 816 million t of CO^2 per year Russia and Ukraine will therefore control about 55% of tradable AAUs. Ibid.

[12] http://www.climate.org.ua/whatdone/Government/IMCCC_July_18_02.html

In contrast to this assessment, extensive worldwide research on possible emission-level scenarios has been carried out so far.[13] However, given the complexity of the issue, the main task is not to exactly forecast actual emissions for the horizon of up to 2015-2020, but to build 3-4 probable scenarios characterized by different assumptions on the development of the Ukrainian economy, population growth, energy use, forestation etc. For this task, some of the already existing studies can be taken as starting point for an economic analysis supported and verified by the Ukrainian government. Once emission levels for several likely scenarios of Ukrainian development are known, costs and benefits of ratification of the Kyoto protocol can be calculated.

Graph 1. Assigned Amount Units (AAUs) estimated for annual sales in 2008-2010 (in million t of CO^2 equivalent per year)



Source: Jan Pretel 'PCF JI Project Cycle after CoP7 and Preparedness of EIT Countries'

Benefits of **Emission Trading**:

Multiple causes determine the future prices of AAUs. The parties of the Kyoto protocol are expected to meet their target reduction through average emission reduction within a certain period of years, termed commitment period (the first commitment period is 2008-2012). Given that a country does not use its full amount of AAUs in the first period, it can either sell them within the emission-trading scheme, or it can bank them for own use in the second period if necessary. Thus, predicting the exact supply of AAUs for the first commitment period is rather difficult and devaluation of this price should not be taken as granted since AAUs are not a perishable asset. Against this background, prices are currently estimated within a range of USD 5 to 20 per t of CO^2.[14] Given further that potential maximum AAUs, which Ukraine can offer in the emission trading market in 2008-2010 are estimated at about 148 m t of CO^2 per year (Graph 1), then the **potential revenue from sales of AAUs** will be between **USD 740 m to**

[13] For example, the database of the Intergovernmental Panel on Climate Change (http://www-cger.nies.go.jp/cger-e/db/ipcc.html) includes 652 different scenarios from 191 sources (31 sources are devoted to Former Soviet Union emission modeling).

[14] At present, prices for AAUs are expected to range between USD 20 and 135 USD/tC, based on estimates for GHG abatement costs. However, after the USA left the Kyoto protocol process quota prices can decrease below USD 20/tC where USD 5/tC denotes the generally accepted lower price ceiling (Jan Pretel, op. cit.).

USD 2.9 bn. Since ratification of the Kyoto protocol does not impose reduction of Ukraine's current GHG emission levels (the most costly component for most OECD countries), [15] the corresponding costs only consist of **expenditures of operating emission-trading markets and supporting necessary institutions and institution building**.

Benefits of **Joint Implementation**:

In addition to benefits from AAU sales, there is also a large potential for Ukraine to benefit from JI projects. Carbon intensity in Ukraine (measured in t of carbon emitted *per million of dollars of GDP)* is the highest in Europe. In 1996, Ukraine emitted 1,248 t of carbon per USD 1 m of GDP, while EU countries emitted 142 t on average and Russia 903 t. This suggests that reductions of carbon emissions should be possible at fairly low costs thus attracting investors interested in implementing JI projects. Such projects in turn are fairly beneficial for Ukraine as they will lead to positive spillover effects due to technology transfer, human capital enhancement, increased energy efficiency, improved air quality and health of the population. Moreover, JI activities might also stimulate interest of foreign companies in further investment projects beyond environmental aspects. **Annual flows of additional environmental investment to economies in transition in the context of JI projects are estimated to range from USD 2.4 bn to 5.8 bn**.[16]

Currently, a number of projects that could qualify as JI projects are developed in Ukraine.[17] Not only private investors, but also institutional ones can take part in JI project financing. For instance the World Bank's Prototype Carbon Fund, Japan, Canada and the Netherlands (ERUPT Fund and others) generally favor financing pilot JI projects and investigating options of emission trade. Despite such promising prospects, JI project implementation in Ukraine is still stalled by the absence of a JI office to select, approve and monitor the projects as well as to report on their results to the UNFCCC secretariat.

IV. Seizing the benefits of the two mechanisms: Policy recommendations

On April 14, 1999 the Interministerial commission on UNFCCC implementation in Urkaine was formed.[18] Furthermore, the Climate Change Division within the Ministry of Ecology and Natural Resources supports the Interministerial commission in its activities. Nevertheless, until now the commission has not presented a clear strategy for Ukraine's ratification of the Kyoto protocol.

Such a strategy could be broadly subdivided into three categories:

1. Pre-ratification activities necessary to ratify the Protocol and build national consensus on the issue;
2. Preparations for fulfilling the requirements of the Kyoto protocol;
3. Preparations for full participation in the **Emission Trading** and **Joint Implementation** mechanisms of the Kyoto protocol.

All three tasks are intertwined, but due to the limited resources they are to be prioritized with earlier ones receiving more urgent attention.

[15] Provided that emission levels remain below the level of 1990 in 2008-2012 (first commitment period), as the empirical research tends to suggest.
[16] Jan Pretel. Op. Cit.
[17] See http://www.ji.org.ua/ua/db/ and http://www.climate.org.ua/projects/inv_projects.html
[18] Order of the Cabinet of Ministers of Ukraine N583, April 14, 1999

The most urgent measures related to **category 1.** is:

The Ministry of Economy should provide an analysis of costs and benefits of ratification for the Kyoto protocol instead of leaving the process "in the air" by quoting the difficulties of long-term scenario building and forecasting. This economic analysis together with official statements on political and environmental advisability of ratification by the government is a necessary document for **ratification of the Kyoto protocol in Verkhovna Rada**.

Measures related to **category 2.** are:

A necessary condition for effective participation in the Kyoto protocol is the **demonstration of Ukraine's capacity to account for its emissions.** Thus, a somewhat parallel and overdue task is the completion of the Second National Communication to UNFCCC. Furthermore, the *national inventory of emissions* and *national registry of emissions*, compatible with the UNFCCC methodology, have to be conducted. Both, ratification and building of emission accounting systems are prerequisite for participation in flexibility mechanisms. Without monitoring, verification and reporting mechanisms the process of participation in ERU and AAU trading could be prohibitively costly or totally impossible.

The flexibility mechanisms within the Kyoto protocol can only be used as "supplementary" to a National program on climate change mitigation. **Thus, a comprehensive Program on climate change mitigation is to be developed and adopted.**

Measures related to **category 3.** are:

Generally, although the market for JI projects is still in its development stage, a **thorough preparation for the Joint implementation projects and Emission trading is to be started.** Ukraine has already had some experience in implementation of energy efficiency, fuel substitution and renewable energy projects within the programs of cooperation with international organizations and other governments. Several bilateral programs on environmental cooperation are currently running in Ukraine, including US-Ukraine Climate Change Initiative[19] and Canada-Ukraine Environmental Cooperation Program.[20] This experience should be used in the **preparation of methodology, rules, and regulations and finally in the setting up of the JI office in Ukraine to enable private parties to take part in JI projects.** Provided the countries are not allowed to sell their entire emission surplus and should maintain commitment period reserves[21] it is more logical for Ukraine to opt out for initial opening of the JI office selling its ERUs, while leaving its surplus AAUs intact and preparing for participation in emission trading schemes.

As the implementation stage of the Kyoto protocol approaches, international negotiations and policy debate on Kyoto protocol mechanisms intensify. **Ukraine, should become a much more active participant of the international negotiations**, which requires international coordination, preparation of research and position papers as well as mustering up the international marketing potential to promote Ukraine as an attractive host country of the JI projects due to low-cost reduction opportunities. For example, the Green Investment Scheme will make Emission Trading more easy for Ukraine as well since it takes away some of the institutional burdens for the country (e.g. the necessity to operate an internal and cumbersome cap-and-trade system when each enterprise is assigned a cap on its emissions and is allowed to sell the surplus internationally). However, instead of waiting for such schemes to be promoted by countries with similar perspectives such as Russia, it is certainly more advisable for Ukraine to identify and support its interests itself.

[19] www.climate.org.ua

[20] www.ji.org.ua

[21] Each Party included in Annex I shall maintain, in its national registry, a commitment period reserve which should not drop below 90 per cent of the Party's assigned amount calculated pursuant to Article 3, paragraphs 7 and 8, of the Kyoto Protocol, or 100 per cent of five times its most recently reviewed inventory, whichever is lowest (Jan Pretel Op. Cit. p. 9).

Ukraine has achieved its superb position in relation to Kyoto protocol emission level due to the economic decline, and not due to the implementation of environmental projects or governmental policies. This situation, generally called "hot air" remains on the agenda for it potentially endangers the environmental effect of the Kyoto protocol. **A clear position of Ukraine on its intended use of potential resources received from emission trading would help moving forward the development of flexibility mechanisms**. Commitment to use proceeds for environmental projects as well as an argument that Ukraine paid dearly with consumption reduction for its cut in emissions may generally benefit its negotiation position. The Russian position on "hot air" and their development of the Green Investment Scheme could serve as a rough guide for the international position of Ukraine.

In parallel to those 3 categories, **Ukraine also needs to actively participate in international negotiations** in order to preserve the value of its emission rights. In particular, **coordinated action between Ukraine and Russia is necessary** for the following reason. After the USA—the largest potential buyer of emission rights—have left the Kyoto protocol all of the demand for emission reduction could be potentially covered by sales of AAUs. This defies the goal of sustainable anthropogenic emission reduction since then, only papers of emission rights would be exchanged without that the aggregate level declines. Thus, the process of emission trade is likely to become extremely political. Large sales of AAUs are likely to depress JI and CDM[22] markets thus strengthening opposition from the countries that seek to attract JI and CDM investments. Moreover, an uncoordinated sale of Russian and Ukrainian quotas—the first second largest contingents—is likely to devalue the price of emissions substantially. Thus, the need for further coordination between these two countries', and this even more due to the political and technical complexity of the emission trading schemes: if Ukraine and Russia will not be able to comply with the requirements necessary to take part in the trading then the prices for emission rights might even increase dramatically, again endangering the whole Kyoto protocol mechanism (this argument can also be used to induce Canada, Japan and the EU to cooperate with Ukraine and to provide support for Ukraine's ratification process).

Cooperation with Russia should take place along two directions (see Box 1 for a description of the Russian position):

1. **Establishing legitimacy of emission trading system;**
2. **Prevention of price undercutting in future quota sales.**

Finally, policy makers should also start a **Public awareness** campaign to disseminate the knowledge concerning the Kyoto protocol, Ukraine's responsibilities and benefits from flexibility mechanisms and environmental improvement from implementation of the climate change-mitigation policies. Perhaps, the first step is to target this campaign at government officials and industrial lobby, which will be directly affected by and responsible for the Kyoto protocol implementation.

Public and NGOs are to be involved in the policy processes related to the Kyoto protocol pre- and post-ratification activities as well as in the work of the JI office to achieve greater transparency of the process and ensure public support of the governmental policies. OECD countries should also be invited to co-operate and render support in capacity building related to Kyoto protocol requirements fulfillment.

[22] The Clean Development Mechanism (CDM) is the corresponding mechanism to JI for countries not listed in Annex I of the Kyoto protocol (see Footnote 5).

Box 1. International experiences with the Kyoto protocol: the Russian position

Facing the prospects of Kyoto protocol implementation Ukraine is not in a specific and unique position. Rather, most of the Central European countries that already ratified the Kyoto protocol face or recently faced the same concerns. Thus studying best practices of other countries as well as coordinating efforts on legal and institutional framework building with other Central European and NIS countries is essential to maximize the benefits from Kyoto protocol implementation.

The main reference for the Ukrainian situation is certainly **Russia**, which experiences similar problems than Ukraine but has already started to actively move towards ratification.

"Russia has signed the Kyoto Protocol and we are now preparing its ratification … We consider that ratification will take place in the very nearest future."

(Mikhail Kasyanov, Russian Prime Minister, Johannesburg, September 2002)[a]

Russia currently emits about 17% of the world's GHG emissions and is the third largest polluter after the USA and China. In March 1999 Russia signed the Kyoto treaty, but has not ratified it so far. With the USA leaving the Kyoto protocol ratification process (and since China is not listed in the relevant Annex I) Russia is now the major player on the Kyoto-protocol scene. According to its rules, the protocol enters into force if all Annex I countries that have already ratified it are responsible for at least 55% of the GHG world emissions. After Canada and Poland have ratified the protocol in December 2002, Russia's ratification will set the protocol into force. Given Russia's new position, it is therefore likely that the protocol will eventually be activated in 2003 or 2004.

The political necessity to coordinate efforts in forming the rules of emission trade within international negotiations is well understood in Russia. For example, countries that seek to benefit especially from JI projects are typically interested in keeping the supply of AAUs—which will compete with the ERUs (generated by JI projects) on international emission markets—as short as possible. Therefore, they have argued that the amount of unused emission rights assigned to transition countries should be reduced as their emission reduction has been due to economic collapse rather than environmental measures. Russia actively contradicts this view and promises that revenues from emission trading will be streamlined to financing environmental projects in order to subsequently create positive environmental effects.

Furthermore, Russia supports several international efforts to provide a framework for the sales of AAUs such as the Green Investment Scheme[b] that aims at preventing the price drop for AAUs as well as ensuring environmentally oriented use of revenues. Canada, Japan and EU will require significant purchases of AAUs and are currently working on establishment of the future mechanism, which would be both cost-effective and politically viable.

Russia has already participated in the pilot phase of the JI entitled Activities Implemented Jointly (AIJ). Nine projects were registered with UNFCCC[c] in the areas of afforestation, energy efficiency, fuel switching, and fugitive gas capture. Foreign investment in the projects ranged from USD 55,000 to USD 7,6 m.[d] About 40 bilateral projects have already been implemented and 20 are in progress.[e]

The mechanisms for the implementation of Kyoto agreements are tested in Arkhangelsk and Astrakhan regions (Northwest Russia) partly with the support of the TACIS projects.

Russia stays committed to its recent more active stand on climate change issues. A Third national communication was submitted to UNFCCC (while Ukraine is still lagging with submitting its second communication).[f] Only under one of the three forecasting scenarios presented in the Third National Communication Russia reaches its 1990 emission level by 2015, and with the other two it remains below its quota even in 2020. This proves to be encouraging for Ukraine as both Russian and Ukrainian economies share similar characteristics and trends.

[a] BBC News, "Russia gives Kyoto kiss of live", http://news.bbc.co.uk/2/hi/africa/2233220.stm
[b] http://www.climate-strategies.org/
[c] http://maindb.unfccc.int/aij/
[d] Kemfert, C., Lokhov, R.: International Kyoto Mechanisms in Russia- The impacts of Emissions trading on the Russian Economy, http://www.uni-oldenburg.de/SPEED/Diskpapiere/ETAS%20Russia.pdf
[e] Energy and Climate: Russian-European Partnership (Moscow, 2001) http://www.energy.ru/eng/conferences/russia.htm
[f] Third National Communication to the UNFCCC (Moscow, 2002). http://unfccc.int/resource/docs/natc/rusncr3.pdf

V. Conclusions

Ukraine is currently located at a juncture concerning the Kyoto protocol. Provided that the Russian Federation will ratify the Protocol, the chances are high that it will become effective in 2008. Ukraine is in the promising position of receiving large net benefits from ratifying the protocol, mainly by selling its emission quota surplus within the flexibility mechanisms with an annual revenue between 2008 and 2010 estimated at USD 740 mln to USD 2.9. bn. Furthermore, the JI scheme might attract investments into forestation, fugitive gas capture, fuel switching and improvement of energy efficiency.

To realize these potential benefits, Ukraine should initiate proactive policy measures to build legislative and institutional capacity for the Protocol's implementation. Validation, monitoring and verification capacity, clear ownership of emission reductions, determination of least cost-reduction opportunities and supportive policy framework are essential for successful participation of Ukraine in Kyoto flexible mechanisms. Ukraine's experience within bilateral environmental programs and experience of other countries is to be used to design and implement a JI authority to unblock participation of private investors, interested in JI project implementation in Ukraine.

Basically, in order to take advantage of the Kyoto flexible mechanisms, Ukraine is to become a competitive player on the emission trading and joint implementation markets. Currently, the state of affairs is far from satisfactory due to Ukraine's underdeveloped institutional capacity. Whether Ukrainian AAUs and ERUs will arrive at the market place at all and whether they will be attractive to foreign investors depends mostly on the ability of Ukraine to swiftly manage the complex task of preparing for participation in Kyoto mechanisms. However, missing the current opportunity can strip Ukraine of at least partial compensation for its industrial production decline.

To ensure realization of potential perks from emission trading, first of all, a firm negotiation position is required from Ukraine with possible promise to use the benefits accruing from emission trading to finance environmental projects aimed at GHG emission reduction. Second, a preparation of national capacity to handle emission trading should be in place by the start of massive trade transactions. Third, national capacity and favorable investment conditions are required to lure investors willing to undertake joint implementation projects.

Finally, with all the possible economic gains the Kyoto protocol can potentially bring to Ukraine it is impossible to underestimate its contribution to augmentation of environmental agenda in Ukraine, which suffered immensely from ecological catastrophes and faces an extremely problematic ecological situation.

I. P., F.P. Lector: R.G.

January 2003