

FORECASTING SUSTAINABLE URBANIZATION: SUPPORT FOR SUSTAINABLE INFRASTRUCTURE PLANNING IN CITIES



Urbanization and resource trends in Kyrgyzstan

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Bishkek



Kyrgyzstan



North and Central Asia subregion



Asia-Pacific region

Throughout this report colours are consistently used to represent city-level data from Bishkek (blue), national-level data from Kyrgyzstan (orange), subregional averages from the ESCAP North and Central Asia subregion¹ (grey), and regional averages from the entire ESCAP Asia-Pacific region² (yellow).

Further resources and information about the Inception and data collection workshop held in Bishkek, Kyrgyzstan on 20-21 February 2020 can be found at:

<https://www.unescap.org/events/forecasting-sustainable-urbanization-inception-and-data-collection-workshop-bishkek>.

For any questions or additional information, please kindly contact the Forecasting Sustainable Urbanization team at escap-edd-suds@un.org.

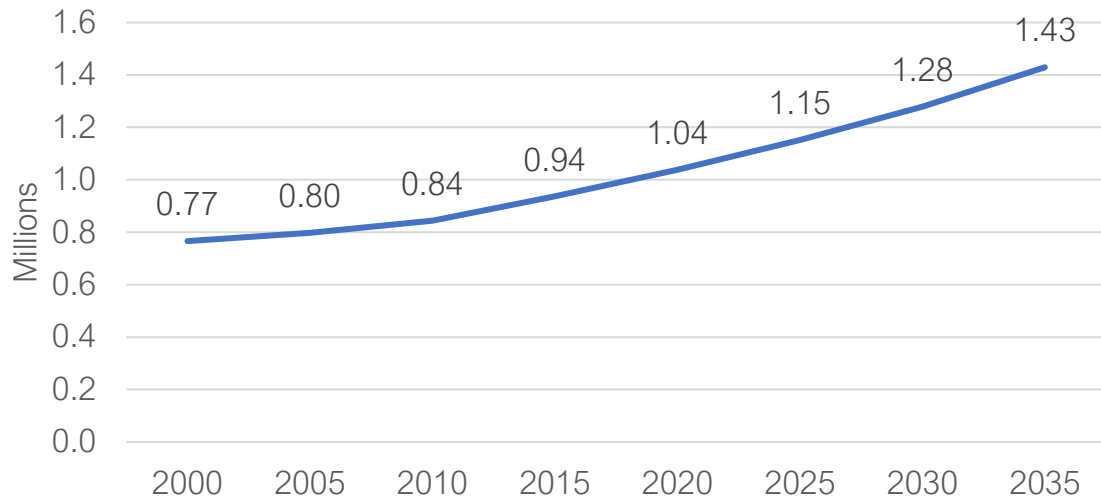
The map on the front cover was created using Grafomap.

¹ Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Russian Federation, Tajikistan, Turkmenistan, and Uzbekistan.

² The full list of ESCAP's 53 Member States can be found here: <https://www.unescap.org/about/member-states>.

Urbanization

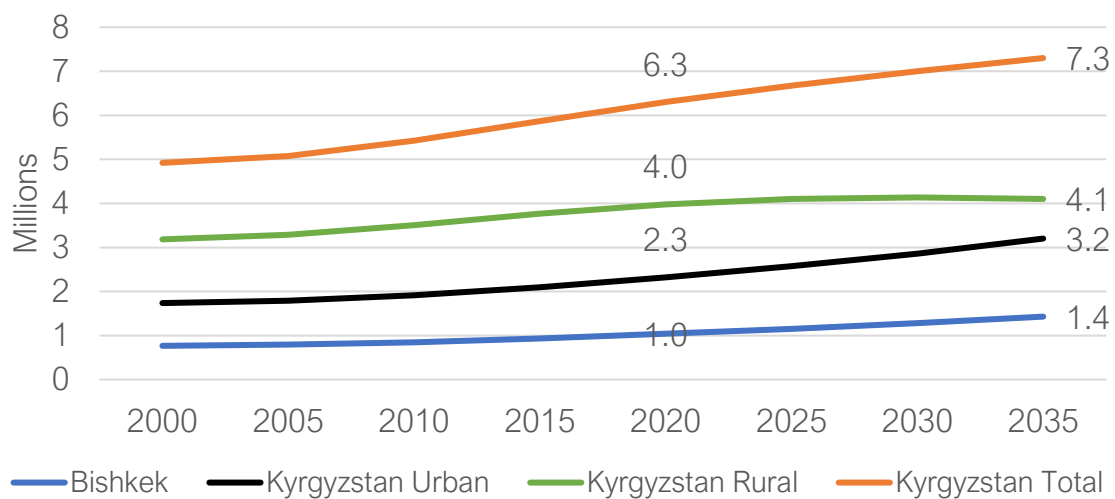
Population of Bishkek



Source: United Nations, Department of Economic and Social Affairs, Population Division (2018).

Since 2000 Bishkek has grown by approximately 250,000 people, and the city is projected to add almost 400,000 more people over the next 15 years.

Urban vs Rural Population in Kyrgyzstan



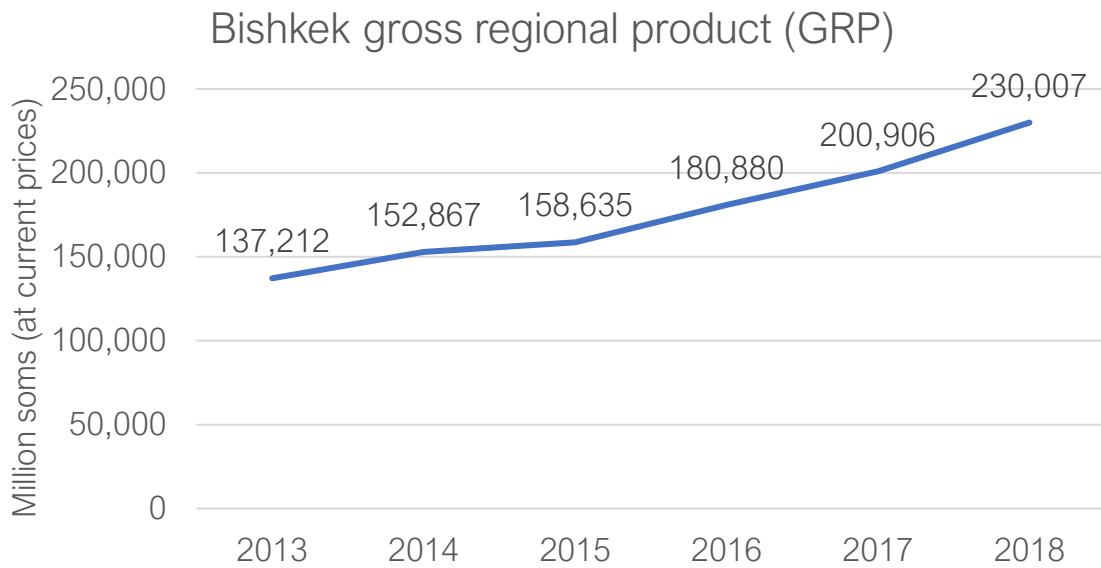
Source: United Nations, Department of Economic and Social Affairs, Population Division (2018).

Almost all of the population growth projected over the next 15 years is expected to occur in Kyrgyzstan's cities, with Bishkek accounting for half of the total urban growth during that period.

Economic growth

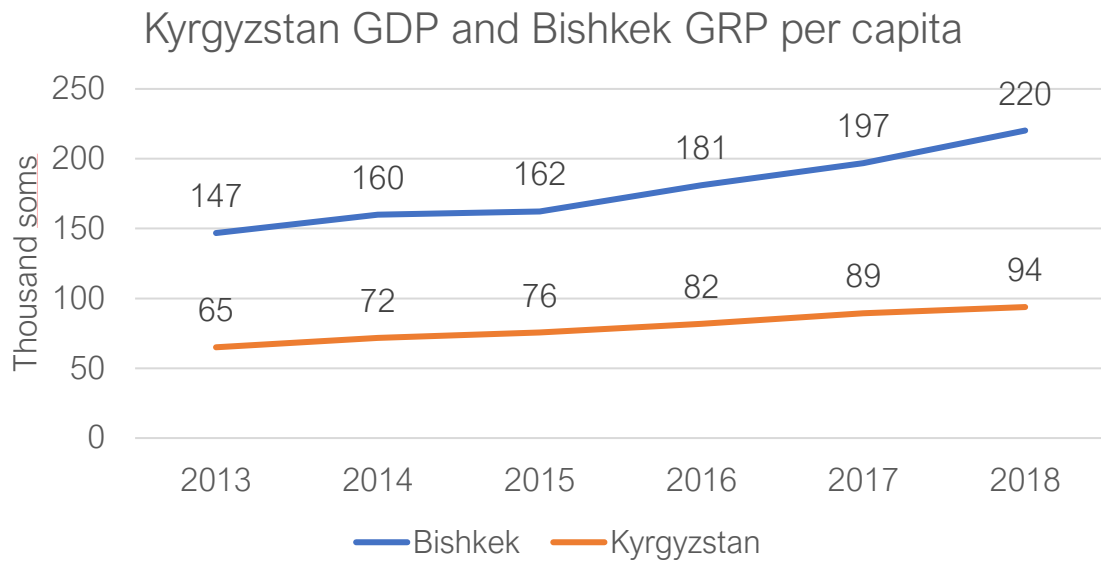


Source: ESCAP Statistical Online Database.

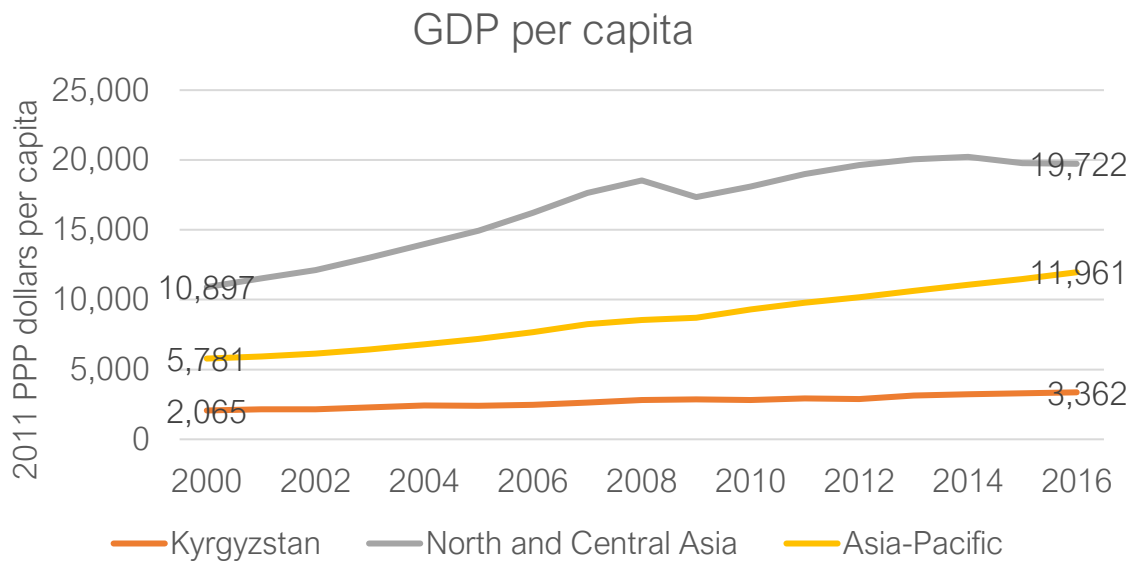


Source: National Statistical Committee of the Kyrgyz Republic.

Kyrgyzstan is experiencing huge economic growth. National GDP doubled between 2000 and 2016, whilst Bishkek's GRP increased by 1.7 times in just 5 years.



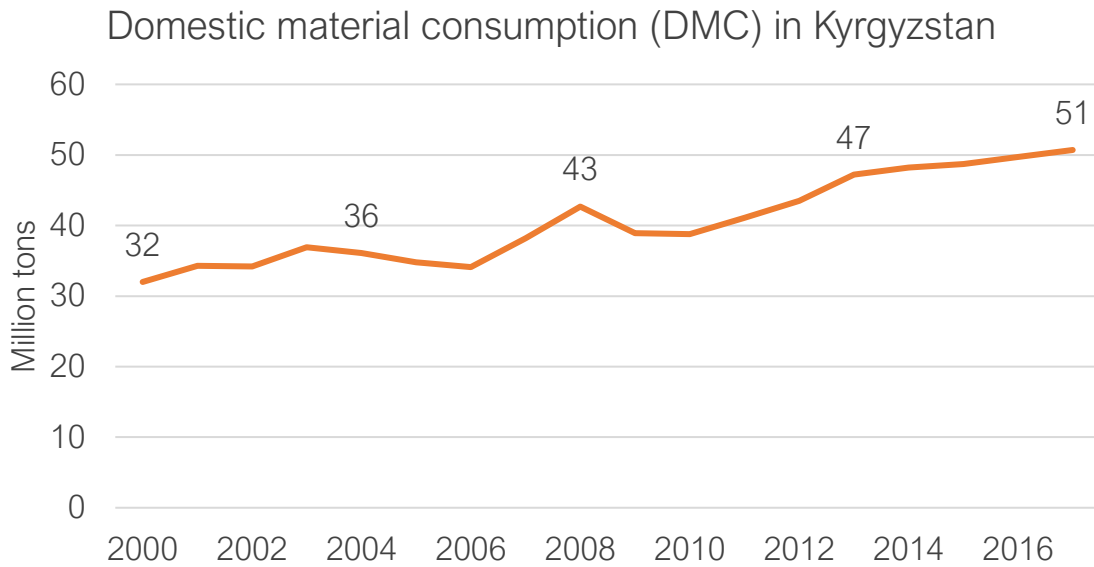
Source: National Statistical Committee of the Kyrgyz Republic.



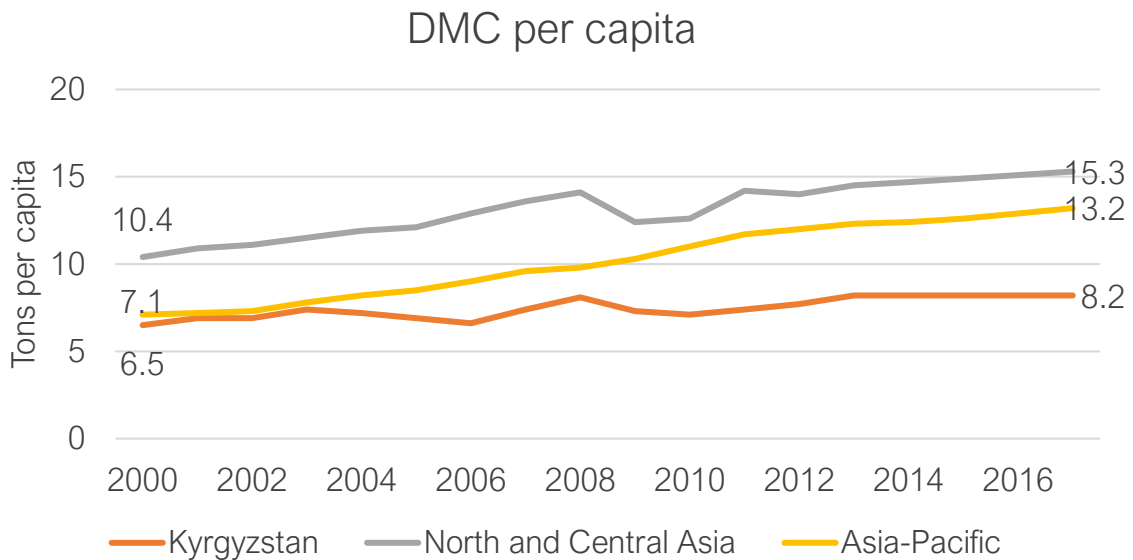
Source: ESCAP Statistical Online Database.

The per capita GRP in Bishkek and overall per capita GDP in Kyrgyzstan have shown significant growth during 2013-2018, but Bishkek is growing faster and the gap is widening. Despite this rapid recent growth, GDP per capita in Kyrgyzstan remains significantly lower than subregional and regional averages.

Material use

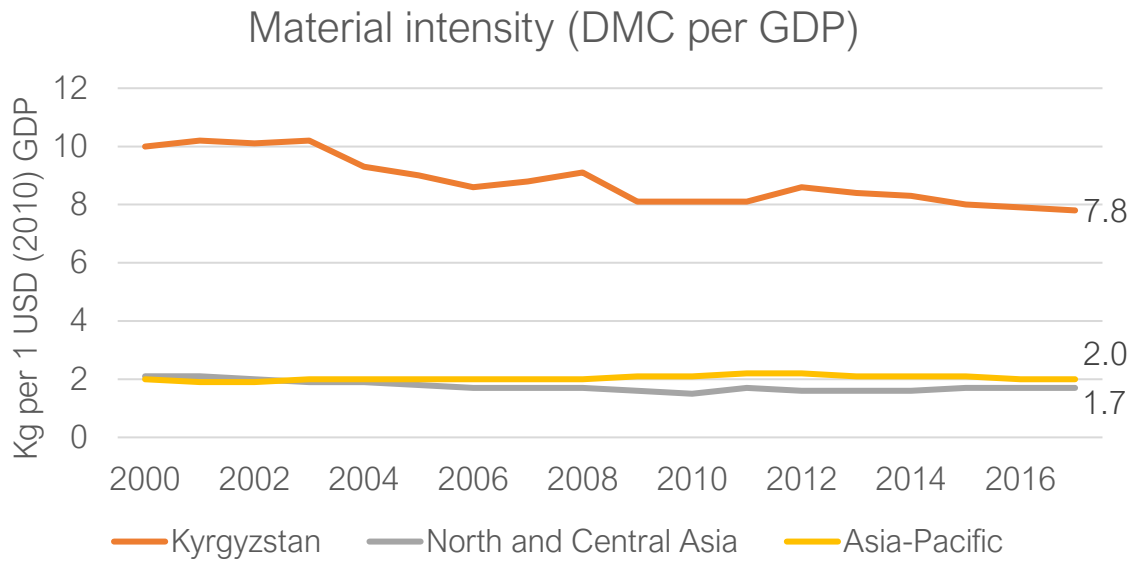


Source: ESCAP Statistical Online Database.



Source: ESCAP Statistical Online Database.

Domestic material consumption (DMC) reports the apparent consumption of materials in a national economy. DMC increased in Kyrgyzstan from 32 to 51 million tons between 2000 and 2016. Despite this huge increase in material use, DMC per capita in Kyrgyzstan is substantially lower than subregional and regional averages.

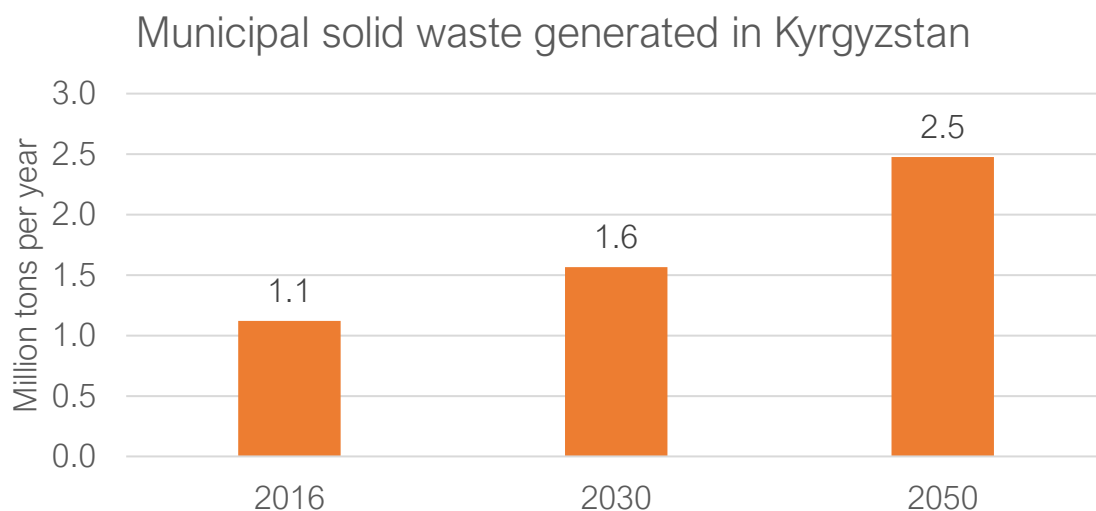


Source: ESCAP Statistical Online Database.

Resource intensity measures the resources (e.g. materials, energy, water) needed to generate a unit of economic output. Lower resource intensities are better and a decrease in resource intensity over time means a country has become more resource efficient.

However, the intensity of material use is four times higher in Kyrgyzstan than subregional and regional averages. This provides a huge opportunity for Kyrgyzstan to leverage future growth through more efficient use of the materials that are already available and used.

Solid waste generation

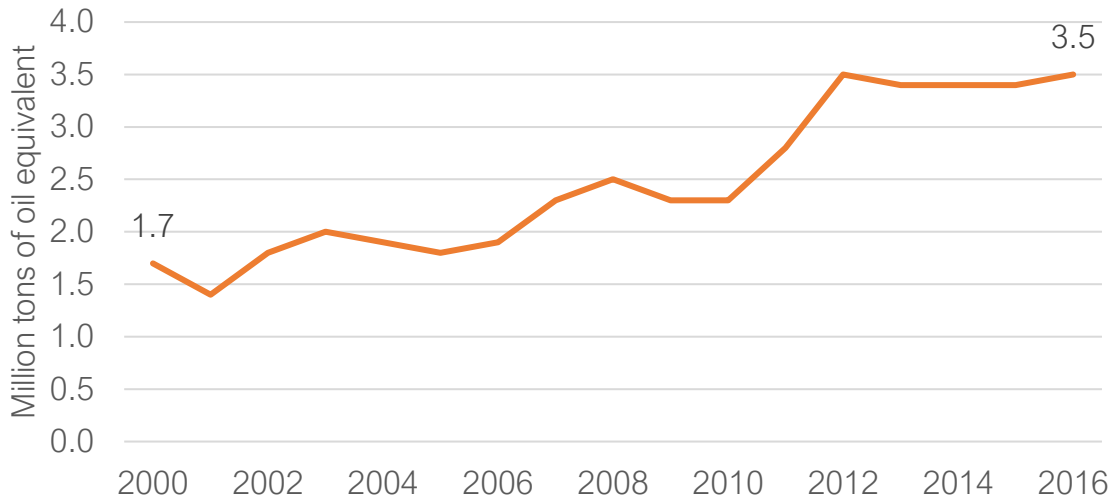


Source: World Bank, What a Waste 2.0 (2018).

The total volume of solid waste generated in Kyrgyzstan's cities is forecasted to more than double by 2050, from 1.1 million tons per year in 2016 to 2.5 million tons per year by mid-century. Preventing such a rapid increase in waste generation can reduce the waste management burden on municipal budgets, and identifying opportunities to divert waste materials from landfill to productive uses can drive economic growth and opportunities.

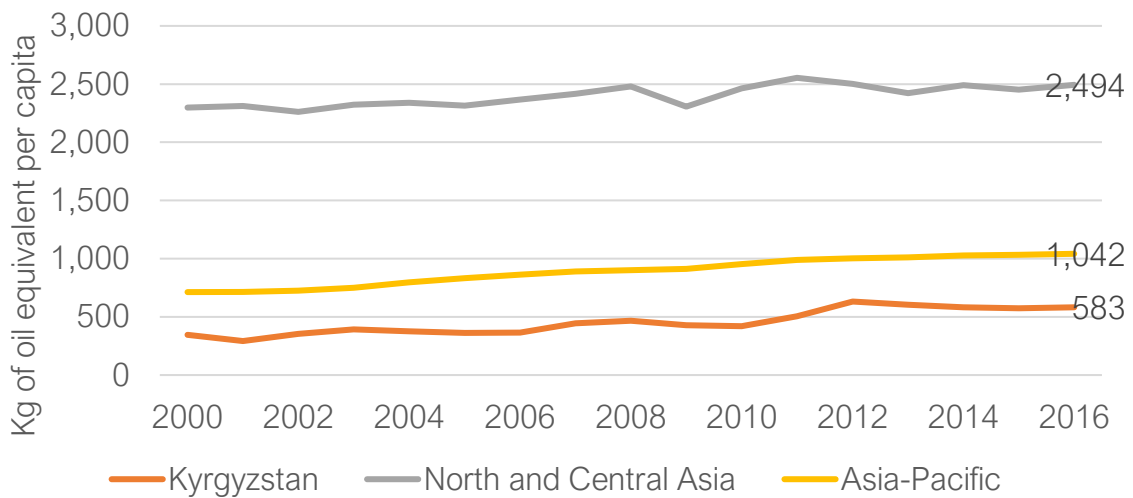
Energy consumption

Energy consumption in Kyrgyzstan



Source: ESCAP Statistical Online Database.

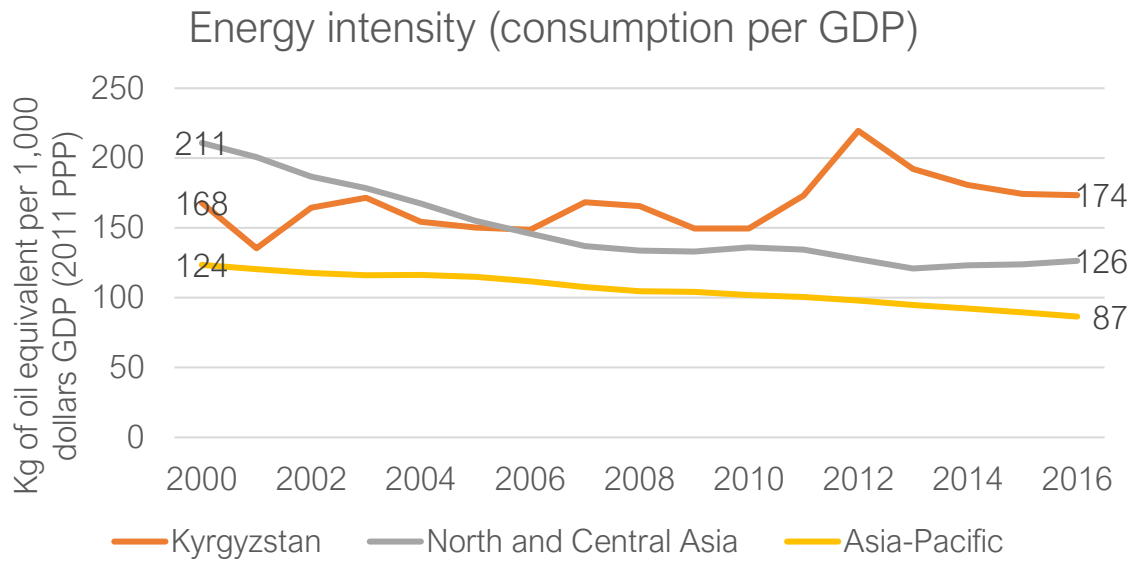
Energy consumption per capita



Source: ESCAP Statistical Online Database.

Total energy consumption³ in Kyrgyzstan doubled between 2000 and 2016, from 1.7 to 3.5 million tons of oil equivalent. Despite this increase, per capita energy consumption remains half the Asia-Pacific average and one fifth the North and Central Asia subregional average.

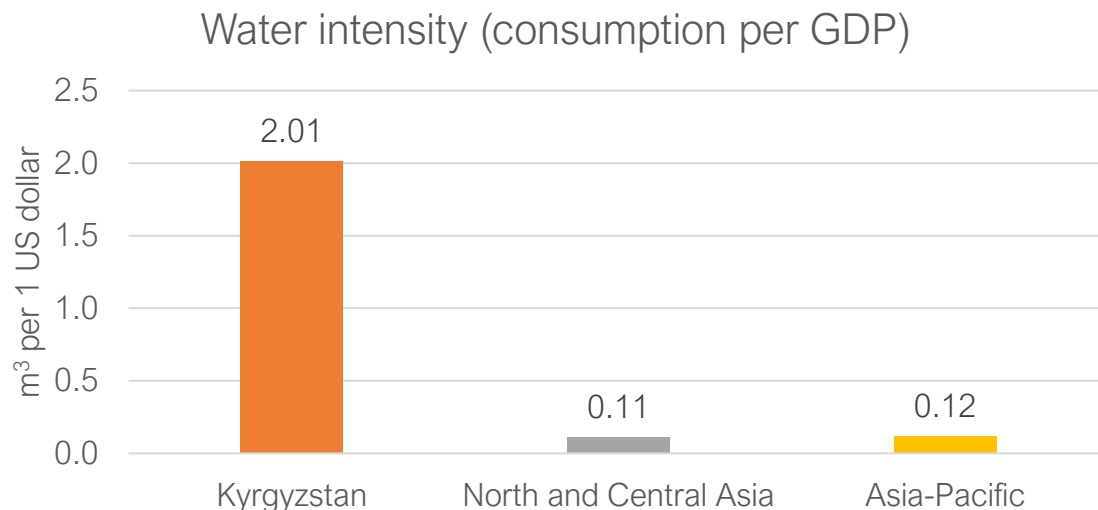
³ Data for energy consumption is calculated here using Total Final Consumption (TFC), defined as the sum of consumption by the different end-use sectors, excluding the energy consumed during the transformation of energy from primary to secondary.



Source: ESCAP Statistical Online Database.

However, energy intensity is significantly higher than subregional and regional averages. Kyrgyzstan consumes 174 kg of oil equivalent per 1,000 dollars of GDP, compared to averages of 126 in North and Central Asia and 87 in the Asia-Pacific region. It should be noted that in 2000 the subregional average in North and Central Asia was higher than in Kyrgyzstan but reduced from 211 to 126 by 2016 whilst Kyrgyzstan’s energy intensity remained constant. This highlights that substantial reductions in resource intensities are possible.

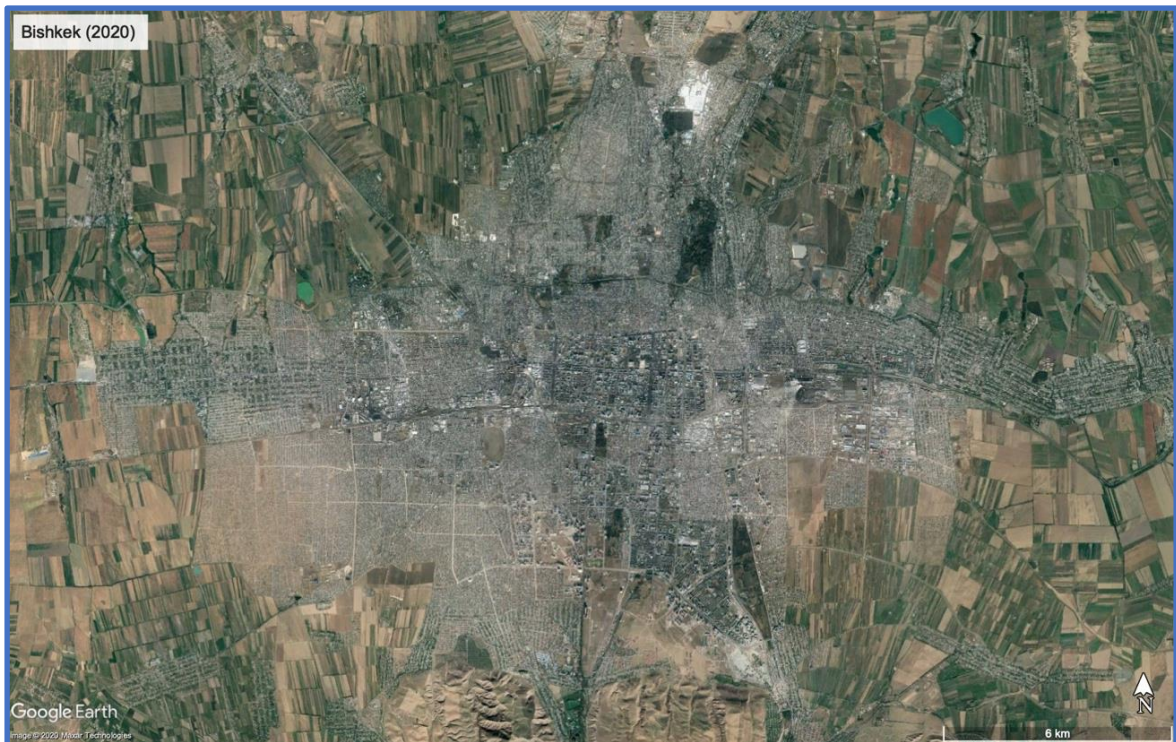
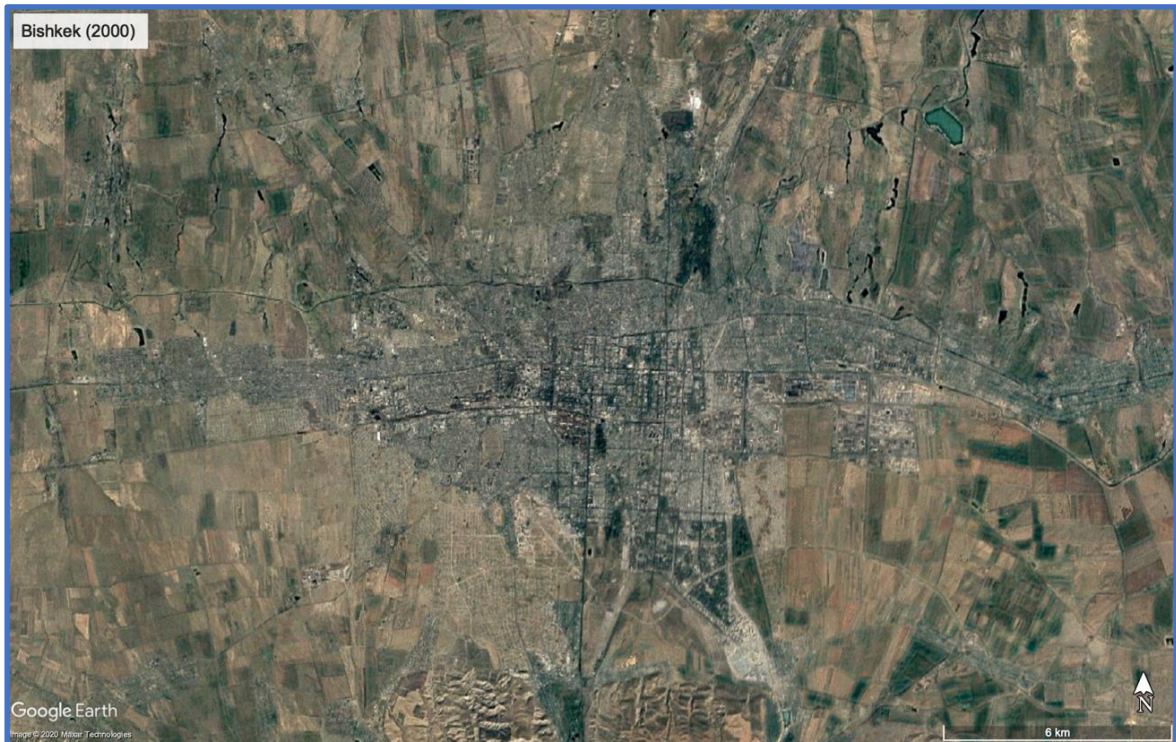
Water consumption



Source: ESCAP Statistical Online Database.

Data on water withdrawal and consumption in the region is less comprehensive, but as per the latest available data Kyrgyzstan uses 2.01 m³ to realize 1 unit of economic output. Kyrgyzstan’s water intensity exceeds the subregional and regional averages of 0.11 and 0.12 respectively by almost 20 times.

Land use



Source: Google Earth.

Satellite images taken in 2000 and 2020 reveal the substantial increase in Bishkek's urban land area over that period.