медитацію, щоб дійти до межі і до зцілення від задавненого болю та спогадів; врятувати пам'ять про Чорнобильську катастрофу від забуття.

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Секція 2. ІСТОРІЯ ВОЄННИХ КОНФЛІКТІВ І ТЕХНОГЕННИХ КАТАСТРОФ

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THE HOMELAND WAR IN CROATIA – PARTIAL DESTRUCTION OF THE PERUĆA HYDROELECTRIC POWER PLANT (1993)

During the Homeland War in Croatia (1991-1995), electricity and water supply were essential means of warfare. Whole areas, especially in the south of the country (Dalmatia), were cut off from access to the water supply system such as the Zadar and Dubrovnik area and the entire electricity supply system of Dalmatia and Herzegovina in Bosnia and Herzegovina depended on the hydrological season in that area. Namely, the Serbian forces cut off the power lines towards continental Croatia as early as 1991. In the same year, they captured the "Muškovci" water pumping station for the Zadar area. During the summer, when a low rainfall reduced electricity production, the population and the economy had a reduction in the supply of electricity. The worst situation was in the Zadar area when during the summer, along with cuts in electricity supply, the water supply system would only deliver water 8 hours a day every third day.

In order to expand the narrow traffic corridor in the area of Zadar (in some places barely 2 km wide) that connected the "outside" world with the south of Croatia, but also almost the whole part of Bosnia and Herzegovina that was not under Serbian control, the Croatian authorities launched a military operation "Maslenica "on January 22, 1993. After a few days (January 27-28, 1993), Croatian forces began a military operation on the eastern side in the Sinj area. The Croatian army liberated some villages in the vicinity of Sinj and the Peruća hydroelectric power plant (Peruća operation). The dam itself was formally controlled by UNPROFOR (United Nation Protection Forces) and the Kenyan battalion. On January 28, 1993, the Serb forces entered the dam area and pushed the UNPROFOR forces from it. During their withdrawal, Serb forces planted 30 tons of explosives in the dam, intending to cause a significant environmental and human catastrophe. The situation became critical

because the demolition of the dam in the winter period when the water level is highest would have led to the destruction of the entire Cetina River basin all the way to the sea, which would have affected tens of thousands of inhabitants, their lives and property with unforeseeable environmental consequences. The total demolition of the dam of HPP Peruča was prevented by the English officer Mark Nicholas Gray (from UNPROFOR), who raised the spilling channel and reduced the water level in the lake.

In a relatively short time during Operation Maslenica, the Croatian army and special police forces pushed the Serbs over 10 km inland. In this military operation lasting from 22 to January 28, Croatian troops liberated about 850 km2 and about 100 settlements.

With a quick reaction of the Croatian forces that recaptured the hydroelectric power plant, a simultaneous strengthening of the dam began to prevent its bursting. After four years of renovation, the hydropower plant began functioning again.

Additions (Fig. 1, Fig. 2, Fig. 3, Fig. 4):

Figure 1

Figure 2

Figure 3

Figure 4

Literature:

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BHOPAL GAS DISASTER: HISTORY AND LESSONS

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БХОПАЛЬСЬКА ГАЗОВА КАТАСТРОФА: ІСТОРІЯ ТА УРОКИ

The Bhopal gas tragedy, which is regarded as the world's worst industrial disaster, occurred on 3rd December 1984, in the city of Bhopal, Madhya Pradesh state, India. This disaster resulted from the release of toxic chemical Methyl Isocynate (MIC) from the pesticide plant of Union Carbide India Limited (UCIL). The gas drifted over the densely populated neighbourhoods around the plant, killing thousands of people immediately and creating a panic as tens of thousands of others attempted to flee Bhopal. The final death toll was estimated to be between 15,000 to 20,000 and nearly 50,000 people were permanently disabled [1, p. 122].

Many causal factors brought about this disaster, but investigators focused on a human error. The absence of proper safety systems and the general staff negligence at UCIL contributed greatly to the disastrous effects of the Bhopal gas leak. Many previous warnings and similar incidents from the plant were ignored by the UCIL management. As many as six accidents had occurred at the plant before the major catastrophe. Moreover, the Indian Labour Department had previously ordered for changes at the plant, none of which were taken into consideration to improve plant safety.

What exactly happened on ill-fated night of 2 December 1984 is still not very clear [2]. But by summing up the sequence of events, the most postulated theory narrates that MIC was stored in three double-walled, partly buried stainless steel tanks having code numbers E610, E611, and E619. During the change of shift around 10.45 pm to 11.00 pm, one of the employees of fresh shift noticed that the pressure of the tank E610 has risen to 10 psi, which was fivefold of the pressure recorded by his predecessor [3, p. 3-4].

This sudden increase in pressure was dismissed and considered faulty pressure recording instrument. Around 11.30 pm, some of the workers noticed burning sensation and tears in their eyes, few of them noticed a drip of liquid along with some yellowish-white gas coming out of MIC structure. It was reported to Supervisor on duty, who decided to deal with the leakage after the scheduled tea-break at 12.15 am. In next 15 20 minutes, when the tea break ended, the situation was even worse; the pressure in the Tank E610 was indicating its maximum reading of 55 psi. Control room operator checked gauges on tank and found that the safety valve popped, tank was rumbling, and heat was emanating from the tank. There was no sign of flow of caustic soda and a cloud of gas was found escaping from the scrubber stack. By 12.40 am, the plant supervisor suspended operations of the MIC plant and turned on the in-plant and external toxic gas sirens. The fire water sprayers were used but water could not reach the gas cloud, which was forming at the top of the scrubber stack. Due to failure of refrigeration system, efforts to cool the Tank E610 also failed. Thus, the escape of MIC gas could not be stopped and it continued for almost 2 hours [3, p. 4].

By 7.00 am 70 people were dead, by 9.00 am 260 were dead and thereafter the figures continued to rise. Though not all dead bodies were brought to the Medico-Legal (MLI), 311