

# Analyzing Kherson: Navigating Through the Consequences of War

Mariia Hirniak<sup>1</sup>

<sup>1</sup>International Relations, International University of Japan, Minamiuonuma, Niigata, Japan-949-7248

**Abstract**— This paper provides a comprehensive analysis of the Kherson region in southern Ukraine, which has suffered severe consequences due to the Russian invasion that began on February 24, 2022. Particular attention is paid to the destruction of the Kakhovka dam in June 2023, which caused catastrophic flooding and long-term environmental harm. The study highlights the effects on agriculture, soil quality, water resources, and human livelihoods. Through interviews with two local experts—a businessman and an assistant professor at the Kherson State Agrarian and Economic University—this paper underscores the challenges facing recovery efforts and the critical need for ongoing support. The analysis also incorporates perspectives on the implications for 2025, given the persistent occupation in certain regions and the profound ecological disruptions caused by the dam's destruction.

**Keywords**— Kherson region, Russian invasion, Dam destruction, Agriculture, Soil degradation, Water resources, Humanitarian impact

## I. INTRODUCTION

The Kherson region of Ukraine has been a focal point of conflict since the large-scale invasion by Russian forces on February 24, 2022. Located just north of Crimea, Kherson's administrative center lies on the right bank of the Dnipro River, which bisects the oblast. Prior to the invasion, the region was renowned for its agricultural productivity, hosting around 2 million hectares of arable land. However, since the occupation, Kherson has experienced extensive destruction, culminating in the intentional demolition of the Kakhovka dam on June 6, 2023. The dam's destruction significantly worsened the region's humanitarian and ecological crisis, leading to catastrophic flooding, displaced populations, and large-scale environmental damage.

This paper presents an overview of the historical context of Kherson's occupation, draws on insights from local stakeholders, and discusses the far-reaching environmental, economic, and social impacts of war. Additionally, it evaluates the region's present condition and contemplates the challenges and potential pathways toward recovery for the year 2025 and beyond.

## II. OVERVIEW ON THE HISTORY OF THE OCCUPATION OF KHERSON

On February 24, 2022, Russian forces launched a significant offensive on the Kherson region, aiming to secure strategic points such as the Antoniv Bridge and the Kakhovka dam. By August 2022, Ukrainian Defense Forces shifted tactics, liberating the entire right-bank part of the Kherson region during the Kherson offensive operation (August 29–November 12, 2022). This operation successfully ousted

Russian troops from the only bridgehead on the right bank of the Dnipro River. Nevertheless, the region remains susceptible to artillery shelling and requires ongoing assistance to restore normalcy.

## III. ANALYTICS OF WASTED NATURAL RESOURCES

### A. Agricultural Lands

Kherson Oblast once boasted the largest volume of arable land in Ukraine, surpassing 2 million hectares. Presently, significant portions are either under Russian occupation or rendered unusable due to land mines and flooding following the dam's destruction. According to local businessman Yuriy Marynychak, "if you compare the damage caused... it is probably 5% plus as opposed to 100% minus," underscoring how profoundly the situation has deteriorated.

### B. Soils

The lower reaches of the Dnipro have experienced soil degradation, waterlogging, and salinization. Ivan Mrynskyi, an assistant professor at Kherson State Agrarian and Economic University, highlighted rising salt concentrations in the soil due to unreliable water sources: "The only possibility is to water from wells. But this is ground water, the reserves of which are also not unlimited."

### C. Gardening

Nova Kakhovka, once a thriving center for orchards and vineyards, suffered devastating losses from the flooding and subsequent destruction of irrigation systems. Without adequate irrigation, crops such as berries, vegetables, and grapes face an uncertain future.

### D. Water Resources

The demolition of the Kakhovka dam caused extensive ecosystem damage, depleting water reserves and altering aquatic habitats. The rapid flow changes also affected fish spawning and diminished water quality in the northwestern Black Sea. Local experts note that the fish population was severely reduced due to both the altered current and contamination.

Losses In Southern Ukraine Region	Amount of Damage	Amount of Money Loss
Agriculture	520,000 hectares of fields, 100,000 tons of crops	\$35.3 and counting
Soils	about 30% of humus	\$15 billion
Water resources	staggering 70% of the water depleted	\$7.5 billion

#### IV. ANALYTICS OF HUMAN RESOURCES

Two-thirds of Kherson's agricultural producers have fled the region; of those who remained, many have been forced to leave following the dam's destruction. Massive landmines—62 discovered to date after the flooding—also hinder safe agricultural work. The bombing of grain storage facilities further aggravates food insecurity.

According to Vladyslav Dudar of the Main Directorate of Mine Action (Ministry of Defense of Ukraine), the dam explosion caused:

- At least 32 confirmed deaths and 39 people missing
- Flooding of 612 km<sup>2</sup>, with over 1,300 houses inundated
- Over 3,600 evacuees, including 474 children and 80 individuals with limited mobility

Furthermore, approximately 14 cubic kilometers of water drained from the Kakhovka reservoir, drastically altering the hydrological balance and leaving “knee-deep water in the city center and frogs croaking,” as local residents reported.

#### V. ANALYTICS OF WASTED NATURAL RESOURCES

By 2025, the Kherson region remains under intense pressure as military threats continue, farmland lies devastated, and local ecosystems suffer severe disruptions. Large areas once dedicated to agriculture have been lost to salinization, damaged irrigation systems, and the persistent danger of landmines, leaving many farmers without the means to resume cultivation. The destruction of the Kakhovka dam further complicates the situation by undermining the region's water management structures, diminishing the availability of potable water, and inflicting long-term harm on aquatic habitats and wildlife. Displacement has also taken its toll: entire communities that once depended on agriculture and related industries are scattered, while essential infrastructure—such as roads, storage facilities, and energy grids—bears the scars of conflict and urgently needs repair.

Amid these daunting circumstances, Russian forces have effectively turned large segments of Kherson into a militarized “buffer zone,” where flooding and scorched landscapes impede normal life. Nevertheless, many residents and regional authorities continue to demonstrate remarkable determination and resilience. Grassroots groups, often in cooperation with international partners, work to clear farmland, provide vital resources, and rebuild community ties. Although immediate conditions remain difficult, this collective effort inspires hope that Kherson's agricultural sector can slowly recover, and that new or repaired water networks can support both drinking supplies and environmental restoration. Ultimately, a comprehensive strategy that unites economic redevelopment, ecological stewardship, and humanitarian support holds the greatest promise for guiding Kherson toward stability in the coming years.

#### VI. CONCLUSION

The Kherson region has borne the brunt of large-scale military aggression, culminating in profound socio-economic and environmental turmoil. The destruction of the Kakhovka dam has further intensified hardships, from widespread

flooding to water shortages and the depletion of vital ecosystems. While Ukraine has successfully liberated parts of Kherson, significant areas remain under Russian control, underscoring the urgent need for continued international support to facilitate demining operations, repair critical infrastructure, and restore agricultural production.

As we move toward 2025, holistic strategies—encompassing both humanitarian aid and robust environmental management—will be crucial to securing a viable future for the region. By addressing the multi-dimensional challenges of war's aftermath, Kherson can gradually regain stability and lay the groundwork for renewed economic growth and sustainable livelihoods.

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