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Opting out of Blueprints? The fate of Emissions Trading in Kazakhstan as a lesson for international climate policy

Lyazzat Nugumanova and Manuela Troschke

Emissions trading system (ETS) as an instrument to induce emission reductions in the private sector are largely favoured by economic literature and financed by international organizations. National ETS is the first step towards international emission trading, and it allows to report fix amounts of future reductions in worldwide climate scenarios and climate treaties. However, an ETS is not the only option to cope with emission reduction, and blueprints do not fit them all. Kazakhstan, which in 2013 was the first country among the post-Soviet states to implement an ETS, suspended ETS in February, 2016. Considering the challenges of the ETS in Kazakhstan in country context, we argue that a carbon tax could be a better option. A tax provides price certainty for business, less transaction costs, and a potential double dividend for the environment and the economy if revenues are wisely spent. National autonomy and international obligations are not inconsistent, as the experience of other countries shows.

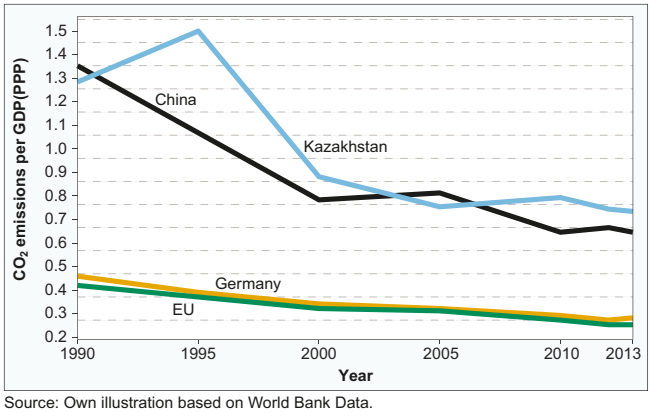
Introduction

Kazakhstan is amongst the world's most carbon and energy intensive economies. Abundance of energy resources and subsidized energy prices are some of the reasons for the highly energy intensive economy in Kazakhstan. However, Kazakhstan's CO_2 emissions intensity per GDP (PPP) has been declining over the last two decades, even though, the country has still a higher CO_2 emissions intensity than China, Germany and the EU, as figure 1 shows.

According to the United Nations Framework on Climate Change Convention (UNFCCC), in 2012 overall green-house gas emissions (GHG) emissions in tons of CO_2 equivalent reached 283.5 million tons CO_2 equiv. with-out land use, land-use change and forestry (LULUCF) in Kazakhstan. CO_2 is the major source of GHG in Kazakhstan, and accounted for around 78% of total GHG emissions in 2012. In sector perspective, the largest contributor of GHG emissions is the energy sector which accounts for 85% of total GHG emissions (Figure 2).

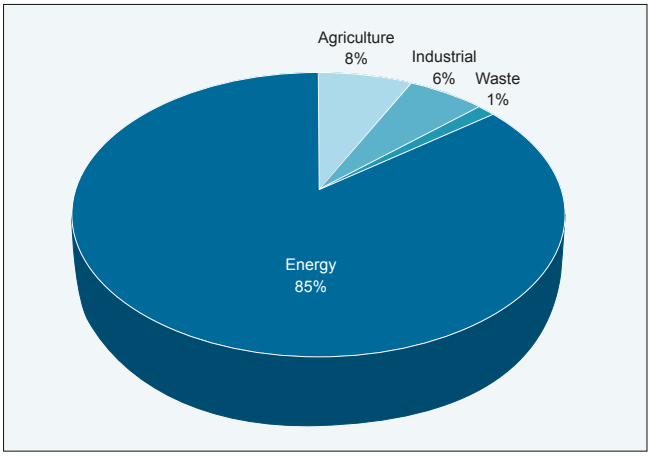
There is generally a large potential for carbon mitigation especially in the energy sector. The power generation technology and infrastructure is outdated and coal is largely used in power and heat production.

Figure 1: CO_2 emission per GDP (PPP) China, Kazakhstan, Germany and the EU



Source: Own illustration based on World Bank Data.

Figure 2: GHG emissions by sector (without LULUCF) in Kazakhstan, 2012



Source: Own illustration based on UNFCCC, 2012.

Kazakhstan has developed its climate policy including commitments to international climate agreements, national green growth strategy and programs of sustainable development. Advised and financed by international organizations and donors, an ETS has been set up, national emission reduction targets have been determined, and quotas of allowed emissions have been allocated to enterprises based on National Allocation Plans. According to the UNFCCC, Kazakhstan communicated the following Intended Nationally Determined Contribution (INDC): An economy-wide absolute reduction, starting from a base year

- Unconditional target: 15% reduction in GHG emissions by 2030 compared to the 1990 base year level
- Conditional target: 25% reduction in GHG emissions by 2030 compared to the 1990 level, subject to additional investments, access to low carbon technologies transfer mechanism etc.

In February 2016, after two phases of the ETS and with a revision of the National Allocation Plan 2016-2020 pending, Kazakhstan announced the suspension of the ETS until 2018. A. Magauov, vice-minister of Energy of Republic of Kazakhstan (RK) mentioned that the existing ETS in Kazakhstan has still many shortcomings that need to be addressed. He emphasized that industry groups raised their concern that the economy of Kazakhstan is expanding, electricity production is increasing, and emission quotas that have been allocated to them do not account for these factors. Therefore, it was officially proposed that a new methodology of ETS should be developed.

This line of argumentation cast doubts on the ETS as a solution to emission reduction a la carte in Kazakhstan and demonstrates the decisive role of veto groups or veto players in the political bargaining process around carbon pricing. Factors driving or constraining the behavior of these actors will be in the focus of our discussion.

Overview of the ETS in Kazakhstan

Kazakhstan was the first post-Soviet country to have launched an ETS as a policy tool to meet its emission targets and to contribute to climate change reduction. Kazakhstan introduced amendments to the country's "Ecological Code" and additions to the environmental legislation, including government decrees and ministerial orders to implement an ETS.

The Ministry of Energy of the Republic of Kazakhstan, namely the Climate Change Department and JSC "Zhasyl Damu", are the main authorized state institutions to oversee the ETS. JSC Caspiy Commodity Exchange serves as a trading platform (Table 1).

Table 1: ETS Kazakhstan: institutional infrastructure

Ministry of Energy of Republic of Kazakhstan	Regulation activity
Department of Climate Change under Ministry of Energy RK	Management of permits, development of national allocation plans, rules on emissions allowance quotas, organization of emissions registry, accreditation of independent verifiers etc.
JSC "Zhasyl Damu"	Allowance registry
JSC Caspiy Commodity Exchange	Trading platform

Table 2 provides an overview of the first two phases of the ETS in Kazakhstan. A pilot phase of the ETS (Phase I) was launched in January 2013, covering one year only and exclusively CO_2 emissions. In 2014 the ETS entered the second phase of operation (Phase II).

Table 2: ETS Kazakhstan: development in phases

	Phase I (2013)	Phase II (2014–2015)
Emissions cap	147 $MtCO_2$	155.4 $MtCO_2$–2014 153.0 $MtCO_2$–2015
Reduction targets	0%	0% –2011 1.5% relative to 2012
GHG	CO_2 emissions only	
Allocation	100% free allocation based on emissions data of 2010	Free allocation (0% and 1.5% below 2011/2012 average emissions)
Sectors	Energy sector (including, power production, oil and gas), mining and chemical industry above 20,000 CO_2/year threshold (phase I 2010; phase II years 2010 and 2012 emission levels)	
Companies	178	166

Source: ICAP, 2016.

In Phase I, the emission cap was set at 147 $MtCO_2$, with reserves set at 20.6 $MtCO_2$. By that time, the cap covered 55% of country's GHG emissions, and 77% of the nation-wide CO_2 emissions. The first National Allocation Plan 2013 covered 178 companies. Companies that were involved in Kazakhstan included sectors such as energy

production, coal, mining, oil and gas, and industry (Table 3). There were no incentives to participate in the system, since compliance fines were abandoned in 2013.

Table 3: ETS Kazakhstan: first phase

Sectors	Number of companies	2010 CO_2 emissions (million tons)	2013 allocated carbon permits (million tons)
Power production	55	84	84
Coal, mining, oil and gas	69	19,08	19,08
Industry	54	43,3	43,4

Interestingly, in Phase II, while sectoral coverage stayed unchanged and less enterprises participated, more emissions were allowed, with a very modest reduction target set. Accordingly, prices per ton of carbon on the Caspiy Commodity Exchange have been low, ranging from 20 to 1,650 Kazakh tenge (0.09 to 7.5 US $) in 2014 and 2015, while the compliance penalty stood at Euro 30/tCO_2. Also the trading activity was low: Throughout 2014, according to the Caspiy Commodity Exchange in total 40 trades took place. While carbon prices are too low to encourage investments in emission reduction, the handful of trades hardly justifies the institutional costs for maintaining trading infrastructure.

Policy instruments: ETS versus tax

While there is a general consensus that carbon pricing is an effective economic instrument to reduce GHG emissions, outperforming formerly use of command-and-control, there is a longstanding scientific and policy debate about which policy instrument, emissions trading or a carbon tax is the most effective and appropriate one. Both instruments are based on economic incentives: By putting a price on carbon, they drive the change of producers' behavior, encourage them either to invest in green and clean technologies, or to substitute for lower carbon fuels and products, and thus to reduce GHG emissions. A third option is a hybrid model which includes features of both, carbon tax and ETS. However, in the context of a country with no prior experience of carbon pricing it is not recommended.

As of 2015, 39 countries including developed and developing countries, and 23 subnational jurisdictions had implemented one or the other mechanism of carbon pricing (World Bank and Ecofys, 2015). According to the International Carbon Action Partnership (ICAP) (2016), an ETS is implemented in 35 countries, 13 provinces/states and 7 cities. Hybrid schemes are implemented among others in Iceland, Sweden, Norway, Denmark, Ireland, Finland and Portugal.

An ETS (or often also referred to as 'cap and trade') is the preferred policy by many governments in the world. It is based on the principle that the market determines the carbon price, depending upon the supply and demand of emissions allowances on the market. Government regulatory authorities for a certain period of time determine absolute volumes of allowed emissions for enterprises covered by the scheme. Companies with lower emissions than set by this "cap" can sell their surplus emission allowances to companies that have higher emissions than permitted. If emissions of enterprises are lower than allowed, the carbon market is saturated and carbon prices are low – there is no incentive to further invest in reduction technologies (as it is the case for the EU ETS). If emissions of many enterprises are high or stay high due to inertia and lack of investment, the market is nearly empty and carbon prices are high. When production rises in such a situation, emissions also rise and exceed limits set by the regulator. In an empty market this puts business in a situation where it has to either buy costly allowances, pay high fines (that should be higher than carbon prices), or to make quick investment decisions to avoid surpassing limits in the given timeframe (if this is at short notice, this is no viable solution). If the company cannot pass these additional costs on to the consumer, it will reduce or better say – adapt – output to emission levels allowed.

Moreover, marginal abatement costs (MAC) of individual enterprises determines the cost-effectiveness of the ETS. Under the ETS, enterprises with high MACs will find it more profitable to purchase additional emission allowances, while enterprises with low marginal abatement costs will find it more profitable to sell allowances. As trades take place, companies with initially high MAC move down the abatement cost curve, and companies with initially low MAC move up the abatement cost curve. In an ideal ETS, trade continues until MAC of all enterprises equals the market price of allowances. In their decision-making on investments, enterprises need to know their abatement costs (cost of technology) and need to estimate future carbon costs alike.

Table 4: ETS: strengths

Emissions quantity certainty
Extra revenues for companies in case of extra allowances
Flexibility through buying and selling emissions
Politically viable

Table 4 lists some of the strengths of the ETS. A fully functioning ETS provides a certain predictability in terms of national levels of emission outcomes. These planned reductions are also reported to international organisations like the UNFCCC and depending on the countries participation status in the climate treaties, may become binding. The assumption of predictability of emissions holds in an ideal institutional world with a fully established trading system, reliable monitoring and verification of emissions, and strict handling of fines for non-compliance. If the world is less ideal, enterprises

may choose to comply by cheating, with de facto emissions staying high. Recent literature emphasizes that the stringency of monitoring, reporting and verification has a particularly strong effect on the overall effectiveness of the ETS.

Bargaining between regulator and business takes place when allocation schemes for allowances are fixed by the regulator. If a time frame of 4 years applies, bargaining happens every 4 years, since the regulator is committing itself for this period. In the bargaining process, business may argue that production will rise, technology for reduction is costly or has a long investment phase and so on. Since the regulator is less informed than business itself, we have a situation of information asymmetry that puts business in a favorable position. This position is even stronger, if business is organized in well-functioning lobby groups or if politically well-connected entrepreneurs can assert direct influence on policy-making. Due to uncertainty of future developments, business will tend to argue for lower reductions to be on the safe side.

Some of the major strengths of a carbon tax are listed in the Table 5. A carbon tax is implemented in far less countries. Here the governmental regulator sets a specific tax rate on every ton of CO_2 emitted. However, the amount of emissions reduced is hard to predict, since it depends on the decision of the producer to either pay the tax or to reduce emissions.

A carbon tax is easier to administer and to implement, does not require additional institutional infrastructure and thus implies less transaction costs. Administrative costs are smallest under a policy instrument covering upstream sectors of the economy, since it involves far less sources that have to be evaluated. For Sweden, which uses both carbon tax and the EU ETS, it has been shown, that that monitoring, reporting and verification (MRV) costs under the EU ETS are higher than under a carbon tax.

A significant amount of state revenue can be raised from a carbon tax. Revenues collected can be used to cut other distortionary taxes or to finance public goods, thus creating a so-called “double dividend” for environment and the economy alike.

In the tax case, business has price certainty and can plan future investment based on the tax rate. Business has to make the same decisions as under an ETS – to pay the tax, to invest in saving technology, or to reduce output if higher prices cannot be passed on – but this takes place under price certainty.

The bargaining between the regulator and business takes place before the tax rate is set, and when internationally binding obligations in climate treaties do not stand against, such national bargaining process can be repeated as soon and as frequently as the tax code and the legal system allow for this. In the case of a carbon tax, the regulator did not commit itself for a certain period to reach a specific reduction outcome. Information asymmetry is the same as in an ETS. While no doubt there is more room for influencing the political process, there is also more flexibility to adapt the carbon price to new information. This may lower initial resistance of business groups.

The key difference between both tools is that an ETS fixes the quantity of the overall national emission level, but the carbon price remains uncertain while a carbon tax fixes the carbon price and the quantity of emissions remains uncertain. Predictability in both cases depends on the availability and quality of information of all participants.

Table 5: Carbon tax: strengths

Price certainty
Easier to administer and enforce
Utilizes existing institutional infrastructure
Less transaction costs
More transparent
Provides additional government revenues
Less susceptible to corruption and difficult to evade

Contextualization of policy instruments

While both instruments are generally assumed to be more effective than command and control instruments, the choice between the two policy options should be made considering the country’s economic, institutional and political context. We focus on the most constraining factors, admitting this is only one side of the story.

First, regulative, institutional, human capital and financial capacities of a country should be considered. Here, a tax system is the clear favourite, since it already exists, including systems of reporting and verification of emissions. An ETS requires establishing and maintaining additional infrastructure, an additional legal basis and human capital for trading infrastructure and market oversight. While the set-up of an ETS in Kazakhstan was realized with the help of international organizations and international consultants, at a certain point the system has to go through ownership transfer and run by the country itself, otherwise it stays in an institutional shell. The hint in a Kazakhstan-focused Project for Market Readiness Implementation Status Report of the World Bank (2015) that the ETS, especially benchmarking and methodology, need to be fully understood and accepted by all stakeholders, and the following suspension of the ETS, seem to tell a story of failed ownership transfer.

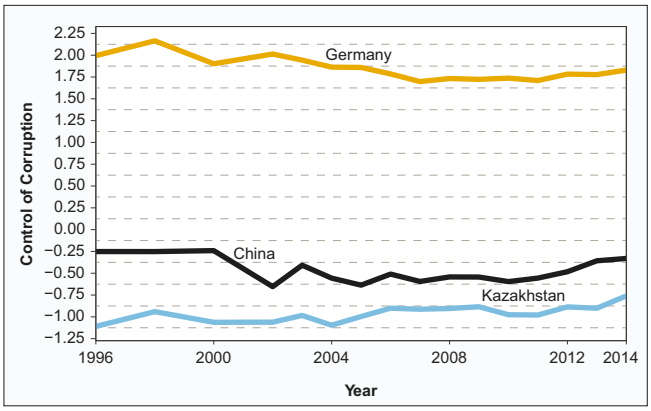
Second, enterprises in Kazakhstan are used to pay (or evade) taxes, but due to the lack of long-standing market experience enterprises are obviously not familiar with the handling of hardly to predict carbon prices in trading platforms. Also, administrative hurdles are well-known in the country, but the necessity to participate in trading actions that cause additional transactions costs for monitoring, verification, carbon market observation and trading to keep their business running, is a new and costly thing. An

import factor is knowledge about abatement costs – when technologies have to be imported, search and transaction costs for substitution arise and make investment decisions costly. Hence (and like in the EU ETS), business tries to evade emission trades as far as possible.

Third, market imperfections should be taken into consideration such as the oligopolistic nature of the energy sector in Kazakhstan, which is also the largest source of CO_2 emissions. Energy producers might restrict output below customers demand, which for energy is neither socially nor economically a desired outcome. Regarding the industry sector as the second largest source of emissions, the enterprises participating in the ETS due to their large size are of high importance for the local economies. Thus, the biggest polluters in Kazakhstan are in an extremely strong bargaining position against the regulator. Of course this is the same in the case of a tax – but taxes can be handled with greater flexibility over time. If we add the human factor of past and present times, bargaining might be culturally closer while social pressure from affected local population on local politics is on the rise.

Forth, corruption is still widely prevalent in Kazakhstan, and it might well play a role during the bargaining, but also in verification and monitoring. The more institutions involved, the more the system is prone to (eventually cumulative) corruption. Corruption has been often mentioned by international organizations and researchers as reducing the quality of environmental governance and the effectiveness of especially emission trading. Recent literature emphasizes that though a carbon taxation system is also vulnerable to criminal and corruption cases, an ETS system is especially susceptible to corruption due to its construction. Widespread corruption cases in the ETS systems have already raised questions regarding effectiveness of an ETS. A number of cases of fraudulent activities in the EU ETS, including re-sale and misreporting of used carbon offsets and value-added tax frauds have raised concerns over functioning of the EU ETS and around the world (UNEP, 2013). Moreover, corruption can disrupt GHG market prices and impact integrity of GHG emissions reporting (Sweeney et.al, 2011). Against the background presented in Figure 3, this makes a clear case for the carbon tax to be the preferred solution in Kazakhstan.

Figure 3: Control of corruption index China, Kazakhstan and Germany



Source: Own illustration based on World Bank Data.

Conclusion

Country-specific circumstances should be taken into account as constraining factors while choosing an appropriate policy instrument to reduce emissions. An ETS is efficient and effective in countries with strong institutions, low information asymmetry, long market traditions, and low market concentration, but it may be unviable under circumstances that are less ideal, as the experience of Kazakhstan shows. Here, a carbon tax seems to be the more appropriate instrument.

In a broader perspective, one could argue that applying monetary incentive schemes while core agents hold very strong bargaining positions is no solution for the climate change policy problem. Shifting the focus towards mitigation efforts like the introduction of higher energy efficiency standards or the promotion of renewables might be more promising for the required quick success in emissions reduction. In the longer run, these efforts will weaken the bargaining positions of countervailing actors and pave the way towards an effective ETS.

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