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UZBEKISTAN: CO2 COUNTRY PROFILE

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Abstract. After the adoption of the United Nations Framework Convention on Climate Change (UNFCCC) in 1992, Uzbekistan committed to addressing global climate change. The convention aims to stabilize the concentration of greenhouse gases in the Earth's atmosphere and prevent dangerous human-induced climate change.Uzbekistan joined the convention in 1993 and ratified it in 1999. In 2015, the country signed and ratified the Paris Agreement, committing to reduce greenhouse gas emissions in order to mitigate climate change. As part of this commitment, Uzbekistan has developed its own Nationally Determined Contributions (NDCs) to reduce emissions by 10% compared to 2005 levels per unit of gross domestic product (GDP).

Keywords ESG, Carbon Exchange, ESG funds, CO2

Introduction

The current challenge is to determine the next level of emission reductions required. Commitments for the next period (until 2030) have already been made, although the Paris Agreement does not provide a legally binding mechanism for countries to declare and implement these commitments. Nevertheless, it requires "ambitious" and "progressive" revisions, meaning that subsequent commitments are expected to be even higher than the current ones.An ambitious NDC (National Determined Contribution) implies transitioning from the current "brown" development model, which focuses on the energy sector, towards a "green" strategy that involves measures to mitigate and adapt to climate change. This transition to "green growth" requires significant investments in order to address socio-economic challenges, and these investment levels increase with increasing NDC ambition. For example, with more stringent emission reduction measures, commitments should be optimized so that the costs of achieving these ambitions do not exceed the costs of mitigating potential negative socio-economic impacts.[1]

The purpose of this study is to provide recommendations for Uzbekistan's new emission reduction commitments within the framework of the Paris Agreement, by assessing the impact of these measures on the country's socio-economic situation.This study consists of six main sections and six appendices. The first section describes Uzbekistan's current involvement in the global effort to address climate change and provides an overview of its current commitments to reduce emissions.[2]

Section Two presents eight conclusions or hypotheses that have been incorporated into the methodology used to assess the impact of emissions reduction measures on the socio-economic situation in Uzbekistan. These conclusions are based on an analysis of twenty-nine relevant studies published in the last ten years.

Section Three presents an analysis of factors shaping emission trends in Uzbekistan, consisting of three parts:

1.Analysis of specific emission trends for key emitting sectors from 1990 to 2017 based on data from Uzhydromet's emissions statistics and the State Statistics Committee's sectoral production volumes.2. An analysis of macroeconomic and institutional factors

that influence the scale of emissions in five key sectors in Uzbekistan during the same period was conducted. These factors were "searched" using a method of pairwise correlation and econometric modeling based on a large number of macroeconomic and institutional indicators available in the World Bank's database (World Development Indicators, WDI).

3) The specific emissions dynamics of Uzbekistan were compared with global green development benchmarks. For this purpose, an average estimate was calculated for specific emissions for the 15 top-performing developing countries that had shown the best results in reducing CO2 emissions per unit of GDP over the past 15-20 years. These countries were selected from a list of 75 developing nations available in the World Bank database and reviewed for their performance.Section 4 presents calculations for a full range of emissions, not only for the five major greenhouse gas (GHG) emission sectors (direct emissions), but also for all 78 sectors that make up Uzbekistan's economy (both direct and indirect emissions). Although these calculations are essential to assess the magnitude of potential social and economic impacts, they have not previously been performed in Uzbekistan. Indirect emissions can only be estimated through model-based calculations, which are based on an "input-output" model using a multiplier approach.

Section 5 presents calculations of the impact of emission reduction measures on economic (output) and social (employment and income) indicators, using the energy sector as an example. The choice of this sector was determined by the availability of comprehensive data for modeling the effects of resource conservation measures.The anticipated economic impacts of implementing resource conservation measures in the energy sector, including reducing the unit cost of natural gas for producing a unit of electricity, have been modeled using the input-output framework.

Section Six provides recommendations for taking into account national interests (both social and economic) when considering the country's new commitments to reduce emissions within the context of the Paris Climate Agreement.

Uzbekistan has firmly committed itself to the Paris Agreement with respect to reducing greenhouse gas emissions. The goal is to reduce specific emissions per unit of gross domestic product by 10% by 2030 compared to 2010 levels.With respect to total greenhouse gas (GHG) emissions, the Center for Hydrometeorological Services of Uzbekistan has estimated that emissions from the five direct emitting sectors decreased by approximately 5.4% between 2010 and 2017. Considering the absorption capacity of forests, emissions have decreased by about 3.5% (see Table 1).

The impact of carbon sequestration through forest vegetation has become evident in recent years, suggesting that large-scale afforestation efforts in the Aral Sea region are beginning to yield results. In previous years, the forest sector was considered a significant source of CO2 emissions.

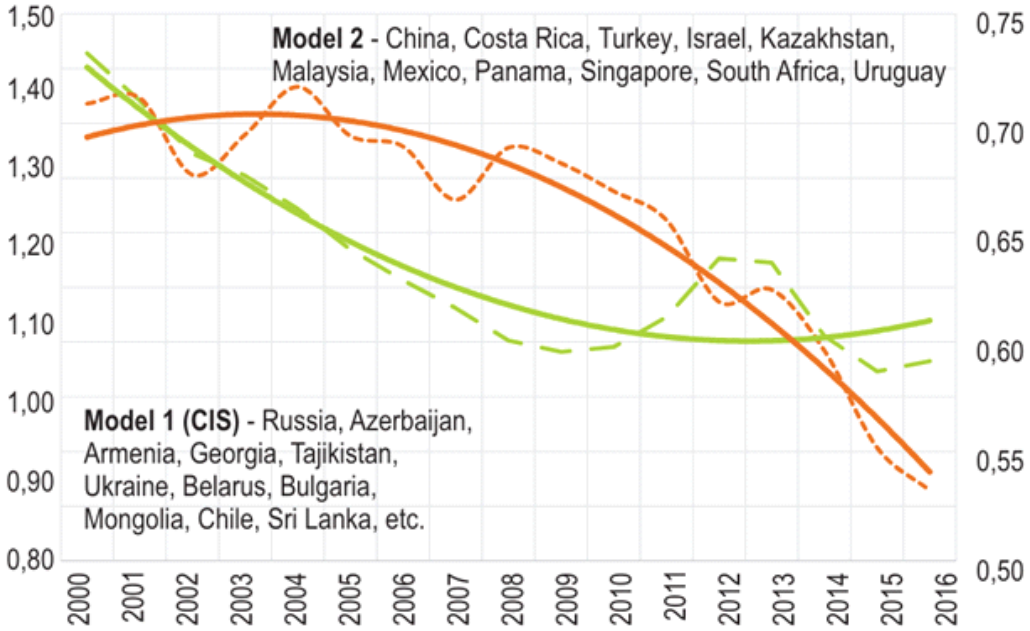
Key Findings of the Analysis

Finding 1. Need to develop own model for transition to low carbon economy: overview of global experience/

Prior to identifying the required resources, the country should at least outline its own model for transition to green economy pathway. An analysis of the existing approaches suggests that developing countries tend to use two models of specific GHG emission reductions

(Figure 1).

FIGURE 1. SPECIFIC EMISSIONS REDUCTION MODELS USED BY DEVELOPING COUNTRIES, 2000-2016, (KG/$ OF GDP, 2010 PRICES)



Model 1 represents most CIS countries, as well as other countries such as Russia, Azerbaijan, Armenia, Georgia, Tajikistan, Ukraine, Belarus, Bulgaria, and Mongolia. These countries experienced a rapid decrease in their specific emissions since the beginning of the 2000s.Model 2, on the other hand, was designed for countries such as China, Costa Rica, Turkey, Israel, Kazakhstan, Malaysia, Mexico, Panama, Singapore, South Africa and Uruguay. Although these countries experienced a slight increase in greenhouse gas emissions in the early 2000s, they began to decrease by the end of the period. That is, they were not as quick to reduce emissions as other countries.

Countries that follow model 2 have a better position regarding spending on health and education compared to those following model 1. They allocate a higher proportion of their GDP to health care and education, a positive development when compared to countries that don't prioritize these areas. The structure of the economy in these countries has seen a reduction in industry's share relative to GDP by 2.5 percentage points, a positive change from the first model where the reduction was 3.7 percentage points.Overall, the advantages of Model 2 are clear. These countries seem to do better in terms of social indicators and have a more balanced economy. This could lead to long-term economic growth, which is crucial for emerging market countries. This suggests that countries that have not implemented expensive green technologies immediately have managed to accelerate their development and then switched to a proactive low-carbon growth strategy later. Their approach can be summarized as follows:

1) Accelerating development through large-scale investment,
2) Reducing poverty,
3) Creating a scientific and technological foundation for resource efficiency, and
4) Switching to proactive climate policies after achieving the above goals.

Conclusions:

The main recommendation is to make sure that national priorities are secured prior to transition to proactive climate policy (more ambitious emission reduction commitments). In formulation pf new emission reduction commitments, several risks should be considered. Transition to proactive climate policy may affect the country's socio-economic development should these risks be left unconsidered. More specifically, the recommendations are as follows: First recommendation concerns the formulation of the country's new generation emission reduction commitments. It should not use the traditional commitment statement (i.e., reducing emissions by ...% by a certain year), but it should read as "maintain the year 2017 level specific emissions". In other words, the country should make efforts not to exceed by 2030 the level of specific emissions attained in 2017; Second recommendation. There is a need to develop a methodology for assessment of indirect emissions in all sectors to have a full picture of total emissions across all sectors; Third recommendation. Changes in macroeconomic and institutional environment should be taken into account. It is complicated to achieve the global average values of macroeconomic and institutional factors in a short while. To begin with, individual macroeconomic and institutional indicators should be introduced into the set of indicators that will help to annual monitoring of changes in macroeconomic and institutional environment in comparison with global trends. Together with monitoring of technological modernization (at least for the key emitting sectors) and environmental indicators, this will enable continuous monitoring and analysis of efficiency of the climate investments. Fourth recommendation. There is a need to change the technological modernization model. An analysis suggests that there are limited possibilities for combining carbon-intensity reduction with social goals. The solution is to switch to a technological modernization model using double-dividend technologies (win-win technologies). They help combining traditional impacts (economic and social) and climatic (environmental) ones. Search of such technologies should become a top priority for Uzbekistan's technological upgrading policy. Fifth recommendation. Tools should be developed to prioritize green projects. Not always and not all green technologies are socially oriented, environmentally friendly and economically efficient. Another challenge is that the creation of new jobs in "green" sectors may require investments e.g. in retraining of workforce. Moreover, green technologies may have negative environmental/health side sub-impacts that may not be immediately identified or may be underestimated. The toolkit for prioritizing "green" projects will allow distinguishing between "climate" financing and "other" investments within investment programs in order to correctly estimate the socio-economic impacts of precisely "green" investments. Currently, this issue remains debatable in many countries, including Uzbekistan. Sixth recommendation. There is a need to enlarge the share of processing/manufacturing industry, which has the biggest potential to create sustainable employment among all other sectors. Its share in the national economy's sectoral structure is one of the indicators of inclusive economic growth. 23 Seventh recommendation. The country should develop and introduce national carbon regulation. Governments of nations with active climate policies apply special measures to products from countries without carbon regulation. These measures may include inter alia carbon customs duties that are actively debated today in political discussions and literature, which often are referred as "carbon protectionism". For Uzbekistan, such barriers may become an additional source of risk associated with the Paris Agreement commitments. This is because such carbon taxation will be imposed not only on the

export of carbon-intensive goods from the five emitters (sectors) but it also affects other ones as all 78 sectors have a carbon footprint. Another reason for the high carbon intensity of exports and other goods in Uzbekistan is its technological backwardness, which is hard to reduce or eliminate within a short while. Regardless of the reasons, the lack of in-country carbon regulation will increase Uzbekistan's vulnerability to carbon barriers imposed internationally.The emission multipliers can be used to: a) develop in-country carbon regulation and b) establish a mechanism to encourage enterprises to upgrade their equipment.Emission reductions can be stimulated by the introduction of a domestic emission taxation (carbon tax). To this end, all sectors can be classified into categories: high carbon footprint (category 1, more than 3 tons), relatively high carbon footprint (category 2, from 1 to 3 tons), medium carbon footprint (category 3, from 0.5 to 1 ton), moderate carbon footprint (category 4, from 0.2 to 0.5 tons), low carbon footprint (category 5, less than 0.2 tons). Eighth recommendation. There is a need to boost the afforestation. Obvious and simple as this recommendation may seem, it is of special significance for Uzbekistan. This is due to the fact that in recent years, an increased carbon sink has been observed in "Forestry" sector". Although the overall amount of CO2 sink is still small (about 2.5% of total emissions), afforestation efforts should be further strengthened. This requires, firstly, unconditional afforestation as part of ongoing programs; and secondly, stronger measures to reduce pastureland degradation. These efforts should target a 2-fold expansion of the forest covered area by 2030 compared to 2020. Ninth recommendation. The country needs to build statistical capacity compatible with the requirements of proactive climate policy. Currently, statistics are not well-prepared to inform and help in monitoring progress in implementation of proactive climate policy. Further research and modeling may help in further detailing and specifying each recommendation.

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