

# The Soviet Anti-Plague System: An Introduction

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**This article describes the composition of the Soviet Anti-plague (AP) system and presents the methodology used by the authors in their study of the AP system.**

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Prior to 1992,<sup>1</sup> the Soviet Union operated a large and unique network of facilities, called the “anti-plague system,” whose main mission was to control deadly endemic diseases and to prevent the importation of exotic pathogens from other countries. The word “plague” in the system’s official name was used broadly to indicate not only the disease caused by *Yersinia pestis*,<sup>2</sup> but also other dangerous endemic and exotic diseases caused by bacteria or viruses. Throughout the Soviet era, the anti-plague (AP) system appears to have worked effectively, preventing major epidemics from claiming the lives of Soviet citizens in regions where diseases such as anthrax, brucellosis, bubonic plague, Crimean-Congo Hemorrhagic Fever (CCHF), and tularemia are endemic. In the 1960s, however, the AP system

took on new responsibilities when it was ordered to implement tasks under the Soviet biological warfare (BW) program. Initially, the AP system was engaged in the defensive aspect of the Soviet BW program, code-named *Problem 5*, which aimed to defend the nation against imported exotic diseases and possible BW attacks. Later, in the 1970s, the AP system began contributing to the offensive BW program, known as *Ferment*. The AP<sup>3</sup> system remained engaged in both public health and BW activities until the USSR’s dissolution.<sup>3</sup>

After the Soviet Union’s dissolution, the AP system became fragmented as well; its constituent parts were reorganized or integrated within the public health systems of the Newly Independent States (NIS). Today, little information about the former Soviet AP system is available in open literature, either in the West or in the former Soviet Union (FSU). No academic studies or popular books have examined the AP system and its past activities or assessed its current weaknesses. For example, Ken Alibek’s important book on the Soviet BW program (Alibek and Handelman 1999) and Anthony Rimmington’s publications on various aspects of biotechnology and BW in the USSR and Russia<sup>4</sup> make only passing references to the AP system. Dr. Igor Domaradskij,<sup>5</sup> a renowned Russian plague scientist (see Insert 1 in the Zilinskas article), has published two books that contain probably the most authoritative account of the Soviet AP system (Domaradskij 1995; Domaradskij and Orent 2003). These accounts, however, are brief.

This report, together with a second report to be published by the Center for Nonproliferation Studies (CNS) in 2006, seeks to

<sup>3</sup>The Soviet Union’s public health system had two major components—the Sanitary Epidemiological System (SES) and the AP system. Though there were some overlaps in responsibilities between the two, in general the SES system dealt with many traditional public health functions such as water and food sanitation and vaccine campaigns, while the AP system’s main responsibilities had to do with preventing outbreaks caused by highly dangerous pathogens. In this report we focus on the AP system while the SES system is noted only in passing. We give more attention to the SES system in the second report.

<sup>4</sup>Rimmington’s publications are listed on the homepage of the Centre for Russian and East European Studies, University of Birmingham: (<http://www.crees.bham.ac.uk/research/biopharm/books.htm>).

<sup>5</sup>There are at least three variations of Domaradskij’s name in English, including Domaradski, Domaradsky, and Domaradskij. We use the same spelling as in his first and so far only book published in English.

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<sup>1</sup>At the initiative of Russian President Boris Yeltsin, on December 8, 1991, the leaders of the Russian, Ukrainian, and Belarusian republics met in Belavezskaya Pushcha to issue a declaration that the USSR was dissolved and replaced by the Commonwealth of Independent States (CIS). But Yeltsin’s proposal did not immediately win widespread acceptance. On December 21, 1991, Yeltsin joined the leaders of ten other former Soviet republics gathered in Alma-Ata, Kazakhstan, to sign the “Alma-Ata Declaration” that officially dissolved the USSR. On December 25, 1991, Gorbachev resigned as president of the USSR and surrendered the powers of his office to Boris Yeltsin. The next day, the Supreme Soviet voted to repeal the declaration written in 1922 that had officially established the USSR and dissolved itself. By the end of 1991, official Soviet institutions began ceasing operations and their functions were taken over by the governments of the succeeding independent states.

<sup>2</sup>There are three forms of plague; bubonic, pneumonic, and septicemic plague. Each is spread by unique transmission methods, has unique symptoms, and requires different treatment options.

fill this information gap. With support from the Nuclear Threat Initiative (NTI), the authors conducted a three-year study, between 2002 and 2004, to address three important questions: What was the nature of the AP system's involvement in the Soviet BW program? What kind of proliferation threat do the AP facilities pose today? And what is the current status of disease surveillance activities in the NIS?

Although the two CNS reports contain a great deal of information about the Russian AP facilities, the authors chose to concentrate the study on non-Russian facilities for three main reasons: (1) the majority of AP facilities are located outside Russia; (2) the largest and most threatening natural foci of plague and other dangerous diseases are located outside Russia; and (3) the political and security environment prevailing in the NIS, and in particular Central Asia and the Caucasus, have created conditions of instability conducive to the possible proliferation of biological weapons. Countries in these regions have experienced, or are still experiencing today, border disputes, civil wars, political unrest, cross-border arms and drug trafficking, and terrorist activity.

Four articles follow this introductory article. The first, by Alexander Melikishvili, provide a history of the AP system from tsarist times to the dissolution of the Russian empire Union. We believe that to understand how the AP system came to have a prominent public health and medical science role in the USSR and to pose a proliferation threat after the Soviet Union's dissolution, it is important to understand how it evolved from a small group of facilities created under Tsar Nicolas II in the late 1800s, into a system comprised of about 100 facilities with dual-use functions, contributing both to public health and the Soviet BW program. Melikishvili, in his article on the genesis of the anti-plague system during the Tsarsist era, identifies the events and measures taken by the imperial authorities that led to the establishment of the first organizations specializing in preventing the spread of plague in the Russian empire. These organizations would later serve as the foundation on which the Soviet AP system was established.

The second article, by Sonia Ben Ouagrham-Gormley, describes the organization and activities of AP facilities in Soviet times. Ben Ouagrham-Gormley identifies the main stages of development of the AP system, starting from the Bolshevik revolution of 1917 until the end of 1991, and provides an overview of the research, production, and public health activities of the AP system during the Soviet era, including the monitoring of natural disease foci and BW-related work. She also clarifies the structural organization of the AP system and its funding and reporting mechanisms.

The third article, by Raymond Zilinskas, examines the role of the anti-plague system in the Soviet Union's offensive and defensive BW programs, but with a concentration on the second aspect.

Last, the concluding article reflects the three authors' collective thinking on the lessons learned from the study of the Soviet AP system with respect to international biological arms control and nonproliferation.

Before turning to these four articles, it is important to clarify the composition of the AP system and to discuss our information sources. The Soviet AP system had four components. The first, and by far the largest, was the so-called "territorial AP system," consisting of six AP institutes and approximately 100 subordinate regional, field, and seasonal AP stations and laboratories. This component was controlled by the 2nd Directorate of the USSR Ministry of Health (USSR MOH). The second component consisted of AP stations that monitored natural plague foci on territories surrounding uranium mines.<sup>6</sup> These stations were under the authority of the 3rd Directorate of the MOH. The third component was a network of railroad AP stations that monitored territories located between 10 and 20 kilometers (km) on either side of railroad tracks. These stations received their budgets from the USSR Ministry of Railways but reported to the USSR MOH. The fourth component was comprised of anti-epidemic stations and other facilities that were operated by the USSR Ministry of Defense (MOD) and reported to its Central Military Medical Directorate. The facilities of this category monitored epizootic conditions in regions with controlled access, such as areas adjacent to national borders, weapons test sites, and closed cities. In our articles, we focus on the first component of the AP system, the so-called "territorial AP system," which henceforth will be referred to as "the AP system."

As far as information is concerned, a minor part was derived from researching the English and Russian-language literature and Internet sources. Russian language sources that are difficult to access in the West yielded some important information. However, the most substantive and unique information was elicited from interviews with government officials, facility managers, and scientists who direct and staff the AP institutes and stations outside Russia. To conduct interviews, the authors and co-researchers visited 46 AP facilities located in 10 former republics of the FSU—Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Ukraine, and Uzbekistan.<sup>7</sup> During these visits, the authors interviewed current and past AP system personnel, observed their work and the security and safety conditions under which they operated, reviewed their operating rules and guidelines, and examined the overall economic and social situation then prevailing at these facilities. Particular attention was given to understanding the

<sup>6</sup>In the literature there is considerable confusion over the meaning and applications of the word "survey" and "monitoring" and their derivatives. According to Webster's Third New International Dictionary, "monitoring" is "to watch, observe, or check especially for a special purpose; or to keep track of, regulate, or control," while "surveillance" is "to keep continuous observation of an area (as to detect developments, movements, or activities); or to keep close and continuous observation for the purpose of direction, supervision, or control." Since in our view the responsibilities of AP stations fit both definitions, we use "monitor," "monitoring," "survey," and "surveillance" interchangeably throughout this report. See *Webster's Third New International Dictionary*, 3d ed., s.v. "monitoring," "surveillance."

<sup>7</sup>Our research revealed that there were no AP facilities in Belarus in Soviet times. There were, however, other institutes in that republic that were engaged in similar public health and BW-related work.

political and security environment prevailing in the region and country where these facilities are located.

In addition, information of importance to the study was obtained from six commissioned papers. We asked specialists in Armenia, Belarus, Georgia, Kazakhstan, Mongolia, and Uzbekistan to write reports containing descriptions and histories of the AP systems in their respective countries. Due to the sensitive nature of some aspects of the project's findings, most sources from interviews and commissioned papers are not identified. For the same reason, this report does not provide detailed information about the pathogen culture collections at AP facilities or the state of their security.

We are aware of numerous inconsistencies in the accounts provided by interviewees, but the fallibility of human memory most likely accounts for them. Such discrepancies are an inevitable consequence of doing field studies in geographically scattered locations that entail conducting extensive interviews with various people about events that often occurred more than 15 years ago. Further, at times only one source provided in-

formation, making it difficult to corroborate. For these reasons, we cannot guarantee that our report is completely error free. However, readers can be assured that the authors have made a concerted effort to ensure the accuracy of the information provided in the three articles. If subsequent research reveals errors, mistakes, or misstatements, we will endeavor to post corrections on the Center for Nonproliferation Studies (CNS) website where this entire work will reside. With respect to interpretations and analyses of events and capabilities, we are responsible for all errors of judgment.

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