

Azov Sea Area regional recovery review

Historic trends and recovery from shocks 2010 – 2020

Background

This is the second of the five publications focused on recovery trends and resilience capacities in the Azov Sea area (ASA). The first factsheet in the series presented a situation overview and explored recent social, economic and environmental trends. In this document, the long-term development trends of the ASA are analysed retrospectively since the 2000s in the case of selected environmental trends and the past decade for social and economic trends. In this way, the factsheet seeks to highlight the potential impact of shocks that may have affected the area in 2014, 2018 and 2020 (see Map 1), and trends towards recovery.

The factsheet also comprises a thematic case study with a focus on Mariupol (currently, the second largest city of the ASA after Zaporizhzhia, which was impacted most directly by the conflict), which was undertaken to trace the effects of shocks on the city's resilience capacities.¹

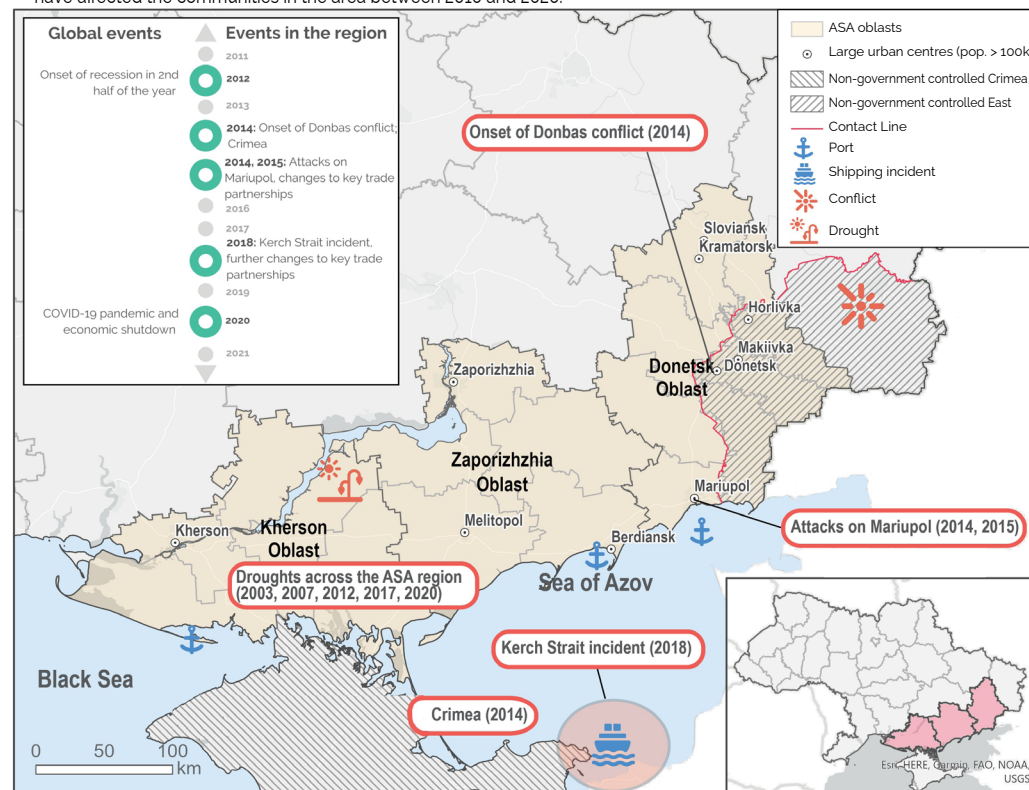
Methodological note

IMPACT and the Centre for Sustainable Peace and Democratic Development (SeeD) undertook the second phase of the 'ASA regional recovery review' through a joint literature and secondary data review (LSDR) between January and May 2021. The LSDR focused on assessing and compiling environmental, social, and economic (ESE) data sources, with a focus on trends in the past 10-20 years, and with attention to the response of the region to various shocks that have occurred in this time period.³

Key observations on the long-term trends

- The ASA is particularly vulnerable to **climate change, droughts, and land degradation**, which present **additional environmental stress** to the region. **Conflict** remains a serious **economic challenge**, affecting production and trade.
- Due to heavy industry, particularly in Donetsk oblast, **air pollution** remains a major burden for the ASA.
- Meanwhile, high dissolved oxygen concentrations in the Dnipro pose a threat to **aquatic resources and drinking water quality**.
- Cereal yields have continued to increase since 1991, but remain low by the European Union (EU) standards. Barriers include **land market restrictions, poor long-term investments**, and lack of modern machinery and techniques.
- **Restructuring** of the economic landscape in Donetsk oblast has been meagre and large enterprises continue to dominate over small and medium enterprises.
- **Export dependency of the ASA on Russia has declined** since 2014 and the share of other trade partners e.g. EU, Turkey, China, the United Kingdom (UK), and the United States (USA) has risen.
- Since 2008, the unemployment rate in the ASA has risen clearly above the national average and doubled in Donetsk oblast.
- Compared to the national average, ASA has a higher **population decline rate** as well as a lower **life expectancy**.

Map of the target area: Azov Sea Area (including Donetsk, Zaporizhzhia, and Kherson oblasts), with list of events that may have affected the communities in the area between 2010 and 2020.²



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The ASA Factsheets are produced by:



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THIS PROJECT IS FUNDED BY EUROPEAN UNION

Historic trends and recovery from shocks in the ASA

Climate change and drought

Climate change is likely to lead to more frequent droughts. In the past two decades, major droughts occurred in Ukraine and the ASA every 4 - 5 years on average. In 2017, drought affected Ukraine, while in 2018 it appears to have affected the ASA particularly.¹³

Years of drought

2003	2012	2017
2007	2018	2020

During this period, the rate of land degradation in ASA was higher than the national average between 2001 and 2018.

17% of land within Ukraine degraded between 2001 and 2018.¹¹

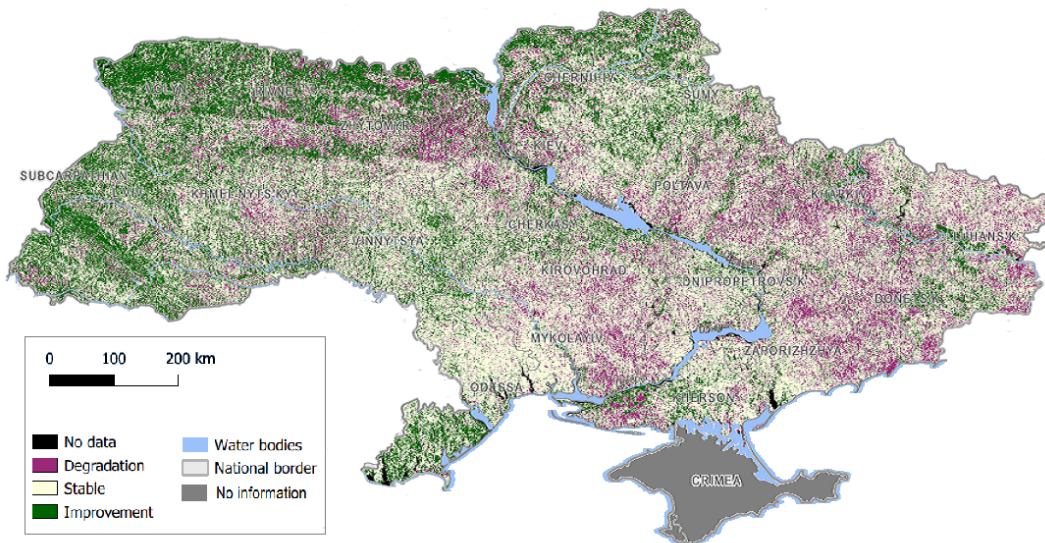
28%
Donetsk oblast

19%
Zaporizhzhia oblast

19%
Kherson oblast

The steppe zone, which includes parts of the ASA, suffers the greatest impacts from droughts.¹⁴ In the map below, it can be seen that the steppe area, including Kherson and Zaporizhzhia oblasts, was also most affected by decreased soil quality.

Land degradation in Ukraine between 2001 - 2018¹⁶



Change in climate

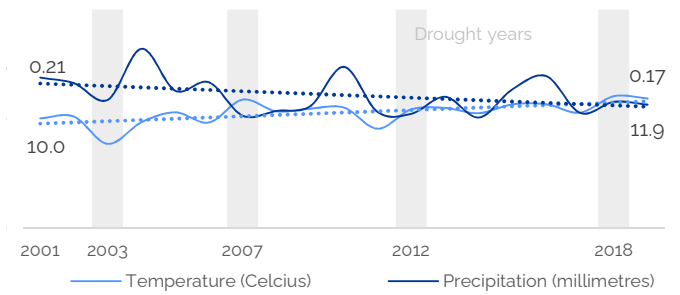
Between 2001 and 2018, precipitation has decreased and temperatures have increased in the ASA at a rate higher than the Ukrainian average.⁴

2.2°C increase in land surface temperature in Ukraine.⁹

2.5-3°C increase in the ASA during the same period.

25% reduction in precipitation in Ukraine in 2019.¹⁰

Average daily precipitation and temperature, 2000-2020: precipitation in millimetres and temperature in degrees celcius⁵



Change in soil moisture

Concurrently, soil moisture has been decreasing over past 20 years.⁸

Between 2001 and 2019 there was:

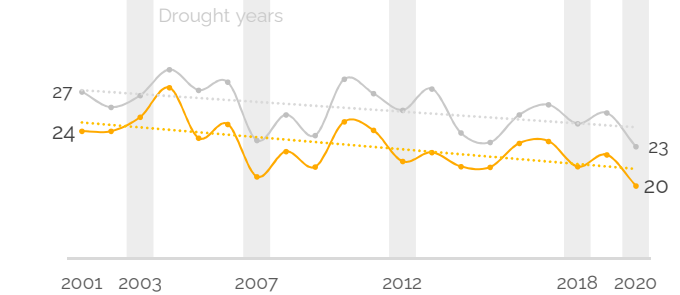
-0.5% annual average decrease in soil moisture in Ukraine.¹²

-0.6% average annual decrease in Donetsk oblast.

-0.6% average annual decrease in Zaporizhzhia oblast.

-0.5% average annual decrease in Kherson oblast.

Annual average soil moisture, 2000-2020: kilograms of moisture per square metre of soil⁷



Change in the condition of vegetation

Summer vegetation conditions, measured through the Vegetation Condition Index (VCI), declined in the ASA between 2001 and 2020.

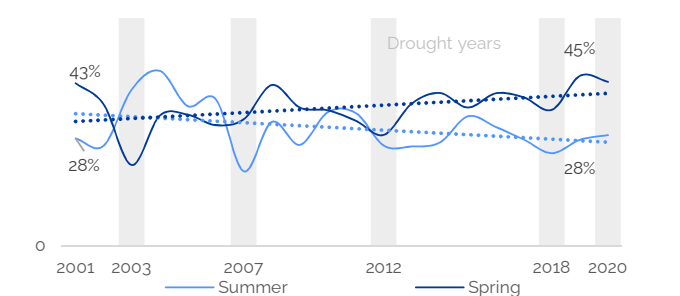
The 10-year summer average VCI was:

33% in the ASA (2001-2010).

29% in the ASA (2011-2020).¹⁵

Equalling a 4 percentage point reduction in the 10 year average between 2001-2010 and 2011-2020.

Change in level of vegetation productivity in the ASA, 2000-2020: % of maximum in previous 20 year (VCI)⁶



Historic trends and recovery from shocks in the ASA

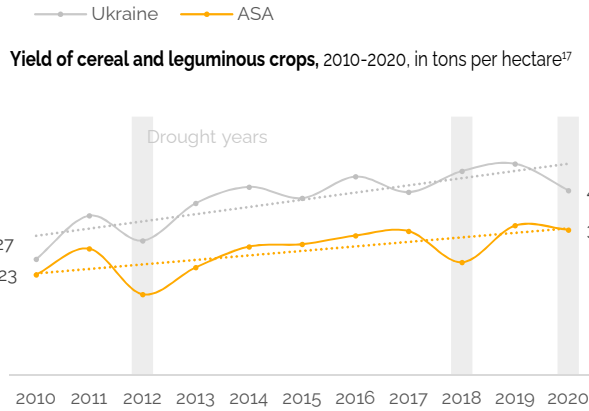
Agriculture

Fluctuations in yields

Despite drying conditions, between 2010 and 2020, cereal yields measured in tonnes per hectare increased in the ASA and Ukraine on average 6% per year.

Yield appeared to fluctuate more in the ASA during drought years. For example, in cereal yield there was a:

- 36% reduction in the ASA between 2011 and 2012 as compared to -16% in Ukraine.
- 12% reduction in the ASA between 2017 and 2018 as compared to a 12% increase in Ukraine.

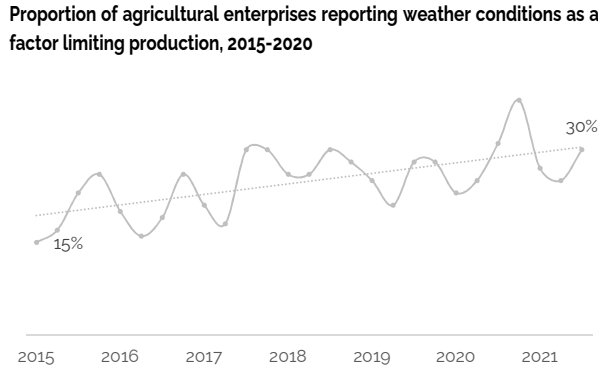


Perception of weather

Between 2015 and 2020, the proportion of agricultural enterprises, nationally, reporting weather conditions as a factor limiting production increased.

National average proportion of enterprises reporting weather as a factor limiting agriculture:

- 20% between 2015 and 2016.
- 27% between 2019 and 2020.



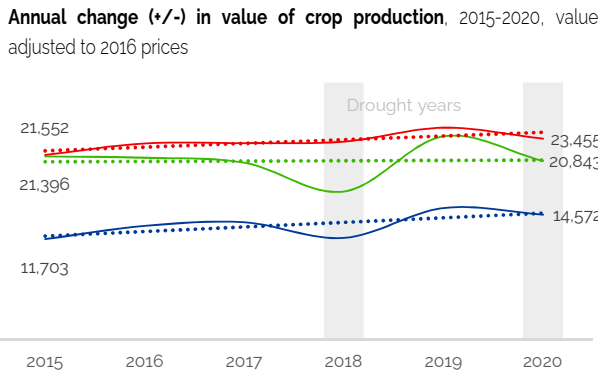
Change in value

On the whole, however, the volume (in UAH) of crops produced in the ASA has risen between 2015 and 2020.

Between 2015 and 2020, there was:

- 6% average annual increase in the value of crops in Donetsk oblast.
- 1% average annual increase in the value of crops in Zaporizhzhia oblast.
- 2% average annual increase in the value of crops in Kherson oblast.

Drought years appear to have impacted the value of crops in Zaporizhzhia more other ASA oblasts.

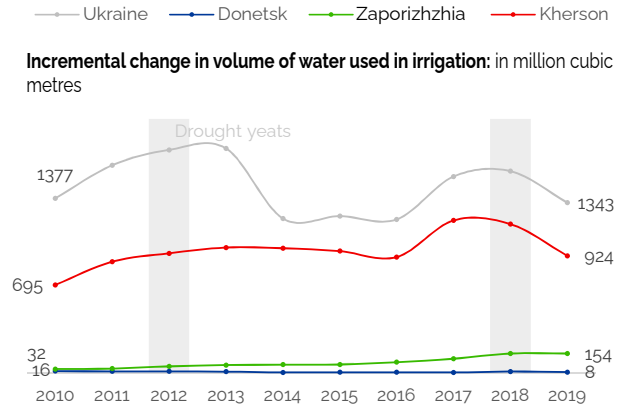


Change in irrigation

Nationally, slight increases in water use for irrigation were evident in 2011, 2012, 2017 and 2018, and in Kherson oblast in 2018.¹⁸

Over the period 2010-2020, all ASA oblasts increased their water usage for irrigation:

- 2% average annual growth in water for irrigation in Donetsk oblast.
- 20% average annual growth in water for irrigation in Zaporizhzhia oblast.
- 4% average annual growth in water for irrigation in Kherson oblast.

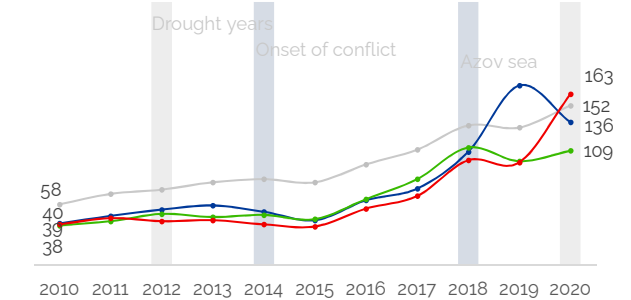


Change in use of fertilisers

While vegetation condition decreased in the ASA, the gap between national average use of inorganic fertilisers and use in the ASA closed. Between 2015 and 2020 the average annual growth in fertiliser use was:

- 14% in Ukraine.
- 30% in Donetsk oblast.
- 22% in Zaporizhzhia oblast.
- 37% in Kherson oblast.

Agricultural land treated with organic and inorganic fertilisers, 2010-2020, kilograms per hectare

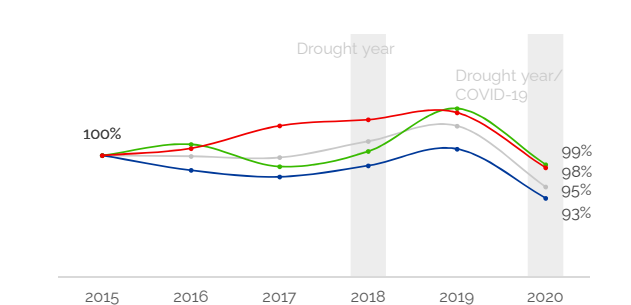


Change in agricultural workers

Agricultural employment declined in all ASA oblasts between 2019 and 2020 (both a drought year and COVID-19):

- 8% decrease in agricultural workers in Donetsk oblast.
- 9% decrease in agricultural workers in Zaporizhzhia oblast.
- 8% decrease in agricultural workers in Kherson oblast.
- 4% decrease in agricultural workers in Zaporizhzhia oblast coincided with the 2017/18 drought.

Cumulative change in number of full-time, registered workers in the agricultural sector, 2015-2020, as % of 2015

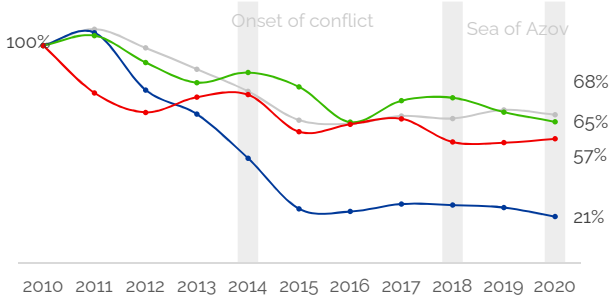


Historic trends and recovery from shocks in the ASA

Export and Trade Trends

Change in value of goods export

Change (+/-) in value of goods export, 2010-2020: Value of exports in USD (2010 prices) as % of 2010¹⁹

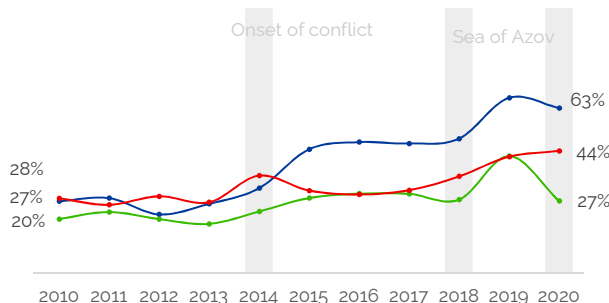


Since 2015, the three ASA oblasts jointly have been producing 15% of the goods exported from Ukraine. Pre-2014 Donetsk oblast produced 20-25% of the exported goods.

- 3% average annual increase in export value (2010 USD) nationally (2017-2019).
- 3% average annual decline in export value (2010 USD) from Donetsk (2017-2019).
- 3% average annual decline in export value (2010 USD) from Zaporizhzhia (2017-2019).
- 5% average annual decline in export value (2010 USD) from Kherson (2017-2019).

Change in trading partners

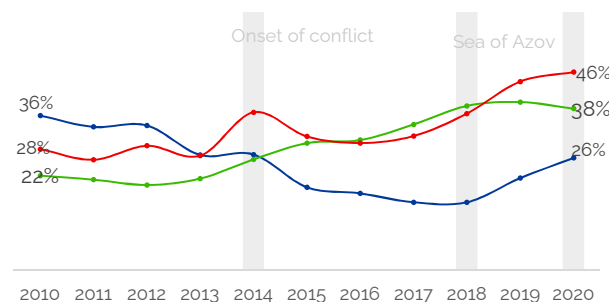
Proportion of goods exported to Europe, 2010-2020: Value of exports as % of total²⁰



Since 2015, all three ASA oblasts have increased the proportion of goods they export to Europe – this is particularly true of Donetsk.

- 20% average annual increase in the % of export sent to Europe from Donetsk oblast (2016-2019).
- 16% average annual increase in the % of export sent to Europe from Zaporizhzhia oblast (2016-2019).
- 13% average annual increase in the % of export sent to Europe from Kherson oblast (2016 - 2019).

Proportion of goods exported to Asia, 2010-2020: Value of exports as % of total²¹



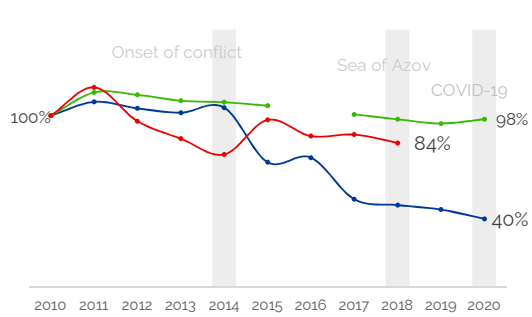
Since 2015, Zaporizhzhia and Kherson oblasts have increased the proportion of goods they export to Asia – this trend is less evident in the export trends for Donetsk.

- 5% average annual increase in the % of export sent to Europe from Donetsk oblast (2016-2019).
- 10% average annual increase in the % of export sent to Europe from Zaporizhzhia oblast (2016-2019).
- 13% average annual increase in the % of export sent to Europe from Kherson oblast (2016-2019).

Between 2015 and 2018 (when reporting was discontinued), the volume of goods exported to the countries from the Commonwealth of Independent States (CIS) declined in Donetsk oblast (2010: 26%, 2018: 17%) and Zaporizhzhia oblast (2010: 54%, 2018: 18%). No data for Kherson oblast.

Change in freighting network

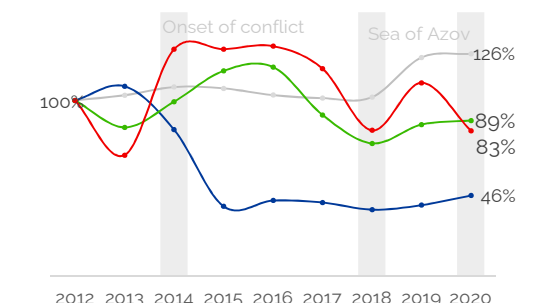
Change (+/-) in volume (tons) of goods freighted by train, 2010-2020: as % of 2010²²



Since 2010, the volume of goods freighted by train has declined significantly in Donetsk, and appears to have decline in Zaporizhzhia and Kherson.

- 9% average annual decrease in the volume (tons) of freight by moved train in Donetsk (2017 -2020).
- 1% average annual decrease in the volume (tons) of freight by moved train in Zaporizhzhia (2016-2019).
- n/a no information on the average annual volume (tons) of freight by moved train in Kherson (2016-2019).

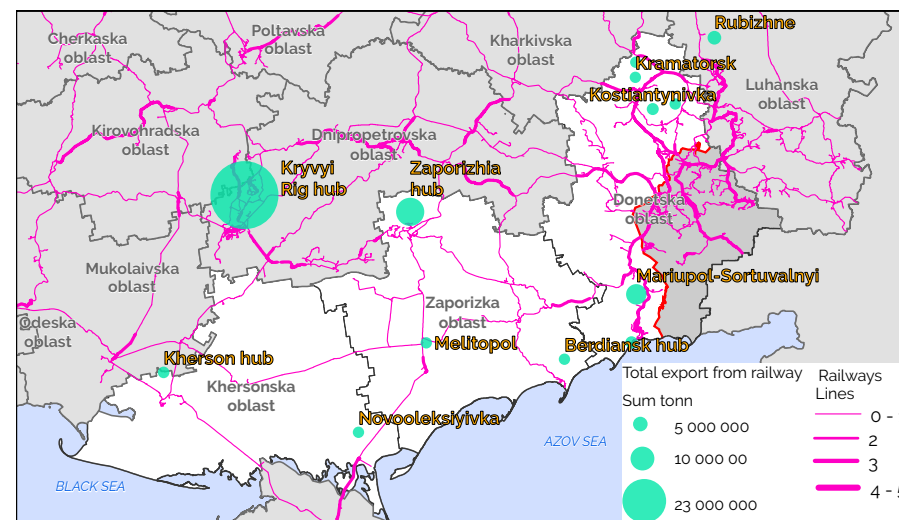
Change (+/-) in volume (tons) of exports processed by seaports, 2012-2020: as % of 2010 (Donetsk = Mariupol, Zaporizhzhia = Berdyansk, Kherson = Kherson)²³



Since 2010, the volume of export goods processed by the main ASA sea ports, including Mariupol, Berdiansk, and Kherson, has declined.

- 1% average annual increase in the volume (tons) of export cargo by processed by Mariupol Sea Port (2017 -2020).
- 8% average annual decrease in the volume (tons) of export cargo by processed by Berdyansk Sea Port (2017-2020).
- 12% average annual decrease in the volume (tons) of export cargo by processed by Kherson Sea Port (2017 - 2020).

Railway network and ports in the ASA, 2020: as can be seen in the map below the Mariupol railway station is the largest exporting rail node in Donetsk and the second in the ASA. Due to the interruption of the contact line to the network, however, the Mariupol line is not directly linked into the national system.



Historic trends and recovery from shocks in the ASA

Gross Regional Product (GRP) and Enterprises

Economies of the three ASA oblasts varied significantly by their size before 2014. At the beginning of the observatory period, Donetsk oblast contributed around 11-13% of the national gross domestic product (GDP) compared to 4% by Zaporizhzhia and 1.5% by Kherson oblast. Currently, the share of Donetsk oblast counts ca. half of the initial, whereas the proportion of Zaporizhzhia and Kherson oblasts in the national economy remained level.

A visible slump in Donetsk oblast can also be detected when viewing the number of resident enterprises in Donetsk region, which declined by more than half between 2013 and 2014.

Since 2015, GRP in Donetsk oblast has stabilised.

Between 2015 and 2019, the cumulative change in GRP in constant prices (2016 UAH) was:

- 0% in Donetsk oblast
- 3% in Zaporizhzhia oblast
- +7% in Kherson oblast

Between 2015 and 2019, the number of enterprises in Donetsk continued to decline, while the number of enterprises in Zaporizhzhia and Kherson increased.

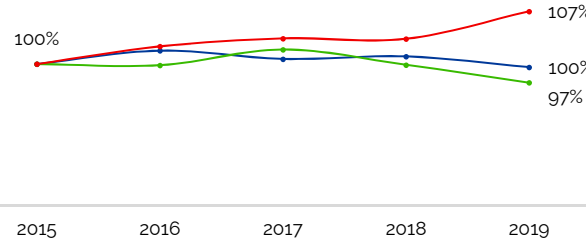
Investment appears to have grown from 2016 in Donetsk and Kherson oblasts. From 2017 onwards, investment in Zaporizhzhia oblast has declined.

Between 2017 and 2019, the cumulative change in investment per employee in actual prices (UAH) was:

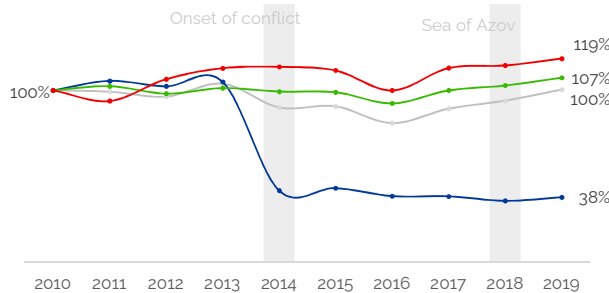
- +72% in Donetsk oblast
- 11% in Zaporizhzhia oblast
- +60% in Kherson oblast

— Ukraine — Donetsk — Zaporizhzhia — Kherson

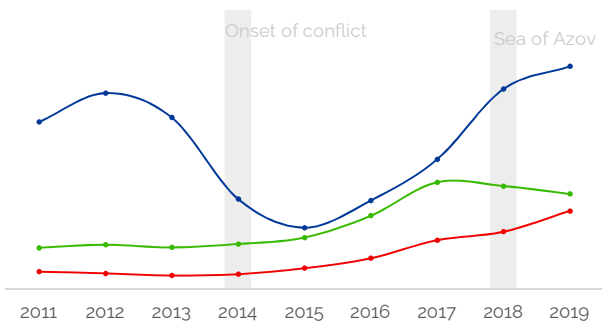
GRP, 2015-2019: annual change (+/-) in percentage points in 2016 UAH²⁹



Number of resident enterprises, 2010-2019, 2010 = 100%³⁰

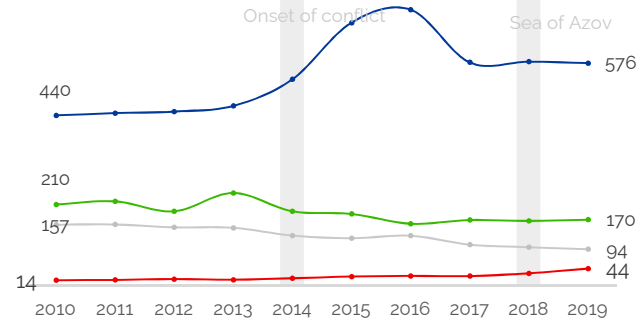


Capital investment per employed person aged 15 - 70 years, 2010-2019: value of capital investment in actual prices (UAH)³¹



Environment and industrial output

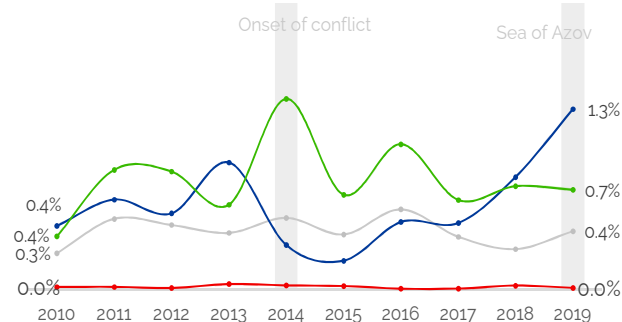
Air emissions from stationary sources, 2016-2020: in thousand tonnes per million USD of GRP (at 2010 prices)²⁶



Annual PM2.5 concentration, 1998-2016: in milligram per cubic meter²⁴



Capital investment in environmental protection, 2010-2020: in UAH²⁷



Air pollution is identified as one of Ukraine's key environmental challenges.²⁸ Stationary sources, such as factories, homes and farms, account for >60% of emissions, whilst non-stationary sources, mostly related to road transport, account for around 35%. Between 2015 and 2019, emissions from stationary sources decreased in Donetsk and Zaporizhzhia oblasts. However, these oblasts remained top 1st and 4th respectively for their share of stationary air pollution in 2020.

Non-stationary sources (transport) of pollutant emission gradually increased their output across all ASA oblasts.

Since 1998, annual mean particulate matter 2.5 (PM 2.5) concentration in the ASA has exceeded 10 µg/m³, considered unhealthy by the World Health Organization (WHO) air quality guidelines. Exposure to PM2.5 is linked to respiratory and cardiovascular disease, and increased risk of premature death.²⁵

Between 2017 and 2019, the rate of capital investments in environmental protection was higher in Donetsk and Zaporizhzhia oblast than the national average. Due to significant difference between economies of the ASA oblasts, capital investments in environmental protection vary from several million hryvnias (UAH) in Kherson oblast to a couple of billion hryvnias in Donetsk oblast.

Historic trends and recovery from shocks in the ASA

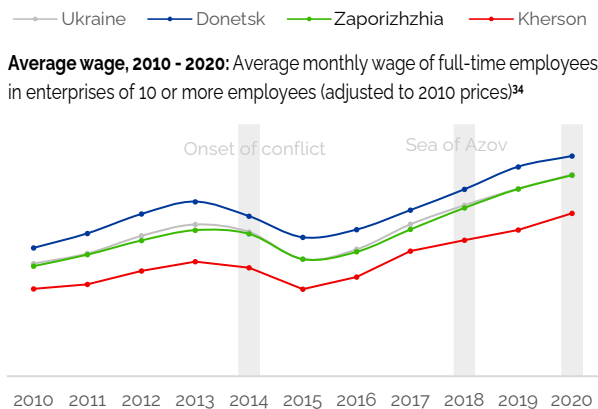
Labour Market

Change in wages

Between 2015 and 2020, average monthly wages have increased in all ASA oblasts. **Average annual increase in average monthly wage between 2015 and 2019:**

- 12% Ukraine
- 10% Donetsk oblast
- 11% Zaporizhzhia oblast
- 14% Kherson oblast

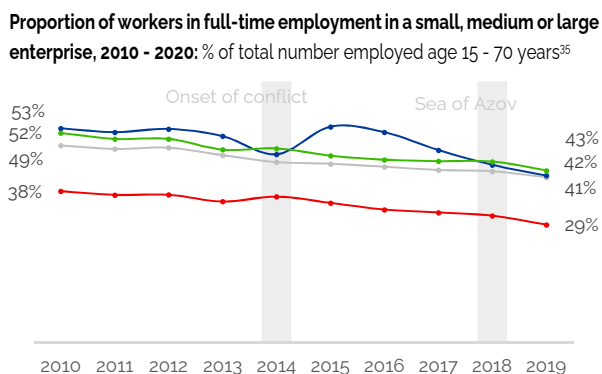
Note: between 2017 and 2020, average annual increase in Kherson oblast reduced to 9%.



Change in employment type

Between 2010 and 2019, the proportion of workers who were full-time pay-roll employees declined - particularly after 2014 in Donetsk. **Average annual decrease in percentage points (pp) in proportion of workers defined as full-time between 2015 and 2019:**

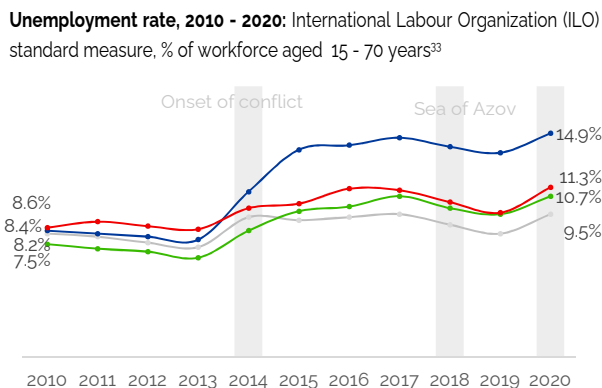
- 1pp Ukraine
- 3pp Donetsk oblast
- 1pp Zaporizhzhia oblast
- 1pp Kherson oblast



Change in unemployment

While wages remained higher in Donetsk between 2010 and 2020 than other ASA oblasts, the rate of unemployment was also higher.³⁷ **Increase in unemployment, in percentage points, between 2013 and 2015 was:**

- 1.8pp Ukraine
- 6.0pp Donetsk oblast
- 3.1pp Zaporizhzhia oblast
- 1.7pp Kherson oblast



Household economy

Change in average household income

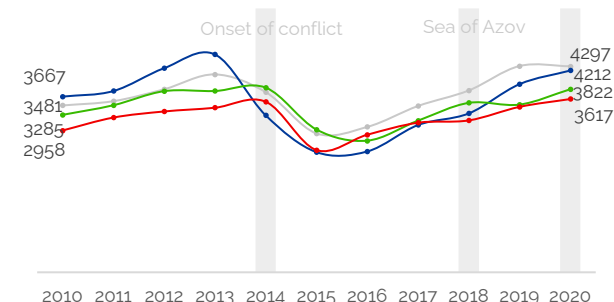
2015 household income as % of 2013 income:

- 70% Ukraine
- 55% Donetsk obl.
- 79% Zaporizhzhia obl.
- 74% Kherson obl.

Average annual increase in income, 2015 - 2020

- 8pp Ukraine
- 11pp Donetsk obl.
- 5pp Zaporizhzhia obl.
- 7pp Kherson obl.

Average monthly total income, 2010-2020 in 2010 prices (UAH)³²



Change in perception of household economic situation

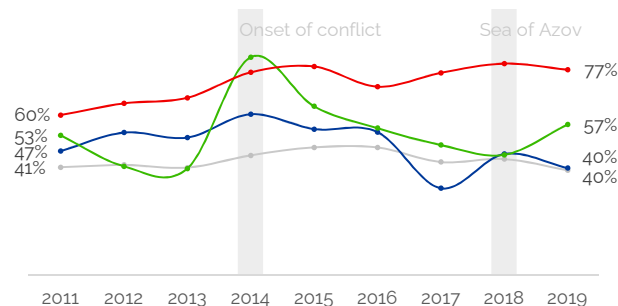
Following 2014, the proportion of households reporting that they could not always afford food or other necessary items declined in all ASA oblasts.

- 4pp average annual decrease in Donetsk oblast between 2015 and 2019.
- 5pp average annual decrease in Zaporizhzhia oblast between 2015 and 2019.

Average annual change was equal to 0 in Kherson oblast between 2015 and 2019.

11% increase in Zaporizhzhia oblast between 2018 and 2019, however.

Proportion of households reporting that they are not always able to afford food, or other essential non-food items, 2011-2019³⁶



Change in consumption

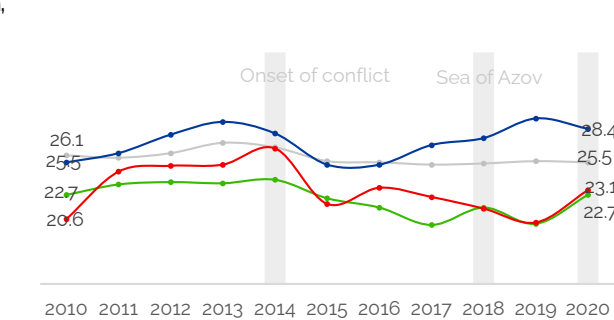
Consumption of meat, dairy or fish in 2015 as % of 2013:

- 94% Ukraine
- 87% Donetsk obl.
- 95% Zaporizhzhia obl.
- 87% Kherson obl.

Average annual change in consumption of meat, dairy or fish, 2016 - 2020:

- 0pp Ukraine
- 4pp Donetsk obl.
- 2pp Zaporizhzhia obl.
- 1pp Kherson obl.

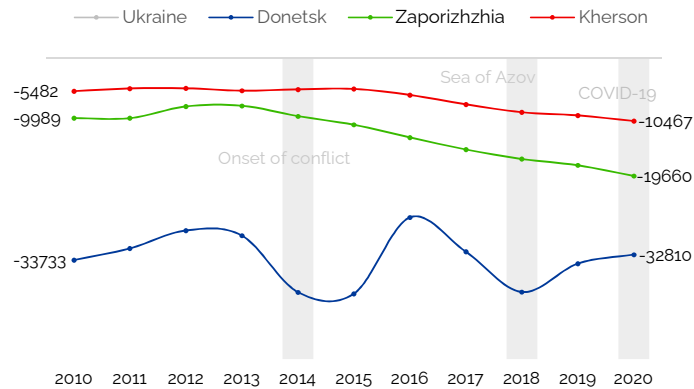
Average consumption of meat, dairy or fish, kilograms per month per person, 2010-2019³⁸



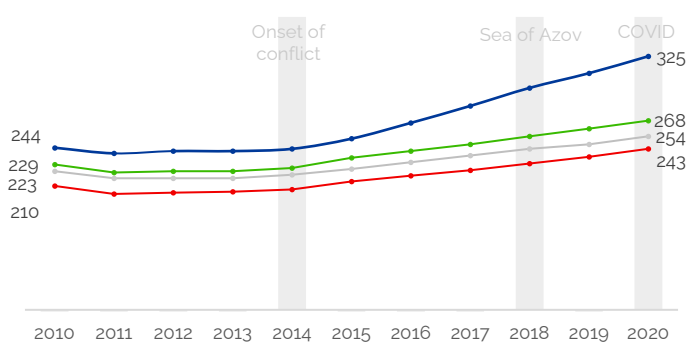
Historic trends and recovery from shocks in the ASA

Demographics

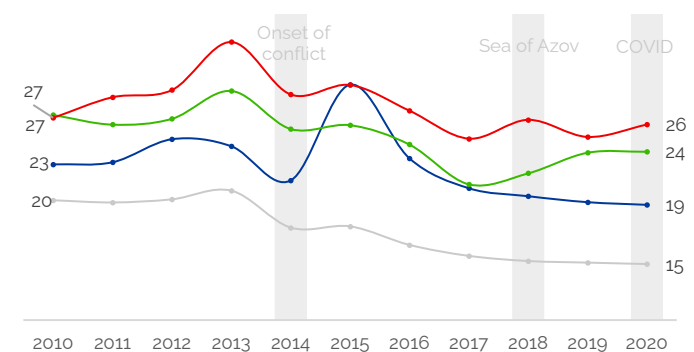
Decline in population, 2010-2020: Number of people by which the population declined through natural causes or migration (oblasts)⁴²



Dependency ratio of population aged 65+, 2010-2020: Number of persons aged 65+ to 1000 persons aged 15 - 64 y. o.⁴³



Suicide rate, 2015 - 2019: Number of suicides per 100,000 inhabitants⁴¹

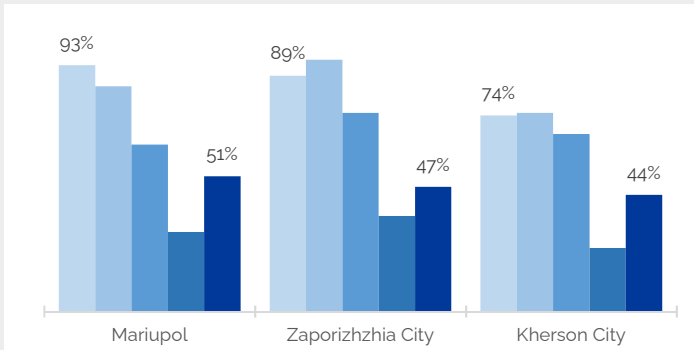


Historical demographic statistics show that in the ASA oblasts the population was more rapidly decreasing than the national average in Ukraine between 2010 and 2020. Aging of population is more dynamic in Donetsk oblast. Across the ASA and high reported desire to emigrate. In all three ASA oblasts the suicide rate is higher than the national average.

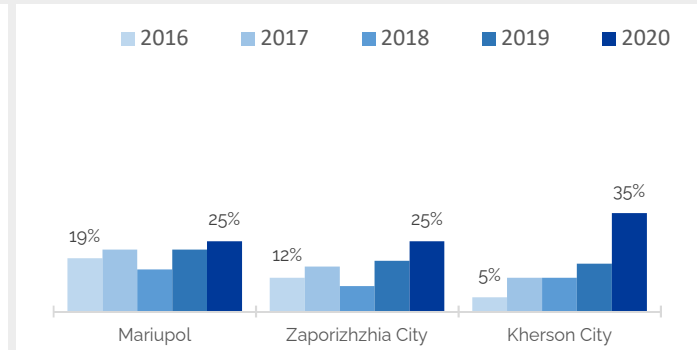
ASA Social Trends through the National Municipal Survey (2016-2020)³⁹:

- Since 2016, the proportion of households ...
- ... reporting that their economic situation had worsened in the 12 months prior to data collection decreased until 2019, but increased in all three cities in 2020;
- ... reporting needing to save money for food increased in 2020, particularly in Kherson city.
- ... reporting perceiving the environment in their city to be "bad" or "terrible" increased, particularly in Mariupol and Zaporizhzhia city.
- ... reporting perceiving that "things are going in the wrong direction" increased in Kherson city.
- ... reporting intention to migrate increased, particularly in Mariupol (from 15% in 2016 to 32% in 2020) and in Kherson city (from 26% in 2016 to 39% in 2020); while in Zaporizhzhia city intention to migrate remains high and stable (33% in 2016 and 34% in 2020)⁴⁰.

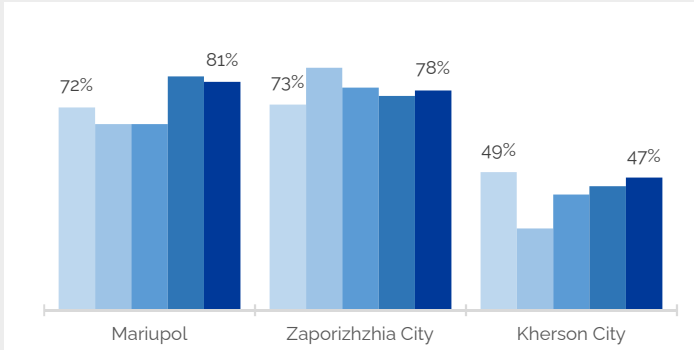
% of respondents perceiving a worsening economic situation of household in previous 12 months



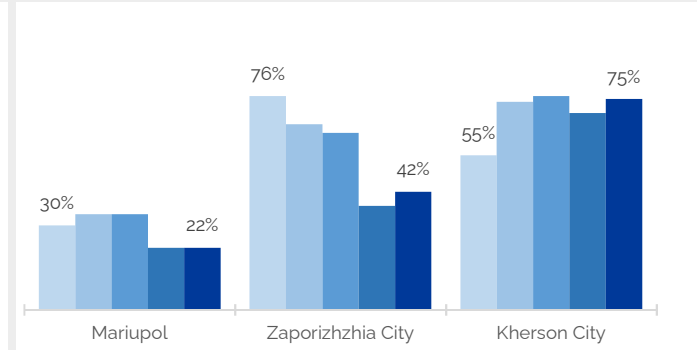
% of respondents reporting a need to save money for food



% of respondents reporting perceiving the environment in their city to be "bad" or "terrible"



% of respondents reporting perceiving that "things in the city are going in the wrong direction"



Historic trends and recovery from shocks in ASA: Mariupol case study

Main trends in Mariupol between 2018 and 2019, based on SCORE

Key facts about Mariupol

- Mariupol is a highly industrialised city on the Sea of Azov coast, 20km (12 miles) away from the Line of Contact (LoC) in the east.
- By population, prior to 2014, Mariupol was the second largest city in Donetsk oblast after Donetsk (now in NGCA) and the 10th largest city of Ukraine (with approximately 436,569 of inhabitants).
- Mariupol currently experiences natural population decline but has a positive net migration rate.⁴⁴
- Following Kyiv, Mariupol has the second largest number of registered internally displaced persons (IDPs).⁴⁵
- Heavy industrial manufacturing employment remains predominant; according to Mariupol City Council, 32% of all employees work in the iron and steel industry.⁴⁶
- In addition, the city is home to Azovstal and Ilyich Iron and Steel Works (Metinvest Holding), the second and fourth largest Ukrainian exporters in 2020 (with an increasing share of exports to the EU).⁴⁷
- In 2019, Mariupol had the fifth largest port in Ukraine by volume capacity. Prior to the conflict (2013) the port was operating at 83% of its capacity.⁴⁸
- Nearly a quarter of all employees (26%) works in small or medium sized enterprises.⁴⁹

Timeline of the Crisis⁵¹

April-May 2014 – Outbreak of conflict in the city.

June 2014 – Ukrainian Army retains control of the city.

August 2014 – Conflict escalation in Novoazovsk (now NGCA), near Mariupol.

24 January 2015 – 30 people lose their lives and 103 are injured following rocket attacks in the Vostochny district of Mariupol.⁵²

15 May 2018 – According to reports, the opening of the Kerch (Crimean) bridge between the Russian mainland and the Crimean Peninsular, could add further to the natural restrictions on the types of merchant ships entering the Sea of Azov.^{53 54}

25 November 2018 – Ukrainian ships and crews are kept back on their way from the Black Sea to the Sea of Azov (the Kerch Strait incident).⁵⁵

April 2021 – According to reports, the Kerch Strait is closed off to warships and vessels "of other nations" until end of October 2021.⁵⁶

Recent events related to free navigation of the Kerch Strait might create challenges for economic recovery of the city.⁵⁷

Main findings from SCORE 2018/19:

- As compared to the national and ASA scores, Mariupol had scores of significantly lower value in perceived environmental and political security;
- Comparing the Mariupol scores of 2019 with the ones from the previous year reveals a significant drop in perceived personal security (however, the higher the age and education, the lower the drop);
- Men were more likely to feel a decrease in perceived economic security from 2018 to 2019 (although overall city score remained unchanged).

PERCEIVED SECURITIES ⁵⁸	Mariupol 2018	National 2018	Mariupol 2019	ASA 2018/19
Health security (level of access to and affordability of basic & specialized medical services)	4.8	4.6	5.2	4.9
Environmental security (degree to which one is satisfied with air quality & overall environmental health in their locality)	n/a	4.2	2.1	3.7
Economic security (degree to which one has stable income, capacity to provide for nutritional needs, and can rely on social welfare payments if needed)	5.0	5.3	5.0	5.0
Political security (the degree to which one feels comfortable expressing their political views both collectively and individually without fearing consequences)	4.5	6.7	4.8	5.6
Personal security (the degree to which one feels safe from violence in daily life and that the police can protect them)	4.6	4.2	3.9	4.2

Note: scale from 0 to 10 where 0 = the phenomenon is not at all present and 10 = the phenomenon is highly present. Difference between scores more than 0.5 is considered significant, smaller difference indicates that indicator is rather stable.

Note: the SCORE methodology in Ukraine approaches the overall human security concept by breaking it down to its most pertinent dimensions and developing indicators to measure each dimension, as presented in the graph above. This section captures people's perceived levels (i.e. subjective understanding) of human security in everyday life and how different aspects of human security are experienced in Mariupol, the ASA, and on the national level by year.

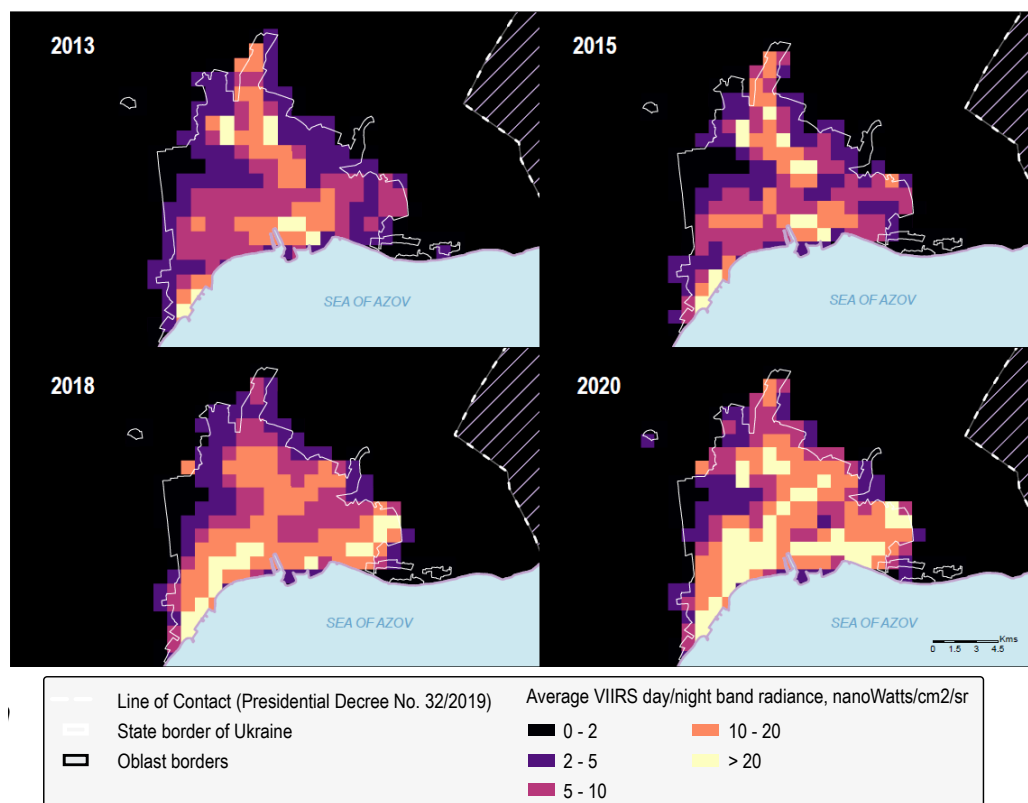
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Night-time luminosity

Night-time luminosity, as a measure of surface radiance captured by the [Visible Infrared Imaging Radiometer Suite \(VIIRS\)](#), is frequently used, inter alia, as a [proxy of changing economic situation in settlements and countries](#). For the east Ukraine region, several studies of luminosity as a proxy for economic recovery were carried out in [2016](#) and [2018-2019](#). These studies focused on the Non-Government Controlled Areas (NGCA), specifically on the Donetsk and Luhansk cities, finding a significant decline of nighttime luminosity since the armed conflict started in 2014. To date, however, night-time luminosity has not been measured in Mariupol, nor in other cities in the GCA.

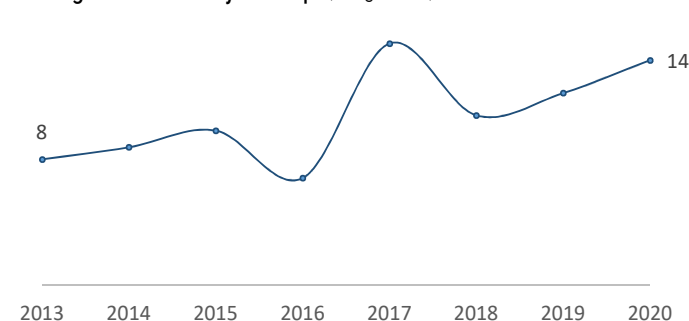
The VIIRS values extracted for Mariupol city (2013-2020) are given in the table below and show a steady increase in night-time luminosity since 2013.⁵⁹ As noted in previous studies⁶⁰, household light emission does not significantly contribute to the total night-time surface radiance, in comparison to industrial plants and port infrastructure. Thus the upwards trend in night-time luminosity for Mariupol city may be a sign of expanding economic activity and recovery in recent years.

Night-time Luminosity in Mariupol City, in spring 2013-2020, Average VIIRS day/night band radiance nanoWatts/cm2/sr



Note: as corroborating evidence of economic instability (following the steep reduction in luminosity between 2017 and 2018), 47% of SCORE respondents in 2018 did not feel that they had a stable source of income, and 41% reported not being able to meet nutritional needs. In 2019, 43% of respondents expressed fear that they will become/ remain unemployed in the next twelve months (see p.10).⁶¹

Mean night-time luminosity in Mariupol, 2013 - 2020, in nanowatts/cm2/sr



Main findings from the Expert Scoring Panel

During the first phase of the Expert Scoring Panel (ESP) between March and April 2021, SeeD conducted a series of interviews with local experts who represented private, public, and civil sectors in Mariupol.⁶²

The following pressing issues related to local development were highlighted during the interviews:

- Grey zone⁶³ and front-line proximity create instabilities and increase anxieties.
- Geopolitical security issues hamper complex strategic development and large investments.
- Mono-specialisation of the city (with a focus on heavy industry) limits modernisation perspectives.
- Local potential of SME is underused, particularly in agriculture, fishing, services (including tourism) and food production.
- High monopolisation of local affairs (including economy, administration, media, etc.) blocks competition.
- Lack of proper ecological inspection and control in the coastal area (no [State Inspection for the Protection of the Sea of Azov in Mariupol](#)) deteriorates environmental perspectives of the area.
- Further development of air, car, and railway transport infrastructure is urgently needed to develop economic ties, boost tourism, and connect Mariupol to the rest of Ukraine and the world.
- Low civic engagement, as well as low trust in authorities, requires attention.
- Growing out-migration among young people calls for a need to develop targeted support programmes to boost human capital and increase local resilience capacities.

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In Mariupol, between 2018 and 2019 observed psychosocial traits based on SCORE (out of 10) changed in the following way:

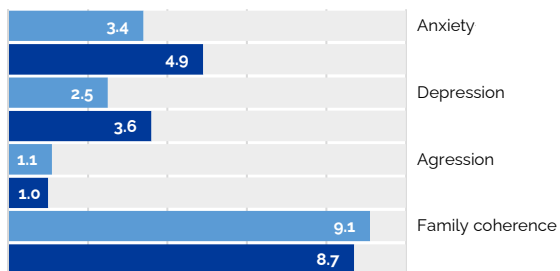
- Anxiety increased significantly from 3.4 to 4.9 (see explanation of significance in the SCORE framework on p.8).
- Depression increased significantly from 2.5 to 3.6.
- Family coherence slightly declined from 9.1 to 8.7.

Trust in authorities is traditionally low in Ukraine⁶⁴ and the ASA. During this same period, trust in institutions did not significantly vary, with the exception of trust in the Ukrainian Army (increase from 4.0 to 5.0 out of 10, where 0 = everyone feels complete distrust and 10 = everyone feel complete trust). SCORE findings suggest public trust in courts was lowest.

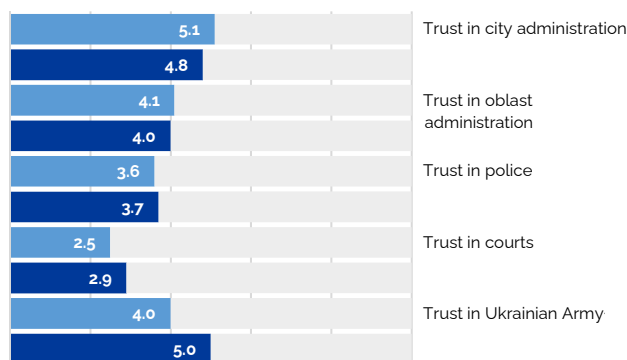
Security issues and, notably, the Kerch Strait incident of 2018, may have influenced the change in the political attitudes: support for non-aligned status dropped, and pro-EU and pro-NATO aspirations slightly increased (although Mariupol scores remain lower than the national average).

Still, despite a recent significant decline, non-alignment (meaning the degree to which one thinks that Ukraine should be strictly nonaligned and not join either pro-Western or pro-Russian entities) prevails in Mariupol.

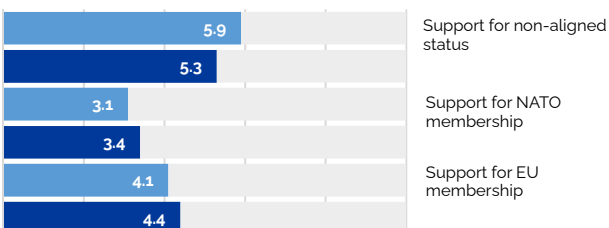
Observed psychosocial traits, 2018 v 2019 (score out of 10 where 0 = not at all and 10 = completely)



Trust trends, 2018 v 2019 (score out of 10 where 0 = not at all and 10 = completely)



Political orientation trends, 2018 v 2019 (score out of 10 where 0 = not at all and 10 = completely)



Satisfaction with service delivery seems to have increased across service types in Mariupol between 2018 and 2019:

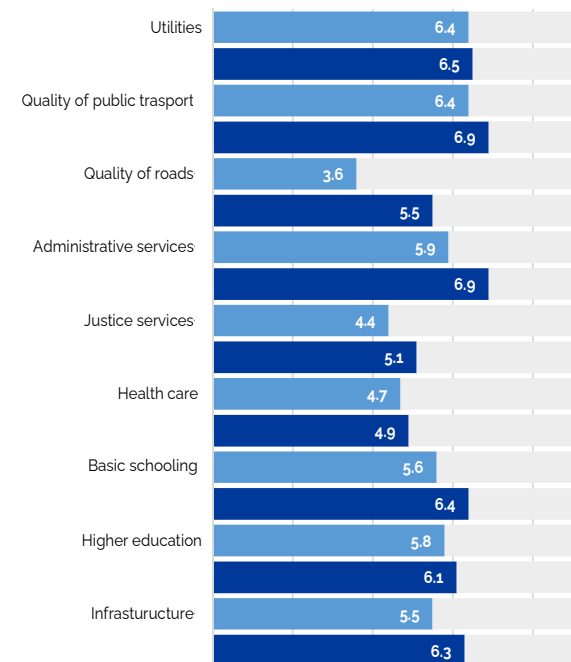
- perceived quality of public transport increased from 6.4 to 6.9 out of 10.
- perceived quality of roads increased significantly from 3.6 to 5.5 out of 10.
- satisfaction with administrative services increased significantly from 5.9 to 6.9 out of 10.
- satisfaction with justice services increased from 4.4 to 5.1 out of 10.
- satisfaction with basic education services increased from 5.6 to 6.4 out of 10.
- satisfaction with infrastructure increased significantly from 5.5 to 6.3 out of 10.

Satisfaction with the quality of roads, justice services and health care still remained the lowest.

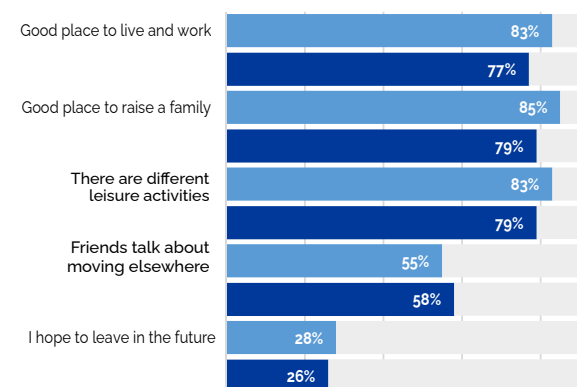
Locality satisfaction appears to have decreased slightly between 2018 and 2019, and migration tendency remained high⁶⁵. Growing perceptions of economic, environmental and political insecurity may suggest that the public have concerns about their long-term prospects while living in the locality. In 2019, 86% of the surveyed Mariupol residents were not satisfied with the quality of air they breathe; 36% did not have sufficient access to basic and emergency medical services; 43% expressed fear that they will become/ remain unemployed in the next twelve months; 45% did not feel that they have a stable source of income; 53% did not feel that they can freely express their political views.

Despite all the challenges, a growing share of respondents believed in the importance of voting (53% in 2018 and 76% in 2019 disagreed with the statement that there is no point in voting in elections), and civic optimism seemingly increased (23% in 2018 and 38% in 2019 believed that the next generation will be better off). Up to 20% of the Mariupol respondents were thinking about starting their own business.

Satisfaction with provision of services in Mariupol, 2018 v 2019 (score out of 10 where 0 = not at all and 10 = completely)



Locality satisfaction and migration tendencies in Mariupol, 2018 v 2019 (score out of 10 where 0 = not at all and 10 = completely)



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Endnotes

- 1 [After Seven Years Of Conflict, Ukraine's Frontline City Of Mariupol Is 'Just Tired' Of The Fighting](#), RFE Report, 23 May 2021.
- 2 UN, [Territorial Integrity of Ukraine : resolution / adopted by the General Assembly](#), 2014. NASA/GSFC/HSL, [GLDAS Noah Land Surface Model L4 monthly 0.25 x 0.25 degree V2.1](#), 2020. AOA, [An Anatomy of a Grad Attack: Case Study – Mariupol](#), 2021.
- 3 Sources the IMPACT and SeeD consulted included the following:
Government sources: State Statistics Services of Ukraine (SSSU), Donetsk Obl. Statistics Service; Kherson Obl. Statistics Service; Zaporizhzhia Obl. Statistics Service; Ministry of Social Policy; Ministry of Territories and Communities Development (Minregion), State Agency of Water Resources of Ukraine; Public Health Centre; Oblast Environmental Passports.
UN and International Financial Institutions (IFIs) publications: World Bank Database.
Academic sources: Human Development Index from 2004-2014 by the Ptoukha Institute for Demography and Social Studies, National Academy of Sciences of Ukraine.
Surveys: SCORE 2018/2019 combined from the Social Cohesion and Reconciliation (SCORE) for Eastern Ukraine 2018 (funded by UNDP, UNICEF and IOM), SCORE Ukraine 2018 (funded by the USAID), and SCORE for Eastern Ukraine 2019 (funded by the USAID and UN RPP); ASA Expert Scoring Panel 2021 (funded by the EU).
SCORE is an indicator used to assess social phenomenon on a 0-10 scale, where 0 is absence of the phenomenon and 10 its maximum presence. Difference between scores of greater than 0.5 is considered significant.
Ukrainian Municipal Surveys data from 2016-2020 by the International Republican Institute's (IRI), Centre for Insights in Survey Research.
Environmental data portals: environmental data has been manipulated in Google Earth Engine, Giovanni and ArcMap, and sourced from providers such as NASA, ESA and Trends Earth.
NOTE: Endnote references throughout the document are duplicated to reflect the connection between the data provided in charts and associated text.
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- 15 Based on data in the SSSU, [Environment of Ukraine](#), 2019.
- 16 Semenova I., [Sinoptic and climatic conditions of drought formation in Ukraine](#), 2017.
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- 18 Based on data in the SSSU, [Environment of Ukraine](#), 2019
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- 21 Ibid.
- 22 DonSSSU, [Volume of transported cargoes by types of transport \(1995-2020\)](#), 2021. ZapSSSU, [Volume of transported cargoes by types of transport \(1995-2020\)](#), 2021. KheSSSU, [Volume of transported cargoes by types of transport \(1995-2020\)](#), 2021
- 23 Ukrainian Seaport Authority, [Performance indicators 2012 - 2020](#), 2021.
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- 29 SSSU, [Gross regional product](#), 2021. Adjusted to 2016 prices.
- 30 SSSU, [Number of enterprises by region](#), 2021
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- 32 SSSU, [Household income and expenditure in regions of Ukraine](#), 2021.
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- 35 DonSSSU, [Key labour market indicators 2000 - 2019](#), 2021. ZapSSSU, [Key labour market indicators 2000 - 2019](#), 2021. KheSSSU, [Key labour market indicators 2000 - 2019](#), 2021. Calculated based on the number of full-time workers of enterprises and total number of people employed aged 15 - 70 years.
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- 39 Rating Group, [National Municipal Survey](#), 2016. Rating Group, [National Municipal Survey](#), 2019. IRI, [National Municipal Survey](#), 2020.
- 40 Ibid.
- 41 Based on data of the State Statistics Service of Ukraine (SSSU), [Average annual population](#), 2021.
- 42 Based on data of the State Statistics Service of Ukraine (SSSU), [Average annual population](#), 2021.
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 - 45 Nearly 100.000 of IDPs are currently registered in Mariupol, and 170.000 are registered in Kyiv city.
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 - 53 Construction of the Kerch (Crimean) bridge started in 2015. The highway was opened in May 2018, while the rail line was completed in 2019 allowing the railway traffic between the illegally-annexed Crimean Peninsula and Russia. See [Statement by the Spokesperson on the opening of railway section of the Kerch Bridge](#). Delegation of the European Union to Ukraine, 23 December 2019.
 - 54 General Assembly Adopts Resolution Calling upon States Not to Recognize Changes in Status of Crimea Region. [United Nations Assembly Plenary Session, 27 March 2014](#).
 - 55 [Case concerning the detention of three Ukrainian naval vessels \(Ukraine v. Russian Federation\)](#). International Tribunal for the Law of the Sea, 10 May 2019.
 - 56 [Illegal Restriction on the Freedom of Navigation Imposed by the Russian Federation in the Black Sea](#). US Mission to the OSCE. Statement delivered by Chargé d'Affaires Courtney Austrian to the Permanent Council, Vienna, April 16, 2021
 - 57 Since the construction of the Kerch bridge, 144 vessels (in particular large Panamax type vessels) did not reach the Mariupol port which now practically lost its regular pig iron cargo traffic to USA, metals to OAU, Saudi Arabia, Thailand and Taiwan. See Report of the [Donbas Economic Transformation Strategy Support](#) Project funded with UK Aid from the UK Government, February 2021, pp.73, 74.
 - 58 Data used in this table is combined from different SCORE surveys 2018/2019. For more details on the SCORE sample see: <https://www.scoreforpeace.org/>. Mariupol sample size was 322 respondents in 2018 and 823 respondents in 2019.
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 - 60 Lyalko V., Application of NPP/VIIRS night satellite images for the assessment of the economic crisis in the East of Ukraine (Donetsk and Luhansk regions), 2014.
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-