

Political Killings in Kosova/Kosovo, March-June 1999



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Political Killings in Kosova/Kosovo, March-June 1999

A Cooperative Report by the Central and East European Law Initiative of the American Bar Association and the Science and Human Rights Program of the American Association for the Advancement of Science



American Bar Association Central and East European Law Initiative
Washington, DC

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ADDRESS: 740 15th Street, NW, Washington, DC 20005, USA

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FREE TEXT: This report uses established statistical methods to estimate that over 10,000 Kosovar Albanians were killed during the armed conflict in March-June 1999 and demonstrates that the statistical patterns among killings are consistent with tendencies in refugee migration. This supports the hypothesis that the killings and migration were the result of a coordinated effort by Serbian forces. The analysis depends upon multiple data sources, which the cooperating NGOs made possible.

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This report is dedicated to the Kosovar people.

Without their willingness to report the very personal tragedies that they experienced, we would not have been able to provide this systematic documentation of these events.

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ABA/CEELI

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In April 1999, ABA/CEELI initiated its War Crimes Documentation Project under the leadership of its Executive Director Mark Ellis and with assistance from the Coalition for International Justice and its Executive Director John Heffernan. Under their leadership, the first contacts with the U.S. Department of State, International Criminal Tribunal for the former Yugoslavia (ICTY), and Organization for Security and Cooperation in Europe (OSCE) were made. During the months that followed, we at ABA/CEELI developed the project with the support of the U.S. Government, in particular the Bureau of Democracy, Human Rights, and Labor, the Office of the Ambassador At-Large on War Crimes Issues, and the U.S. Agency for International Development (USAID). While U.S. Government support was essential to the project, it should also be emphasized that at no time did U.S. Government personnel seek to infringe upon our independent management of the project or influence our substantive reporting. ABA/CEELI structured its relations with the U.S. Government as a “cooperative agreement” to ensure its independence in this respect. Consequently, this report was not submitted for U.S. Government review, and any convergence with the views of the U.S. Government is purely coincidental.

Between April and October 1999, ABA/CEELI volunteers in Albania, Macedonia, Kosovo, Poland, and Ft. Dix, New Jersey, worked with translators and local investigators to assemble accounts of Kosovar refugees. Recognizing the urgency of the situation and value of analogous indigenous efforts, ABA/CEELI engaged in outreach efforts, forging an alliance with a coalition of Albanian NGOs, which came together as the The Center for Peace Through Justice. The two Co-Directors of the Center, Dajena Kumbaro and Holta Kotherja, led a team of dedicated human rights investigators to Kosovar refugee camps throughout Albania. At all times, this team dem-

onstrated exceptional compassion and professionalism. As a result, ABA/CEELI and the Center were able to assemble a significant body of human rights data. Essential to the final assembly and tabulation of ABA/CEELI-Center data and this report were the tireless efforts of our ABA/CEELI DC Program Associates Sarah Warner and Charles Charpentier.

At the same time that ABA/CEELI and the Center were collecting data on human rights violations in Kosovo, other organizations were engaged in similar efforts. Researchers from Physicians for Human Rights, Human Rights Watch and the American Association for the Advancement of Science were all working within the region to document the events. We are very thankful for the willingness of these organizations to share the results of their work with each other. Without this cooperative spirit, this project would not have been possible.

Finally, ABA/CEELI would also like to thank the Co-Chairmen of the Independent International Commission on Kosovo, Justice Richard Goldstone and Carl Tham. On several occasions, the Co-Chairmen dedicated Commission time to ABA/CEELI, permitting us to present our respective findings on the situation in Kosovo. Furthermore, they have agreed to republish the substance of our findings, increasing public awareness of the nature and extent of the human rights violations in Kosovo.

AAAS

Political Killings in Kosova/Kosovo, March-June 1999 would not exist without the collaboration of many individuals and organizations. This report is based primarily on data provided by the American Bar Association's Central and East European Law Initiative, the Center for Peace Through Justice, Human Rights Watch and Physicians for Human Rights. Supplementary data from the American Association for the Advancement of Science were also used to place these results within the context of a broader range of human rights violations.

Data analyses were conducted by Patrick Ball, from AAAS, and Sandra Eyster. Dr. Ball conceptualized the analysis techniques, designed the list matching system and computed the estimates and their standard errors. Dr. Eyster prepared the data for analysis, including the designing the coding process of the ABA/CEELI-Center data and cleaning and merging of the data prior to estimation.

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Authors and Editors

This report was written by ABA/CEELI and AAAS. Scott Carlson and Wendy Betts from ABA/CEELI prepared Section I. Dr. Eyster wrote Section II with Dr. Ball, who also generated the figures. Matthew Zimmerman of AAAS designed this book and its graphics, and prepared the material for publication. Donnie Norwood of AAAS Publication Services designed the cover.

Executive Summary

With the death in 1980 of longtime Yugoslav leader Jozep Broz Tito, the relationship between Kosovar Albanians and the Yugoslav government began to deteriorate. Tensions between ethnic Kosovar Albanians and the Yugoslav government rose throughout the 1980s. These tensions peaked in 1989 when Serbian President Slobodan Milosevic officially revoked Kosova/Kosovo's¹ autonomous status within the Republic of Serbia.

In 1998, the progression toward full-blown armed conflict accelerated. Serbian forces² engaged in sustained military operations, and Kosovar Albanian guerrilla forces, the Kosova/Kosovo Liberation Army, began conducting guerilla activities throughout Kosova/Kosovo. A series of diplomatic initiatives during the year failed to yield concrete progress toward a peaceful resolution.

After the March 1999 withdrawal of most Western observers and the commencement of the NATO air campaign, killings of Kosovar Albanians increased sharply. As refugees flowed across the borders, they reported large-scale killings and atrocities.

A variety of non-governmental organizations (NGOs) began collecting information from these refugees, including the American Bar Association Central and East European Law Initiative (ABA/CEELI), the American Association for the Advancement of Science (AAAS), The Center for Peace Through Justice (Center), Physicians for Human Rights (PHR), and Human Rights Watch (HRW). Each of these organizations conducted extensive interviewing of Kosovars concerning what happened during the conflict. In total, there were 3,353 interviews included in this study.

¹ The Kosovar place names in this report are provided in Albanian and Serbian, with the spelling based upon that used by the Organization for Security and Cooperation in Europe (OSCE).

² The term "Serbian forces," as used in this report, refers to official Yugoslav armed forces, local Serbian police, Serbian paramilitary groups, and others cooperating with the aforesaid. This editorial choice was made in the interest of both brevity and accuracy. While clearly not all Serbs participated in the campaign, numerous reports confirm that there was a blurring of roles with the only common denominator being allegiance to the Serbian operation in Kosova/Kosovo. See, e.g., Médecins Sans Frontières, *Kosovo: Accounts of a Deportation*, 1, 4 (1999) <http://www.doctorswithoutborders.org/reports/kosovo.htm>.

In early 2000, ABA/CEELI and AAAS began working together to assemble and code information necessary to conduct a statistical analysis of the killings in Kosova/Kosovo. To ensure the broadest possible range of data, ABA/CEELI and AAAS approached NGOs that had worked in the field. The Center, PHR, and HRW shared their data for these purposes. All data were maintained and processed with proper respect for the confidentiality of the persons involved.

Through a statistical analysis of these data, this study concludes that approximately 10,500 Kosovar Albanians were killed between March 20 and June 12, 1999, with a 95 percent confidence interval from 7,449 to 13,627. This estimate is consistent with others made by political, legal, and scientific observers.

While an accurate estimate of the total number killed is an important issue with geopolitical consequences, an equally compelling point of inquiry is an examination of the timing and placement of the killings. The findings in this report reveal that a majority of documented killings occurred between late March and mid-April 1999. This timing correlates in substantial part with refugee flows.

Killing patterns established in this report mirror refugee flows closely. If killings are a means of intimidation used to facilitate mass forced evictions, then refugee flows and killings would logically occur together. The fact that the increases in the number of reported killings fluctuate in unison with refugee flows is consistent with the proposition that there was a coordinated campaign targeting ethnic Albanians.

While the inter-organizational technical cooperation underlying this report is itself a promising development, expanded collaboration in the NGO sector would produce further benefits. The results detailed herein demonstrate the utility of pooling information. ABA/CEELI and AAAS hope that this study spurs additional scientific investigation of civilian suffering during the conflict between Yugoslavia and NATO in 1999. ABA/CEELI and AAAS look forward to applying these lessons and helping other NGOs to begin work equipped with a knowledge of the basic rules needed to collect good data, adequate software, and an understanding of the power of collaboration. ABA/CEELI and AAAS invite like-minded NGOs to join them in this ongoing initiative.

I. Cooperative Analysis of Aspects of the Kosova/Kosovo Conflict

Political and Historical Context

With the death in 1980 of longtime Yugoslav leader Josep Broz Tito, the relationship between Kosovar Albanians and the Yugoslav government began to deteriorate noticeably. Throughout the 1980s, tensions between ethnic Kosovar Albanians and the Yugoslav government rose. These tensions peaked in 1989 when Serbian President Slobodan Milosevic officially revoked Kosova/Kosovo's autonomous status within the Republic of Serbia. This action exacerbated the already volatile situation, further setting Serbia and Kosova/Kosovo on a course toward conflict.

Reacting to their increasing political marginalization by the Yugoslav government, Kosovar Albanians declared Kosova/Kosovo an independent republic within the Yugoslav state in 1990. Two years later, the self-declared republic elected its own parliament and named Ibrahim Rugova as president. Until the mid-1990s, the Kosovar Albanians adhered to a policy of peaceful resistance embraced by Rugova. However, by 1996, Rugova and his policy of non-violent opposition were increasingly discredited due to their inability to raise international support for the Kosovar Albanians' cause. Internal opposition forces began to take a more assertive approach and support for civil disobedience grew. It was at this time that the Kosova/Kosovo Liberation Army (UÇK in its Albanian acronym) emerged as an armed opposition force.

With the rise of the UÇK, incidents of human rights abuses against Albanians increased, including arbitrary arrest and extrajudicial killing. Serbian police behavior was directed at members of the UÇK and at Kosovar Albanian politicians, activists, and other civilians. In February 1998, the international "Contact Group" on Kosova/Kosovo³ reacted to this situation, declaring "their view that the FRY needs to address this question urgently, and that making progress to resolve the serious political and human rights issues in Kosovo is critical for Belgrade to improve its international position and relations with the international community. The

³ The Contact Group, formed in 1994 in response to the conflict in Bosnia, currently consists of the United States, United Kingdom, France, Russia, Germany, and Italy.

Contact Group expressed its readiness to facilitate the dialogue.”⁴ However, these calls for restraint and dialogue went unheeded by the Yugoslav government.

On February 27, 1998, Serbian forces,⁵ including armored units and helicopter gunships, attacked several villages in the Drenica/Drenica region, a known base of UÇK activity. A Human Rights Watch report concluded that a wide array of civilians, including dozens of women and children, died in the attack.⁶ In the face of the international community’s condemnation of the attack, the Yugoslav government characterized the situation as an internal matter that was under control.⁷

In the aftermath of the events in Drenica/Drenica, both the UÇK and Serbian forces increased the depth and scope of their activities. Serbian forces continued to commit abuses against civilians in their attempt to crush the Albanian insurgency. Similarly the UÇK were reported to have kidnapped and executed a number of Serbian civilians.⁸ The frequency and extent of the use of violence by both sides elevated the situation to an internal armed conflict. In light of the growing violence in the region, representatives of the North Atlantic Treaty Organization (NATO) Alliance began to openly discuss NATO military intervention.⁹

Under the threat of NATO action, Milosevic ordered a “military stand-down” at the beginning of October 1998. After a period of intense negotiations, Milosevic and U.S. Special Envoy Richard Holbrooke (representing the Contact Group) reached an agreement. While the agreement was never published, its major points addressed the reduction in forces and deployment of human rights monitors from the Organization for Security and Cooperation in Europe (OSCE).¹⁰ Despite this initial progress, the situation deteriorated again in December. According to OSCE analysis, several things became clear: 1) The October-November reduction in fighting had been a lull, not a trend; 2) OSCE monitors were not in a position to address needed peacekeeping issues; and 3) violence targeting civilians continued.¹¹

⁴ Contact Group Statement on Kosovo, Moscow, February 25, 1998, <http://www.ohr.int/docu/d980225a.htm>.

⁵ See *supra* note 2.

⁶ HUMAN RIGHTS WATCH, HUMANITARIAN LAW VIOLATIONS IN KOSOVO 1-74 (1998).

⁷ AP Wire, *Donji Prekaz, Serbs Declare Kosovo Crackdown Over; Ethnic Albanians Allege that the Lull in Fighting is Designed to Deceive the West, Only Timed to Coincide with a Meeting of World Powers in London on Peace in the Balkans*, MINNEAPOLIS STAR TRIBUNE, Mar. 9, 1998, at 4A.

⁸ See, HUMANITARIAN LAW CENTER, SPOTLIGHT REPORT NO. 27, KOSOVO—DISAPPEARANCES IN TIMES OF ARMED CONFLICT (1998).

⁹ Elizabeth Neuffer, *NATO Weighs Raids to Slow Serbs in Kosovo; Aides Gather in Brussels Today to Consider Options*, THE BOSTON GLOBE, June 11, 1998 at A2.

¹⁰ ORGANIZATION FOR SECURITY AND COOPERATION IN EUROPE, KOSOVO/KOSOVA AS SEEN AS TOLD: AN ANALYSIS OF THE HUMAN RIGHTS FINDINGS OF THE OSCE KOSOVO VERIFICATION MISSION OCTOBER 1998 TO JUNE 1999 6 (1999).

¹¹ *Id.* at 7.

The turning point in international reactions to the conflict came in the middle of January 1999 when Serbian forces committed violations of international humanitarian law, which were documented almost immediately by a team of OSCE observers. From January 12-15, 1999, Serbian forces brought heavy military equipment into the municipality of Shtime/Stimlje, establishing permanent positions.¹² On January 15, 1999, Serbian forces assaulted the village of Recak/Racak village within the municipality. In the process, Serbian forces executed forty-five ethnic Albanians. On January 16, 1999, OSCE monitors investigated the site of the massacre. The team found “evidence of arbitrary detentions, extra-judicial killings, and mutilation of unarmed civilians.”¹³ Despite the international documentation of these events, Yugoslav authorities denied that any civilians had been killed, stating that it was simply an action against the UÇK.¹⁴

In February 1999, the Contact Group called peace talks in Rambouillet, France, but this effort quickly dissolved, marking the start of a new offensive by Serbian forces. The renewed violence resulted in the withdrawal of the OSCE monitors on March 20. As stated by OSCE Chairman-in-Office, Knut Vollebaek, “[] I have no choice in the present situation than to withdraw the OSCE personnel.”¹⁵ The departure of the OSCE monitors led to a surge in violence against the Kosovar Albanians.¹⁶ On March 23, 1999, the NATO Secretary-General, in a letter to the United Nations (UN) Secretary-General, outlined the rapid deterioration of the situation in Kosovo. According to the NATO Secretary-General, Serbian forces were “using excessive and wholly disproportionate force, thereby creating a humanitarian catastrophe.”¹⁷ With this determination, it was clear that NATO had arrived at the point of armed intervention.

The beginning of the NATO-led air campaign against Yugoslavia on March 24, 1999, brought with it a significant increase in the scope and pace of human rights violations in Kosovo. Summary and arbitrary killings became widespread during this period. While there are limited reports of Serbs having been summarily executed by the UÇK during this time,¹⁸ the overwhelming number of killings were reported to have been carried out by Serbian forces against Kosovar Albanians.

During the 79-day period of the air strikes, virtually all on-ground monitoring of human rights violations in Kosova/Kosovo by international

¹² *Id.* at 354.

¹³ *Id.* at 36.

¹⁴ *Id.* at 354.

¹⁵ Organization for Security and Cooperation in Europe, Press Release No. 24/99.

¹⁶ *See*, OSCE, *supra* note 10.

¹⁷ *Letter Dated 25 March 1999 From the Secretary-General Addressed to the President of the Security Council*, U.N. Doc. S/1999/338 (1999).

¹⁸ *See* US DEPARTMENT OF STATE, *ETHNIC CLEANSING IN KOSOVO: AN ACCOUNTING* 15 (1999).

governmental organizations and non-governmental organizations (NGOs) ceased. As a result, most of the information gleaned about human rights violations during the NATO campaign was acquired through interviews with refugees conducted outside of Kosova/Kosovo at the time, or with returnees after the conclusion of the bombing on June 10, 1999.¹⁹

Due to these data collection challenges, it has been difficult to make a precise estimate of the number of ethnic Albanians killed during the internal and international armed conflict in Kosova/Kosovo. Carla Del Ponte, Chief Prosecutor for the International Criminal Tribunal for the former Republic of Yugoslavia (ICTY) reported to the UN Security Council that the ICTY had received reports of 11,000 people killed, with exhumations of 2,108 bodies as of November 1999.²⁰ The U.S. Department of State has estimated that 6,000 people were killed and buried in mass graves, and it puts the total number killed at approximately 10,000.²¹ The main international organizations in-country, the OSCE and UN, have declined to estimate a figure altogether.

Given the international community's inability to reach consensus as to an accurate estimate and in light of contradictory information emanating from the Yugoslav government, it was imperative that a study such as this be undertaken. In contrast to many modern conflicts, the conflict in Kosova/Kosovo received substantial and sustained international attention, and human rights organizations arrived in force and began collecting valuable information from thousands of refugees. This report is based upon these individual accounts from those who survived the tragic episode. Thus, while this report may present a general picture of the conflict without personal narratives, it should always be read with an understanding of the personal tragedies upon which it is based.

Statistical Analysis of the Data

The data for this study were compiled by the American Bar Association Central and East European Law Initiative (ABA/CEELI) and the American Association for the Advancement of Science (AAAS) with the cooperation

¹⁹ These interviews were conducted by a wide range of organizations, including the Kosovo Verification Mission of the Organization for Security and Co-operation in Europe (OSCE-KVM), the War Crimes Documentation Project of the American Bar Association Central and East European Law Initiative, Physicians for Human Rights, Amnesty International, Human Rights Watch, Médecins sans Frontières, and The Center for Peace Through Justice, a coalition of Albanian NGOs.

²⁰ ICTY Prosecutor Report to the Security Council, November 10, 1999. *See also* US DEPARTMENT OF STATE, *ETHNIC CLEANSING IN KOSOVO: AN ACCOUNTING* (1999).

²¹ US DEPARTMENT OF STATE, *supra* note 18, at 3.

and support of other human rights NGOs, including The Center for Peace Through Justice (Center), Physicians for Human Rights (PHR), and Human Rights Watch (HRW). Each of these organizations conducted extensive interviewing of Kosovars concerning what happened during the conflict, and each generously agreed to contribute their raw data to this project.²² In total, there were 3,353 interviews included in this study.

This combined dataset consists of three subsets. The first source is the PHR survey of 1,180 Kosovar Albanian households conducted between April and May of 1999. The second subset is from an HRW survey of 591 Kosovar Albanians from March to September 1999. The third data subset is from the ABA/CEELI-Center interviews of 1,582 Kosovar Albanian refugees from May to September 1999. Combined, these three projects interviewed Kosovar Albanian refugees in diverse contexts. Interviews were collected in refugee camps in Albania, Macedonia, Poland, and the United States; at border crossing points in Albania, Macedonia, and Montenegro; and in villages among Kosovar Albanians after refugees began returning to Kosova/Kosovo.

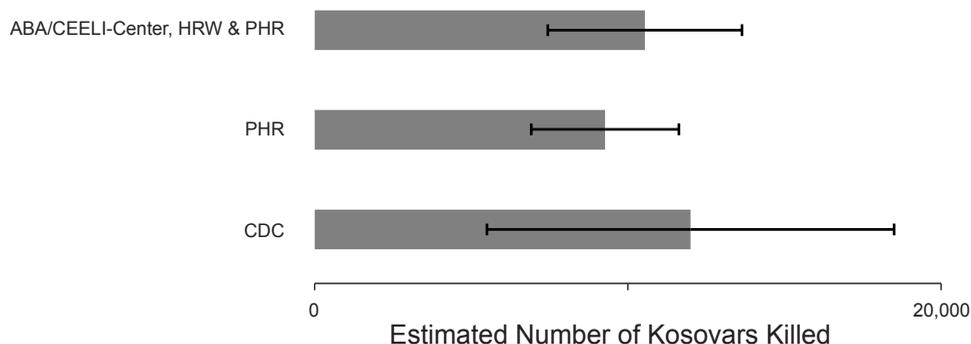
The statistical projection of the total number killed should be contrasted with the descriptive information that follows the estimate. The descriptive information is drawn directly from the cases documented in the various interviews. This type of information can be used to present a picture of the incidents reported, but it cannot support generalizations about the entire population. As discussed below, a larger dataset including more diverse and extensive lists of Kosovar Albanians killed in the conflict would help to extend the population-level generalizations to more precise analyses of particular villages and municipalities and specific times. The authors of this report hope that these promising initial results will encourage other organizations to join in exactly such an expanded, collaborative effort.

Estimates of the Total Number Killed

In this study, ABA/CEELI and AAAS generate estimates of the number of killings that occurred between March 20 and June 12, 1999, dates that correspond generally with the period of the NATO air campaign. AAAS statisticians estimate that approximately 10,500 Kosovar Albanians were killed during this period. This estimate tracks closely the early numbers

²² This sharing of data was undertaken with the mutually-accepted understanding that the identity of those interviewed would be protected.

Figure 1: Estimated Number of Kosovars Killed²³



suggested by the U.S. Department of State and the ICTY. Furthermore, it is based upon statistical methods that would be defensible in a court of law.

Because the estimate of 10,500 killed was generated from samples of the population and not the entire population itself, a range must be computed that represents a margin of error for the estimate due to the sampling methods and the estimation technique. Using a 95 percent confidence interval, AAAS statisticians estimated the number of Kosovar Albanians who were killed during this time period to fall between 7,449 and 13,627 (see Figure 1). This confidence interval indicates that if this study were repeated 100 times using different but independent lists of data, one would expect that in 95 of the 100 studies, the estimate would fall within the range of 7,449 to 13,627 killings.

This confidence interval is most significant because it establishes that the estimate of 10,500 killed is consistent with the findings of other scientific estimates of the number of killings (see Figure 1). In September 1999, the Center for Disease Control (CDC) conducted a two-stage cluster survey among the Kosovar Albanian population in Kosova/Kosovo. They collected

²³ Bar 1: This estimate follows Marks, Seltzer and Krotki, equation 7.118, with the error computed via jackknifing. E.S. MARKS, W. SELZER, & K.J. KROTKI, *POPULATION GROWTH ESTIMATION: A HANDBOOK OF VITAL STATISTICS MEASUREMENT* (1974). See Section II for a detailed methodological explanation. Bar 2: PHR's population inference, *Physicians for Human Rights, War Crimes in Kosovo* 45 (1999), depends on an assumption that there are 1.8 million Kosovar Albanians. Their estimate includes the period between April 1998 and May 1999. Bar 3: Spiegel and Salama's (2000) estimate includes the period between February 1998 and June 1999. Paul B. Spiegel and Peter Salama, *War and Mortality in Kosovo, 1998-1999: An Epidemiological Testimony* 355 *LANCET* 2204 (2000).

²⁴ Paul B. Spiegel and Peter Salama, *War and Mortality in Kosovo, 1998-1999: An Epidemiological Testimony* 355 *LANCET* 2204 (2000). The Spiegel and Salama study included 1,197 households comprising 8,605 people. From February 1998 through June 1999, 67 (64%) of 105 deaths in the sample were attributed to war-related trauma, corresponding to 12,000 (95% CI

retrospective mortality data, including cause of death, for the period from February 1998 to June 1999. Their report concluded that approximately 12,000 Kosovars had died in the conflict with a confidence interval of 5,500 to 18,300.²⁴ An independent PHR study²⁵ estimated that there were 9,269 Kosovar Albanians killed in the year preceding the interviews (the majority of these killings occurring in 1999). A 95 percent confidence interval for the PHR estimate results in a range of killings between 6,911 and 11,627.

The bar graph in Figure 1 illustrates the different estimates of killings and their confidence intervals, including an estimate and confidence interval generated in this study. The first bar represents estimates of the number of killings between March 20 and June 12, 1999, generated from the combined HRW, PHR and ABA/CEELI-Center data.²⁶ It shows 10,538 killings, with a corresponding 95 percent confidence interval ranging between 7,440 and 13,636 (see Section II on Statistical Methodology for further discussion of these techniques).

Thus, the estimate from these analyses yields an estimate of approximately 10,500 and a 95 percent confidence interval with an approximate range between 7,500 and 13,750 individuals killed between March 20 and June 12, 1999 (bar one). This figure further illustrates a general convergence of our estimate with other scientific estimates, as shown in bars two and three in Figure 1. Bar two indicates the PHR estimate of 9,269, with the confidence interval ranging between 6,911 and 11,627 killings. Bar three represents the CDC estimate of 12,000, with a range between 5,500 and 18,300 killed. Note that the estimate of 10,500 fits within the confidence intervals from the PHR and CDC studies, and that both the PHR and CDC estimates fit within this study's confidence interval.

With this comparison, it is possible to assert that there is strong scientific evidence to support the early ICTY and U.S. Department of State estimates. Further data could refine the overall estimate, narrowing the confidence interval. ABA/CEELI and AAAS speculate that the resulting estimate could increase slightly with additional data, rather than decrease.

5,500-18,300) deaths in the total population. The crude mortality rate increased 2.3 times from the pre-conflict level to 0.72 per 1,000 a month. Mortality rates peaked in April 1999 at 3.25 per 1,000 a month, coinciding with an intensification of the Serbian campaign of "ethnic cleansing." Men of military age (15-49 years) and men 50 years and older had the highest age-specific mortality rates from war-related trauma. However, the latter group were more than three times as likely to die of war-related trauma than were men of military age (relative risk 3.2). *Id.*

²⁵ The data in the PHR Study are distinguishable from the HRW and ABA/CEELI-Center data in that they were collected using probability sampling methods and closed-ended questions. The HRW and ABA/CEELI-Center data were collected in narrative form and without a sampling methodology. Consequently, the narratives in the ABA/CEELI-Center and HRW interviews had to be "cleaned" and coded to be used in this study.

²⁶ *Id.*

Thus, the 10,500 figure may be viewed in terms of a minimum total number estimated to have been killed.

Descriptive Information on Killings by Time and Municipality

While the data are sufficient to estimate the total number of killings in the population as a whole, it is more difficult to generate detailed population estimates by dates and locations of killings. Although this information was collected, the coverage for each location and date is not extensive enough to allow for statistical inference. That is, these data are insufficient to make estimates of the total number of people killed in each municipality for each sub-period of the conflict. For this reason, the discussion that follows turns from population estimates to descriptive data from the three data sources. The information presented below does not represent estimates of the total number of people killed. There are killings that were not reported to the ABA/CEELI-Center, HRW or PHR researchers. Because it is not currently possible to say with certainty how they are distributed across time and space, estimates of these unreported killings are not included in the results below.

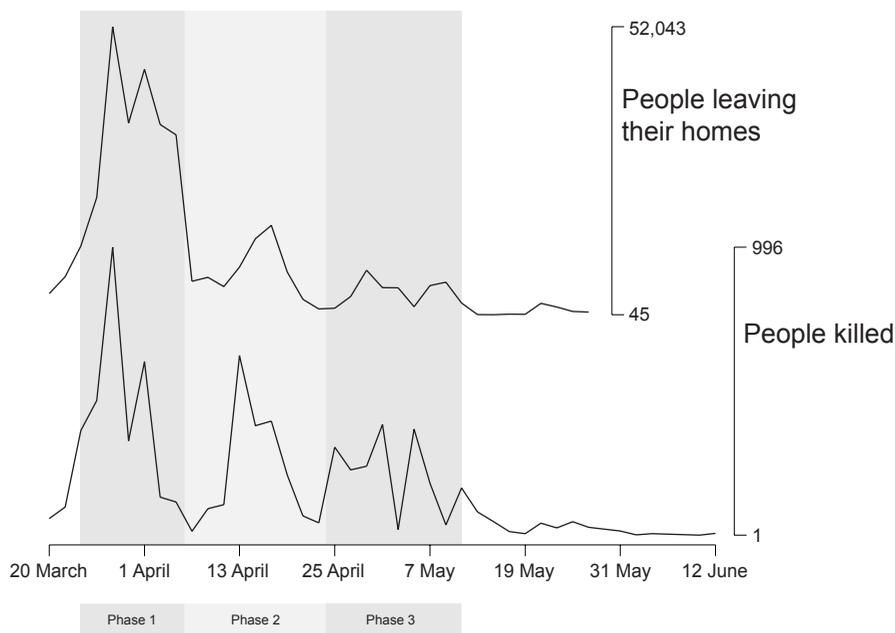
Timing of the Killings

While an accurate estimate of the total number killed is an important issue with geopolitical consequences, an equally compelling point of inquiry is an examination of the timing of the killings. These findings reveal that a majority of the documented killings occurred between late March and mid-April. This timing correlates to a substantial degree with refugee flows. Building upon past AAAS research on this topic, the results of the ABA/CEELI-AAAS study support the proposition that there was a systematic campaign conducted against the Kosovar Albanian population.

An analysis of the documented killings by time can be seen in the lower portion of the line graph in Figure 2. The data indicate that there was a peak in killing in late March, followed by another in mid-April. Reports also indicate a smaller, but sustained peak in late April to mid-May, after which the number of documented killings tapered off. This pattern of peaks corresponds with the pattern of refugee flows that occurred during these times.

²⁷ PATRICK BALL, POLICY OR PANIC? THE FLIGHT OF ETHNIC ALBANIANS FROM KOSOVO, MARCH-MAY 1999 (2000).

Figure 2: Documented Killings and Estimated Expulsions by Time



In the AAAS study *Policy or Panic*,²⁷ refugee flows out of Kosova/Kosovo are described as having occurred in three distinct phases: March 24 - April 6, April 7 - 23, and April 24 - May 11. During the beginning of each phase, the flow of refugees was relatively light. The number of refugees leaving Kosova/Kosovo would rise to a high point (a peak, group of peaks, or plateau) during the middle of the phase, before tapering off toward the end of the phase. These estimates of refugee flows are depicted in the upper segment of the line graph in Figure 2, with the three phases noted by the shaded portions of the figure.

By comparing the estimated numbers of people who left each municipality over time to the times when NATO airstrikes occurred, the AAAS study concludes that only a small fraction of Kosovar Albanians fled Kosova/Kosovo as a direct result of NATO bombing raids. It also concludes that the mass exodus of refugees from Kosova/Kosovo occurred in patterns so regular that they must have been coordinated. In the context of descriptive accounts given by refugees, the most likely explanation for the migration is the implementation of a centrally-organized campaign to clear at least certain regions of ethnic Albanians.

²⁸ Médecins Sans Frontières came to a very similar conclusion in their 1999 report: “The population is not fleeing armed confrontations: they are being forced to leave their city or village under the threat of death.” Médecins Sans Frontières, *supra* note 2, at 2.

This last proposition is supported by the timing of reported killings seen in the analyses presented here. As is evident from comparing the upper and lower segments in the line graph in Figure 2, killing patterns mirror refugee flows extremely closely. If killings are used as a means of intimidation to facilitate mass, forced evictions, then refugee flows and killings would logically occur together.²⁸ The close correspondence between the rise and fall of numbers of refugees leaving their homes and reported killings is wholly consistent with that postulate. Furthermore, the fact that the number of reported killings fluctuates in unison with refugee flows is consistent with the proposition that there was a centrally-organized campaign targeting ethnic Albanians.

Geography of the Killings

Figure 3 shows the overall distribution by municipality of documented killings in Kosova/Kosovo from March 20 - June 12, 1999. The municipalities of Skenderaj/Srbica and Rrahovec/Orahovac reflect a substantially higher concentration of killings than the others. These findings can be attributed to the fact that those two municipalities historically had been deeply-infiltrated by the UÇK and were therefore the site of heavy fighting. However, there were also killings in places with little or no reported UÇK activity, for example Gjilan/Gnjilane. With the low levels of UÇK activity, it is difficult to explain these killings as casualties of fighting between Serbian and UÇK forces. This wide dispersal of killings across municipalities with low UÇK activity lends support to the conclusion that the deaths were mainly a result of a centrally-organized campaign that targeted civilians. Moreover, the wide dispersal of killings provides an explanation for why the number of bodies discovered in ICTY exhumations of mass graves to date do not match public expectations.²⁹ Bodies resulting from dispersed killings would likely be buried or disposed of in a similarly dispersed pattern. Thus, this dispersal pattern is consistent with current ICTY findings.

As with the patterns by time, the pattern of killings by municipality closely follows that of refugee flows. Figure 4 presents a comparison of killings and expulsions throughout Kosova/Kosovo during each of the three phases defined in *Policy or Panic*. On the right side of the figure are the maps of expulsions for each of the three phases. During the first phase (March 24 - April 6), most of the refugees came from western and southwestern Kosovo. In the second phase (April 7 - 23), most of the refugees left their homes in the northern and central municipalities. During the

²⁹ Jonathan Steele, *Figures Put on Serb Killings Too High*, THE GUARDIAN, Aug. 18, 2000, <http://www.guardianunlimited.co.uk/Kosovo/Story/0,2763,355781,00.html>.

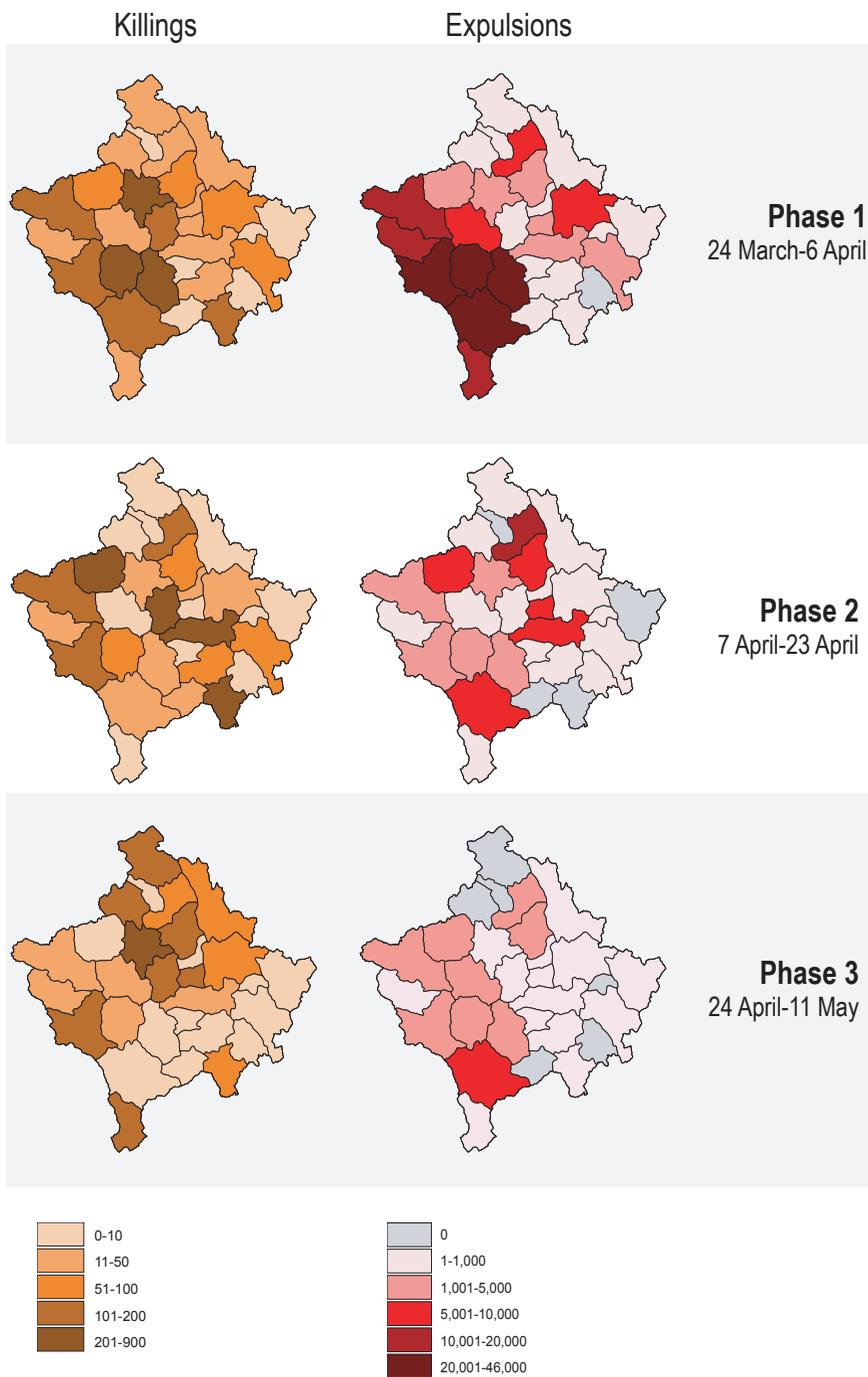
Figure 3: Documented Killings by Municipality



final phase (April 24 - May 11), refugees came largely from the western and southern municipalities. The patterns of expulsions are again replicated by the documented reports of killings found in this study, as can be seen by comparing the expulsion maps with the corresponding maps of killings on the left side of Figure 4.

During phase one of the conflict, while killings occurred region-wide, the majority were concentrated in the southwestern municipalities, particularly Peje/Pec, Gjakove/Djakovica, Rrahovec/Orahovac, Suhareke/Suva Reka, and Prizren/Prizren. In phase two, the concentration of killings

Figure 4: Documented Killings and Estimated Expulsions, by Phase and Municipality



in central Kosova/Kosovo increased, particularly in Istog/Istok, Glogovac/Glogovac, and Lipjan/Lipljan. As Figure 4 shows, this pattern mirrors the increase in flow of refugees from these municipalities during the same time period. With the onset of phase three, the concentration of killings shifted to the north-eastern section of Kosovo. In particular Leposaviq/Leposavic, Zubin Potok/Zubin Potok, Vushtri/Vucitrn, and Podujeve/Podujevo experienced a marked increase in killings from the previous phase.

In the third phase, the pattern of killings differs from the pattern of refugee flows. This variance could be explained by the lack of refugee flow data collected on people who fled to Macedonia or Montenegro. Given the transportation infrastructure in Kosovo, those residing in the northern municipalities most likely would not have left via Albania, which is where most of the data on refugee flows were collected. A more complete picture of the events in Kosovo, particularly in the third phase of the conflict, could be gained by further collaboration among NGOs with relevant data.

Previous work has concluded that the geography and timing of Kosovar Albanians' mass departure from their homes suggests that there was an organized campaign to clear ethnic Albanians from parts of Kosovo. The patterns of people killed in Kosova/Kosovo over time and across space are similar to the migration patterns and also imply coordination. Narrative reports in the interviews in these datasets attributed the vast majority of the killings to Serbian forces. This claim is consistent with the information collected by other organizations such as the International Crisis Group³⁰ and OSCE.³¹ In light of the descriptive sources' attribution of human rights violations to Serbian forces and given the conclusion that the patterns of killings suggest central coordination, this report concludes that Serbian forces were responsible for conducting a coordinated campaign of killings against the Kosovar Albanians.

Role and Impact of NGO Cooperation in Human Rights Reporting

Timely human rights reporting proved to be a decisive condition precedent for international intervention in Kosovo. In the slow build-up to international intervention, many human rights organizations publicized the occurrence of violations, including numerous reports of large-scale human rights abuses. However, the international community responded cautiously.

³⁰ See, INTERNATIONAL CRISIS GROUP, REALITY DEMANDS: DOCUMENTING VIOLATIONS OF INTERNATIONAL HUMANITARIAN LAW IN KOSOVO 1999 (2000).

³¹ See, OSCE, *supra* note 10.

Arguably, the single most significant event in moving the international debate in Kosova/Kosovo toward intervention was the January 1999 massacre at Recak/Racak. It was significant not because it was an atrocity previously unheard of in the conflict, but because of the speed and accuracy with which an unbiased third party—OSCE-Kosovo Verification Mission (KVM)—was able to catalogue and report the events. When the Yugoslav government tried to explain the killings of civilians as collateral damage incurred in a legitimate police action, the international community rejected this claim because the OSCE reports clearly contradicted it. International resolve to act hardened immediately thereafter. This event serves as an example of the power of human rights reporting when it possesses the respect and attention of the international community.

Given the debate surrounding the question of intervention generally, it is likely that, when future human rights crises erupt, the international community will continue to insist on increasingly sophisticated documentation for human rights abuses on which to base their decisions. The NGOs in the human rights community will be the key players called upon to address this challenge.

One way in which NGOs can increase the impact of their efforts is to quantify their work in a way that permits biases to be checked and adjusted for in statistical analyses. As discussed in Section II, the comparison of datasets and pooling of information is an essential component of this process. While the human rights reporting of many NGOs is not biased in the sense of being politicized, the various NGOs nevertheless address certain issues and collect data within conditions that limit researchers to a smaller number of data collection methods or to subsets of the victim population. Often these methods limit the extent to which the resulting data may be quantified and generalized to the entire population of interest. With cooperation, NGOs are able to expand the range of information they can report on and the projections they may make.

Statistical Necessity for Broader NGO Cooperation

From a data analysis perspective, there are a number of benefits that can result from cooperation among NGOs collecting human rights data. One such benefit is the ability to overcome real or perceived bias in the

³² This section follows PATRICK BALL, HERBERT SPIRER, AND LOUISE SPIRER, *MAKING THE CASE* (2000), ch. 1. A related form of this bias results when a critic challenges the objectivity of an organization's work, arguing that "violations were committed on both sides" when in truth

data. When a critic charges that a human rights study is biased, s/he can often mean that the study is too intently focused on violations committed by one perpetrating group. This criticism is taken to imply that the analysis has ignored or undercounted violations committed by some other perpetrating group.³² For example, a critic might charge that a particular project documented only the violations committed by an insurgency while ignoring violations committed by state forces. With multiple, independent organizations surveying the same human rights situation such as that studied here, investigators may be less subject to criticisms that their work is politically biased. In addition, drawing from diverse, multiple sources enables researchers to test for and reduce statistical bias in the data. (See “Sources of Bias in Estimates” in Section II.)

Information from multiple sources also allows statisticians to make sounder estimates of the overall amount of violations committed, as well as totals for each perpetrator, period, or region despite different levels of reporting intensity or foci. The method employed to estimate the total numbers of victims in these analyses relies on information about how often witnesses report the same incidents or victims to different projects. In places (or periods, or among types of perpetrators) where the same victims are reported in many projects, one can estimate that there were relatively few cases that were entirely undocumented. In places where there were relatively more cases that were documented by only one project, one can estimate that there were more unreported cases. Adding information from projects that document relatively few additional cases does not substantially affect the estimates. Adding data from projects that report thousands of cases improves the estimates by bringing the number of documented cases closer to the actual total. That is, adding large projects tends to increase the overall coverage of all incidents and hence reduce remaining uncertainties.

The estimates are also improved by adding data from projects that collected their information in different ways. Human rights information can be collected by surveys and other interviews, exhumations, medical records, and migration records, among other sources. The ideal estimate would combine data collected by very different methods, such as a survey with an exhumation. The victims more likely to be identified by these two methods are not necessarily related; the more unrelated the two methods, the greater the likelihood that any biases in the data produced in one study

nearly all violations were committed by one side. Such claims are based on the attribution of moral equivalence, and are often made by diplomats, the press, commissions of inquiry, and other quasi-official processes professing objectivity.

(e.g., based on exhumation) would be independent of the biases in data produced by a second study (e.g., based on a survey).

The data used for the statistical analysis in this study could be combined with other datasets, thereby reducing both the estimated error and the amount of any statistical bias that still remain. Additional data would particularly improve the estimates of numbers of people killed in each municipality, over time, and by each perpetrator category.

Finally, there is a clear need for new types of data and analyses to aid in the process of holding perpetrators responsible for their actions. Statistical analyses, such as those described above, can be of particular use in this endeavor as they can often identify patterns and trends in abuses that may not necessarily be gleaned from anecdotal information alone. Knowledge of these patterns can help to place responsibility on people in authority positions by helping to identify abuses that result from official policies. For example, the AAAS study, *Policy or Panic*,³³ provides evidence for the argument that Yugoslav authorities executed a coherent program of ethnic cleansing, in contradiction to their repeated official statements. The ABA/CEELI-AAAS study provides further evidence in support of this assertion. Without cooperation among the contributing NGOs, the corroboration provided by this report would not have been possible. Human rights organizations would benefit from conducting more joint analyses of this type. While the challenges may be substantial, fuller cooperation among NGOs is clearly an essential first step necessary to achieve these results.

Prospects for Enhanced NGO Cooperation

Human rights organizations generally gather information in formats tailored to the particular needs of the organization. These organizations operate according to differing mandates and collect information toward differing, yet often complementary, ends. Despite this diversity, efforts at coordination among these groups can be beneficial for all involved. In the Kosova/Kosovo conflict, there was a notable effort to harmonize data collection with ABA/CEELI, The Center for Peace Through Justice, International Crisis Group, and OSCE-KVM, agreeing to follow a standardized format that had the imprimatur of the ICTY. This information, while preserved in a harmonized format and thus more useful to the ICTY, was not adequate for further statistical analysis.

³³ BALL, *supra* note 27.

In this regard, it is important to note that most human rights organizations that gathered data were not focusing on statistics as a goal. Rather, they were interested in two main objectives: 1) portraying the nature and variety of human rights abuses to galvanize public opinion; and 2) supporting the investigative efforts of the ICTY. In addition, these organizations were operating under varying timeframes. Some had the goal of addressing the ongoing conflict, while others were focused on contributing to an accurate historic record. To accomplish these goals, most organizations chose a narrative approach that focused on personal details, putting a human face on the tragedy as it unfolded. The narrative approach performs an essential function, and ABA/CEELI and AAAS do not intend to understate its value.

What differentiates this report is that it seeks to expand the range of available information and analyses outside of the narrative context. Access to a wider variety of information is one benefit of enhanced human rights data collection methods and statistical analysis. As the international community deliberates its response to a crisis and its aftermath, it is important to have access to the broadest range of data.

To ensure that such information is available, it is important for the international community to support the efforts of NGOs to collect rigorous, quantifiable data that can be represented in computer databases. Currently, ABA/CEELI, in collaboration with the Chicago-Kent College of Law and the AAAS, is developing a violations documentation database. The design of this database is directly informed from the experience of these organizations in Kosovo, as well as previous AAAS work in Guatemala, South Africa, Haiti, and elsewhere. The goal of this initiative is to provide free database software that will enable interested NGOs to process their data in formats suitable for subsequent statistical analysis. Furthermore, the format and structure will allow independent groups to merge some or all their data, at any point, in order to conduct larger analyses with greater accuracy, controlling for biases. These analyses could serve a variety of purposes, such as providing a reliable picture of the events for the international community or aiding in the prosecution of perpetrators, and they would therefore be beneficial for all organizations involved.

In this report, ABA/CEELI and the AAAS have relied on the cooperation and support of a group of like-minded human rights NGOs, including The Center for Peace Through Justice, Physicians for Human Rights, and Human Rights Watch. Inter-organizational technical cooperation is a promising development. It follows similar coordination that has in the past been convened under the auspices of truth commissions. The results

detailed herein demonstrate the utility of pooling information for its own sake. ABA/CEELI and AAAS hope that this study spurs additional scientific investigation of civilian suffering during the conflict between Yugoslavia and NATO in 1999. Ideally, in future conflicts, NGOs will begin their work equipped with a knowledge of the basic rules needed to collect good data, adequate software, and an understanding of the power of collaboration. ABA/CEELI and AAAS invite like-minded NGOs to join them in this ongoing initiative.

II. Statistical Methodology

Data Sources

The three data sources used in these analyses were compiled by different research organizations: Physicians for Human Rights, Human Rights Watch and ABA/CEELI-Center. Slightly different data collection techniques were employed, and it must be understood that the data were gathered by researchers working within often chaotic conditions to interview Albanian witnesses to killings or the evidence of these killings. Nonetheless, through these witness accounts, it is possible to estimate the total number of Kosovar Albanians who were killed during the violence between March 20 and June 12, 1999.

*Physicians for Human Rights*³⁴

Between April 19 and May 3, 1999, Physicians for Human Rights and the Program on Forced Migration and Health of Columbia University's Joseph L. Mailman School of Public Health interviewed representatives from 1,180 households of Kosovar Albanian refugees. The interviews were conducted at 31 refugee camps or collective centers³⁵ in Albania and Macedonia. The research team used a modified random systematic sampling method to identify the households that would be selected for interview.

With a target sample of 1,000 interviews, the research team selected 31 camps or centers in Macedonia and Albania. In Macedonia, six camps were sampled, while in Albania, 25 camps or centers with refugee populations greater than 1,000 were sampled. Within each camp, the number of households to be sampled was computed by comparing the number of refugees in the camp to the estimates of the total number of Kosovar refugees. All households were identified and the total number of households in the camp was divided by the number of households to be sampled.

³⁴ This discussion is drawn primarily from PHYSICIANS FOR HUMAN RIGHTS, *WAR CRIMES IN KOSOVO* (1999).

³⁵ Collective centers included farms, schools and large buildings, such as factories, etc.

This number, “i,” was the sampling interval. For example, if there were 200 interviews to be conducted in a camp with 1,000 refugee households, every 1,000/200, or 5th household would be interviewed. The research team selected a random starting point and sampled every ith household. In total, 1,209 households were sampled for participation in the study. 1,180 of the 1,209 sampled households participated in the study for a response rate of 98 percent.

In these structured interviews, respondents were asked to provide demographic information on themselves and the other household members, including the respondent’s age, gender and profession and the village of residence of the household. Respondents also provided information on any attacks on their homes or the homes of others or the after effects of these attacks that they witnessed. They provided information on killings that they had witnessed or bodies that they had observed. Respondents were also asked whether they or members of their families had been victims of any of a range of violent attacks. The perpetrators (Serbian police, Serbian soldiers and/or paramilitary forces or UÇK forces) of these abuses were documented whenever possible. In total, there were 59 reports of killings of members of the sampled household unit. Twenty-six of these killings were reported to have occurred between March 20 and June 12, 1999.

While the research team attempted to follow standard systematic sampling methods, adaptations were made. For example, those refugees who did not reside within camps or collective centers were not sampled for interview. These unsampled refugees consist primarily of those who resided in private households in Albania or those who never left Kosova/Kosovo. The experiences of the members of these households may differ from those refugees who resided in the camps or centers. In addition, households in Albanian camps in with refugee populations under 1,000 were not interviewed, due to the expense involved in conducting a relatively small number of interviews in a large number of camps spread out over a wide geographical area.

Human Rights Watch

The Human Rights Watch dataset was derived from 591 interviews with Kosovar Albanian refugees between March and October of 1999. HRW researchers interviewed refugees as they crossed the border into Albania, Macedonia and Montenegro. Researchers also interviewed refugees in Albanian refugee camps. After June 12, 1999, researchers traveled into Kosova/

Kosovo to interview additional witnesses within their home villages. The geographic regions within Kosova/Kosovo for interviewing were selected based on two criteria. First, areas were selected based on refugee reports of mass human rights violations. Second, reports of mass human rights violations were reported by other sources than refugees,³⁶ and these were also used to identify areas to conduct interviews.

By interviewing witnesses as they crossed the border out of Kosovo, and those who returned home to Kosova/Kosovo, HRW researchers included reports from refugees who did not necessarily reside in the refugee camps. Some of the refugees in the HRW study may have resided in private homes in Albania while others may never have left Kosova/Kosovo. Thus, this study was able to interview a broader (albeit smaller) cross-section of the Kosovar Albanian population than the PHR study.

Witnesses were asked open-ended, unstructured questions about their experiences between March 24 and June 12, 1999. Information that was volunteered about incidents that occurred outside of these dates was also documented. Accounts were translated into English and recorded verbatim by researchers. These narratives were then coded for among other things, killings that the respondents witnessed or bodies that they observed. Of the 591 interviews, 376 contained reports of killings. Of the 376 reports with killings, there were 293 that included killings that occurred between March 20 and June 12, 1999. These were divided up as follows: 9 were from interviews at the Macedonian border or within Macedonian camps, 93 were from interviews at the Albanian border or within Albanian camps and 173 were reported during interviews conducted within Kosova/Kosovo. Within these reports there were 5,705 documented killings.

ABA/CEELI-Center

A third source of data is from the ABA/CEELI War Crimes Documentation Project (WCDP) and the Center for Peace Through Justice. Researchers interviewed refugees at camps in Albania and Macedonia as well as refugees who traveled to Poland and the United States. Using semi-structured interviews, researchers asked witnesses about the experiences surrounding their departure from Kosova/Kosovo. In addition, they were asked about incidents of violence and intimidation that they experienced or witnessed.

As of October 1999, ABA/CEELI - Center had compiled a database of 1,582 interviews of witness testimonies, in which 1,622 incidents of one

³⁶ For example, mass human rights violations were reported by international observers (e.g. the OSCE-KVM) and media outlets reporting on the crisis.

or more killings were recorded. The database records were not coded for specific killing-related information, so the original interviews were identified and recoded. During the recoding process, an additional 81 incidents of killings were identified. A random sample of thirty interviews that were not originally identified as involving reports of killings were sampled and coded to determine whether they contained reports of killings. Only two (6.7 percent) of these also indicated any reports of killings. Thus, AAAS decided that it was not necessary to return to all of the records in the database to identify any additional reports of killings.

In total, from the combined data sources, there were 2,422 incidents of killings, involving at least 6,374 victims killed between March 20 and June 12, 1999.³⁷

Analytic Framework

One artifact of using lists of witness testimonies as data sources results from the fact that for any particular killing, there may be multiple witnesses to the events or evidence of the killings. Thus, more than one witness may report having observed the same killing or killings to investigators. On the other hand, some killings may not have been witnessed by others and hence went unreported by anyone. Therefore, it is not adequate to simply add up the total number of killings in the data files as an estimate of the total number of killings that occurred. Researchers must attempt to determine the number of killings that were reported in multiple sources, as well as estimate the number of killings that were not reported in any of the three studies. The question then is how to analyze non-random data that contains multiple reports of some incidents—yet no reports at all of other incidents.

Population-based studies can be complicated by a low event rate in the population. In these studies, a random sample of the population is surveyed, and the prevalence of an event within the sample is weighted and applied to the population. A population-based study must sample enough cases to document a sufficient number of the studied event for analysis. Standard errors, necessary to construct confidence intervals, are sensitive to sample sizes and event prevalence, and sub-group analyses (e.g., by time, geography or perpetrator) can only be conducted with a sufficiently large number of observed events. Thus, for population-based studies,

³⁷ This estimate is based on the very conservative assumption that those incidents that contain an unknown number of killings involve only two killings.

researching relatively rare events requires a larger sample.³⁸ However, as sample size increases, so does the time and cost required to conduct the data collection.

In the case of the event being studied here, the number of victims is a relatively small proportion of the overall population. Traditional sampling techniques would require a large number of households to be interviewed in order to generate enough documented killings for reliable estimates and detailed analysis. For example, in the PHR sample, only about five percent of the sampled households reported the killing of one or more household members (59 out of over 1,000 interviews). While this number may be adequate for generating an overall estimate of the number of killings, the low prevalence in the sample limits the ability of researchers to conduct detailed analyses. To conduct in-depth analyses with reliable estimates, several thousand additional interviews would need to be conducted.

In addition, population-based studies depend on systematic sampling techniques and individual events being reported only once. This can be ensured by restricting the reporting of witnesses to those events that occurred within the sampling unit. For example, the PHR study asks respondents about killings of household members only. Since only one representative of each household participated in the study, killings of individual household members cannot be included more than once (though a respondent may have reported killings of more than one household member). However, when all members of the sampling unit are killed, the killings cannot be reported.³⁹ Thus, population-based studies may systematically exclude some reports in an attempt to eliminate duplicating reporting.

AAAS has outlined two major obstacles to generating accurate estimates of the number of Kosovar Albanians killed during the violence from March 20 to June 12, 1999. First is that the prevalence in the population is sufficiently low that traditional population-based data collection techniques are more costly and less efficient. Second is that witnesses will often provide multiple reports of the same killing and attempts to limit over-reporting may result in under-reporting. Thus, population-based estimation techniques may not be best suited to determining estimates of the killing that occurred in Kosova/Kosovo.

While the PHR data were collected using a quasi-random stratified sampling technique, the HRW and ABA/CEELI - Center data were not collected using random sampling techniques. In both of these studies, the researchers specifically sought out reports of killings and human rights

³⁸ WILLIAM G. COCHRAN, *SAMPLING TECHNIQUES* (1977).

³⁹ The HRW data contain witness reports of the killing of entire households (F. Abrahams, personal communication, August 1, 2000).

abuses by interviewing as many individual witnesses as possible. The projects were originally intended to provide as much documentation of human rights abuses as possible, not to make population estimates. Thus, while the PHR data can be considered a random sample of refugees, the HRW and ABA/CEELI - Center data can only be considered lists of killings. To use these two lists to generate population estimates, alternative analysis techniques must be employed.

There are analytic techniques that are not only well-suited to correct for the limitations of list-based data, but actually benefit from this method of data collection. Marks, Seltzer and Krótki⁴⁰ outline a technique that allows researchers to use the results of multiple, quasi-independent data collections to compute not only the recorded number of events but also estimate the unrecorded number of events. Using these techniques, AAAS is able to (1) compute the number of reported killings and (2) estimate the number of unreported killings to generate an overall estimate of the number of killings of Kosovar Albanians during the 85 days between March 20 and June 12, 1999.

Capture-Recapture Techniques

While originally developed to estimate wildlife populations, capture-recapture techniques have more recently been adapted by demographic, public health and human rights researchers for a variety of projects.⁴¹ Among other things, capture-recapture techniques have been used to estimate the prevalence of drug use,⁴² HIV infection⁴³ and prostitution.⁴⁴ This technique has also been used extensively to evaluate the level of undercount in the decennial census of the United States.⁴⁵ In the area of human rights, capture-recapture techniques have been applied to analyse the number of killings during the violence in Guatemala between 1960 and 1996.⁴⁶

⁴⁰ E.S. MARKS, ET AL., *supra* note 23.

⁴¹ See G. A. F. Seber, *A Review of Estimating Animal Abundance II*, 60(2), INT'L STAT. REV., 129 (1992); Chandra C. Sekar and William E. Deming, *On a Method of Estimating Birth and Death Rates and the Extent of Registration*, 44 J. A. STAT. A. 101 (1949); GLOBAL HEALTH NETWORK, CAPTURE RECAPTURE WEBPAGE, <http://www.pitt.edu/~yuc2/cr/main.htm> (2000).

⁴² J. N. Doscher & J. A. Woodward, *Estimating the Size of Subpopulations of Heroin Users: Applications of Log-Linear Models to Capture-Recapture Sampling*, 18 INT'L J. ADDICTION (1983); T. D. Mastro, et al., *Estimating the Number of HIV Infected Injection Drug Users in Bangkok: A Capture-recapture Method*, 84(7) A. J. PUB. HEALTH 1094 (1994)

⁴³ E. Drucker & S. H. Vermud, *Estimating Population Prevalance of HIV Infection in Urban*

Underlying capture recapture techniques is basic probability theory. The most basic principle is that if A and B are two independent events, then the probability of the two events jointly occurring is equal to the probability of A occurring times the probability of B occurring.

$$P_{AB} = P_A * P_B \quad (1)$$

The next proposition states that if a researcher uses a data collection method that is known to obtain reports of a fixed percentage of the total number of events in the population, the population total can be estimated by:

$$\hat{N} = \frac{N_A}{P_A} \quad (2)$$

Thus, in order to estimate the number of events in the population, the number of events in the sample (N_A) and an estimate of the efficiency of the data collection method (P_A) must be determined.

By returning to Equation 1, and keeping in mind the assumption of independence between the two data sources, P_A can be estimated by:

$$P_A = \frac{P_{AB}}{P_B} \quad (3)$$

Given that

$$P_A = \frac{N_{AB}}{N_B} \quad (4)$$

the total number of observations in the population, \hat{N} , can be estimated by

$$\hat{N} = \frac{N_A}{N_{AB} / N_B} \quad (5)$$

Areas with High Rates of Intravenous Drug Use, 130(1) A. J. EPIDEMIOLOGY 131 (1989); C. A. Perucci et al., *The Impact of Intravenous Drug Use on Mortality of Young Adults in Rome, Italy*. 87(12) BRITISH JOURNAL OF ADDICTION 1637 (1992).

⁴⁴ N. McKeganey et al., *Female Streetwalking Prostitution and HIV Infection in Glasgow*, 308(6920) BRITISH MED. J. 27 (1994)

⁴⁵ For example, see C. D. Cowan & D. Malec, *Capture-Recapture Models When Both Sources Have Clustered Observations*, 81(394) J. A. STAT. A. (1986).

⁴⁶ MAKING THE CASE, *supra* note 23 at Chapter 11.

and thus,

$$\hat{N} = \frac{N_A N_B}{N_{AB}}. \quad (6)$$

The two formulas

$$N_A = N_{AB} + N_{A\bar{B}} \quad (7)$$

and

$$N_B = N_{AB} + N_{\bar{A}B} \quad (8)$$

can be substituted into Equation 6, to show that

$$\hat{N} = N_{AB} + N_{A\bar{B}} + N_{\bar{A}B} + \frac{N_{A\bar{B}} N_{\bar{A}B}}{N_{AB}} \quad (9)$$

or, in the two-sample notation style, where the subscript 1 indicates presence in and 0 indicates absence from a data source,

$$\hat{M} = M_{11} + M_{10} + M_{01} + \frac{M_{10} * M_{01}}{M_{11}}. \quad (10)$$

The last portion of the equation, $\frac{M_{10} * M_{01}}{M_{11}}$,

equals the number of events that are unreported to either study $\left(\hat{M}_{00} \right)$.

Thus, by knowing the level of overlap, or the number of killings reported to two independent lists, it is possible to generate an estimate of the number of killings that occurred in the population that includes an estimate of the number of killings that were not recorded in either list.

The two-sample estimator shown in Equation 10 is the simplest model within this general analytic technique. Marks, Seltzer, and Krótki⁴⁷ also present a model that allows for estimation using three samples. In addition, there have been many other developments, with some of the more recent variations⁴⁸ on this basic technique also used in this report. The

specific formulas for the estimates and their standard errors are presented below.

Estimates and Standard Errors

Given the number of killings reported by one, two, or all three projects, we can estimate the number of killings excluded from all three samples. Each estimation technique used in these analyses is based on the principles of the general capture-recapture model. There are several methods by which this estimate can be made, each of which involves different assumptions about the relationships between the sources of data.

The first method is Equation 11 from Marks, Seltzer, and Krótki⁴⁹

$$\hat{M}_{000} = \frac{M_{100}M_{010} + M_{100}M_{001} + M_{010}M_{001}}{M_{101} + M_{011} + M_{110}} \quad (11)$$

When combined with the unduplicated documented total

$$\hat{N} = M_{111} + M_{110} + M_{101} + M_{011} + M_{001} + M_{010} + M_{100} + \hat{M}_{000} \quad (12)$$

this yields a total estimate of 10,538. This model assumes that there may be “appreciable correlation bias,” that is, the existence of inter-system dependencies among the three lists or systems.

Marks, Seltzer, and Krótki⁵⁰ do not suggest a variance estimator. Therefore, the variance was computed using a jackknife estimator, following Wolter,⁵¹ where $\hat{\theta}$ denotes \hat{M}_{000} . The method randomly divides each of the three samples of matched records into k evenly-sized groups. $\hat{\theta}_{\omega}$ is calculated by the same method as $\hat{\theta}$ but with the reduced sample obtained by omitting group α (where α goes from 1 to k). In each of the k rounds, we dropped the k -th group from each sample and then recombined the samples using the matching information. After summing across matching categories to recompute the seven values M_{001} , M_{011} , ... M_{111} , \hat{M}_{000} and \hat{M} are re-estimated.

⁴⁷ Marks, *supra* note 23.

⁴⁸ For example, see YVONNE M. BISHOP, ET AL., *DISCRETE MULTIVARIATE ANALYSIS: THEORY AND PRACTICE* (1975).

⁴⁹ Marks, *supra* note 23, eq. 7.118 at 406.

⁵⁰ *Id.*

⁵¹ KIRK WOLTER, *INTRODUCTION TO VARIANCE ESTIMATION* (1985).

The variance is defined by

$$\hat{\theta}_\alpha = k \hat{\theta} - (k-1) \hat{\theta}_{(\alpha)} \quad (13)$$

and

$$\hat{\theta} = \frac{1}{k} \sum_{\alpha=1}^k \hat{\theta}_\alpha \quad (14)$$

Equation 13 yields k values of $\hat{\theta}_\alpha$ calculated from the sub-samples reduced by omitting a group k ; the mean of these values is $\hat{\theta}$ (see Equation 14), called Quenouille's estimator, and removes first-order biases that affect $\hat{\theta}$.

The other beneficial result of the jackknife method is that the values of $\hat{\theta}_\alpha$ are distributed approximately normally. The standard error of the estimator (the square root of the variance) is estimated in Equation 15.

$$SE(\hat{\theta}) = \sqrt{\frac{1}{k(k-1)} \sum_{\alpha=1}^k (\hat{\theta}_\alpha - \hat{\theta})^2} \quad (15)$$

A standard error of 1,576 was calculated with Equation 15. This standard error is used to generate the confidence interval in bar one of Figure 1.

A variation on these equations yields convergent estimates of the number of killings and the corresponding standard error. Bishop, Fienberg, and Holland⁵² suggest the following estimator for cases in which one sample is independent of the first two. This model is plausible for this case since the PHR sample was taken systematically within some camps, which would lead it to substantially different biases from the arbitrarily collected information in the ABA/CEELI - Center and HRW samples (though all of these samples overcollected information from refugees relative to people who were internally displaced). Treating PHR as the third (independent) system yields

$$\hat{M}_{000} = \frac{M_{001} \cdot (M_{110} + M_{100} + M_{010})}{M_{111} + M_{101} + M_{011}} \quad (16)$$

When combined with the documented total per Equation 12, Equation 16 yields a total estimate of 10,242. The standard error is defined by

⁵² Bishop, *supra* note 48, eq. 6.4-20 at 241.

$$SE(\hat{M}_{000}) = \sqrt{(\hat{M}_{000})^2 \cdot \left(\frac{1}{M_{+1} - M_{001}} + \frac{1}{M_{+0}} + \frac{1}{M_{001}} + \frac{1}{\hat{M}_{000}} \right)} = 1,412 \quad (17)$$

where the subscript “+” indicates summation over that variable. This equation yields an estimated standard error of 1,412. While this estimate and its confidence interval are not presented in the text of this report, the results provide convergent estimates, and therefore support, those presented.

Data Preparation and Estimation

Regardless of the specific equations used, the generation of estimates using the capture-recapture technique involves the following steps: generating two or more internally non-redundant lists of events; matching events across lists to identify those events that are documented in two or more of the sources; merging the lists into one file and; estimating the number of undocumented events using the information on the matching of incidents across sources. A final step involves generating the estimates of the standard error in order to develop a confidence interval around the estimate of the total number of documented and undocumented events.

Matching Reports of Killings

Reports of killings took multiple forms within the data lists. In the PHR data, respondents identified specific household members who had been killed, and the result was reasonably detailed identifications of victims. The ABA/CEELI-Center and HRW data were collected during interviews in which respondents were asked to describe all the killings or evidence of killings that they witnessed. These data collection techniques often yielded imprecise descriptions of the victims.

Many killings were described in specific terms, naming the individual who had been killed, and perhaps providing the person’s sex and age. For example, a respondent might say that her son, John Doe (a 27 year-old male) was killed. Or, the respondent might provide a list of individual people who were killed; killings identified in this way are called individual, named victims. Other killings were reported as unnamed groups: “there were twenty people killed in village X on March 28.” Killing victims identified in this way are called anonymous victims. Many reports are a mixture of the two forms: “my son Adam and his wife Betty were killed, along with twenty others from the village.”

The HRW and ABA/CEELI-Center projects sought multiple witnesses to killing events. This format meant that each killing could have been reported in many different interviews. This is a “many-to-many” reporting format, in which each witness may talk about many killings, and each killing may be reported by many different witnesses.

Before any statistical analyses can begin, all reports of each killing had to be identified so that the victims are counted only once. The number of times each victim is reported is called that victim’s reporting density. For example, the victim Adam Smith (M 27) may have been reported as the respondent’s son and as the colleague of some other victim (say, Carl) in a report by another witness. The reporting density for Adam would therefore be two.

Reports of killings may identify victims by slightly different information. Adam’s name may be spelled in various ways, his age might be reported differently or not reported at all. The killing may be reported in a slightly different location, or on a slightly different date. The matching must take all of this variability into consideration.

Killings of large groups present other complexities. The group killing described above may be reported by one respondent as “my son Adam and his wife Betty were killed, along with twenty others from the village.” A second respondent might say “My friend Carl and his colleague Adam were killed, along with about 25 other people.” Matching these reports, three individuals are identified, each of whom has a reporting density equal to two. Adam is clearly identified in each report. Betty and Carl also have a reporting density of two because they are identified once by name, and a second time as implied members of an anonymous group.

In this example, the group also has a reporting density of two. Its quantity is the number in the group (20 or 25, depending on which number coders judged to have been more precise) minus the number of named individuals identified in the group. If the data coders judged 20 to be the more accurate estimate of the group size than 25 (as reported in the matched interview), the group of anonymous victims would be assigned quantity equal to 18 (20 minus Betty and Carl).

The data coders took a maximal approach to matching. That is, whenever two individuals or groups seemed likely to be matches, they were coded as matches. We were concerned that matching errors should be conservative, that is, that the errors would tend to create bias toward lower total estimates (see “Sources of Bias in Estimates” below). How the matching was done, and the subsequent data processing, are described below.

Named victims were matched against other named victims by cross-checking the names, the reported dates of the killings, and the reported

places of the killings. The record being examined is called the source; the records to which it is compared are called the targets. All target records within +/- one week of the source were considered, and all target records in the same municipality as the source were considered. Names that contained obvious variant spellings or partial information (i.e., including only a first name or surname) were considered matches.

Named source records were also matched against target collective records using the place and time limitations described above. These matches were more difficult to establish because the collective records give only a place and date at which a number of people were killed. Whenever there was minimal agreement between the time and place of an individual and collective killing, the data coders defined the killing as a match. Similarly, whenever collective killings were compared to other collective killings, minimal agreement was sufficient to define a match.

Intra-system matching often produced clusters of linked records in which the links were overdetermined: all the records in a particular incident linked to all the other records. The overlinking conflated separate individuals who were each linked to groups of anonymous victims. Returning to an example suggested earlier, imagine two reports. The first report says “my son Adam and his wife Betty were killed, along with 20 others from the village.” A second respondent might say “My friend Carl and his colleague Adam were killed, along with about 25 other people.” Matching these reports, the coders linked the reference to Adam in each report, and they linked the two groups of unnamed victims. However, the linking process failed to distinguish among individuals and groups clearly, and so Carl and Betty were also inadvertently linked to each other and to Adam.

To solve this, an additional matching step was added. A first pass of matching pulled all the related records together as described above. In a second pass, each incident (composed of all the individuals and groups identified as having been killed at one time and place) was examined. All the separate individuals were unlinked from the anonymous group while maintaining the links for records that point to a single person. The overall count of the group of anonymous victims was then decremented by the number of identified individuals who had been pulled out. In this example, the group would then be identified as having 17 people in it (20 minus the three individuals).

Internal Matching of Incidents. Prior to matching victims across lists, each list must be free of internal duplications of reports. Only one of the three data lists contained duplicate reports of the same killing incident. The PHR data contained reports of killings of household members only and therefore contained no redundant reports of incidents. The HRW data

had been pre-processed by researchers at Human Rights Watch, who had examined all reports of killings and eliminated any redundant incidents. Thus, only the ABA/CEELI-Center list contained redundant reports that needed to be identified and eliminated. The identification and elimination of duplicate records was conducted in the manner described above.

Matching Incidents Across Lists. In order to determine the level of overlap of reports across the three sources of data, the three lists were then matched. The PHR data were matched to both the HRW and the ABA/CEELI-Center lists and the HRW list was matched to the ABA/CEELI-Center list. Records could be unmatched, double-matched (found in two lists) and triple-matched (found in all three lists).

Inter-Matcher Reliability. AAAS generated two different measures of inter-matcher reliability. The first relates to the identification of matches between the HRW and ABA/CEELI-Center lists. The second relates to the correspondence between matches to the ABA/CEELI-Center list from the PHR and HRW lists. Overall, the inter-matcher reliability across lists indicated a high level of consistency in identifying multiple reports of killings.

When matched to the ABA/CEELI - Center list, the HRW list was divided into three overlapping subsets. Four hundred of the records were duplicated and listed in one of the other two subsets. Inter-matcher reliability was assessed by examining how different matchers linked these duplicated HRW records to the ABA/CEELI-Center list. Examination of the reliability across subsets indicate a very high level of agreement in matching clusters. Of these 400 overlapping records, only 49, or twelve percent, contained any discrepancies in how they were matched to the ABA/CEELI-Center list.

The second source of inter-matcher reliability was determined when comparing how the matching clusters from the HRW and PHR agreed or disagreed in their match to the ABA/CEELI-Center list. In total there were seven records from the PHR list that matched records from the HRW list. These seven records were evaluated to assess their agreement in either matching or not matching to records in the ABA/CEELI-Center list. The consistency in HRW and PHR matching to the ABA/CEELI-Center list was not highly reliable. Only one of the seven records agreed that there was no match to the ABA/CEELI-Center list, while the remaining six records contained some sort of discordance in their match. In three of the seven, the HRW and PHR records were linked to different ABA/CEELI-Center records. In the final three records, either the HRW or PHR record matched to an ABA/CEELI-Center record while the other did not. While this portion of the matching was not reliable, it is important to note that this involved only seven records in total.

Overall, AAAS is confident that there was sufficient reliability during the matching of incidents across lists. While the reliability of the agreement of the HRW and PHR links to the ABA/CEELI-Center list was poor, it involved only seven cases. In the larger matching of the HRW to the ABA/CEELI-Center list, the inter-matcher reliability is quite high, with a rate of 88 percent.

Data Merging. Once the three lists were matched, they were merged into one data file. Each list may contain records with reports of multiple killings. That is, one record could contain a report of two or more unnamed individuals who were killed in the same incident. The result is that a cluster of killings in one data file may contain multiple records of multiple killing reports and match to a cluster in one or both of the other data files. These other clusters may also contain multiple records of multiple killing reports. In addition, a cluster may be listed in multiple sources but each list may not report the same number of killings. Given this file structure, the data merging process was somewhat more complicated than a simple one-to-one match merge.

The first step involved comparing the clusters across lists and correcting for those that contained an unknown number of killings. For example, the HRW list may contain a cluster that reports the killing of 20 individuals. This cluster may be linked to a cluster in the ABA/CEELI-Center list that reports the same incident but for which the total number of victims was unknown. In cases such as this, the number of victims in the ABA/CEELI-Center file was set to equal the number of cases in the matching HRW cluster. Thus, AAAS was able to properly match records for killings that were linked but the total number of victims was unknown in one list. It is important to note that this adjustment was only made in the case of a link between clusters where one but not both had an unknown number of victims; if both contained an unknown quantity or there were known but unequal numbers in both clusters, the number of victims was not adjusted.

File merging was conducted in two stages. First, the PHR list was merged to the HRW list. In this case, seven of the 59 PHR records matched records from the HRW file. The 52 unmatched records were added to the merged file. For the matching seven records, the PHR and HRW data may have contained links to the ABA/CEELI-Center list, with disagreement on the linkage to a specific ABA/CEELI-Center cluster. These link discrepancies could take three forms. First, the HRW data may indicate no link to ABA/CEELI-Center clusters, while the PHR data indicate a link. Second, the HRW data could indicate a link to the ABA/CEELI-Center clusters while the PHR data indicate no link. Finally, it may be that the HRW and PHR

data indicate links to different ABA/CEELI-Center clusters. Since there was no simple system for determining which of the two records were more accurate, the following rules were applied. If one data source indicated a link to an ABA/CEELI-Center cluster while another did not, the link was preserved. However, if both data files indicated a different cluster link, the HRW cluster link was preserved. These discrepancies occurred in a total of six records. Once the HRW and PHR lists were merged, the ABA/CEELI-Center list was then merged by cluster identification number, with any unmatched cluster records being appended to the file. When matching the ABA/CEELI-Center data to the combined HRW/PHR list, 1,827 individual killing records were merged, while the remainder were appended to the combined file.

After selecting only those incidents that occurred between March 20 and June 12 within Kosova/Kosovo, the combined data file contained 7,322 documented killings. 3,909 were from the HRW list, while 21 and 5,417 were from the PHR and ABA/CEELI-Center lists, respectively.⁵³ See Tables 1 through 3 for detailed information on the overlap of records for the three data files as they were merged into the combined data file.

Table 1. Killing Overlap Counts for Combined Data File

Overlap (HRW- PHR - ABA/CEELI-CENTER)	Count	Percent
M ₁₁₁	5	0.07
M ₁₁₀	2	0.03
M ₁₀₁	2,005	27.38
M ₀₁₁	8	0.11
M ₁₀₀	1,897	25.91
M ₀₁₀	6	0.08
M ₀₀₁	3,399	46.42
Total	7,322	100.00

Table 1 presents information on the number and percent of individual killings in the combined data file that were contained in the different lists. For example, 5 (0.07 percent of the 7,322 killings were reported in all three

⁵³ Due to overlap, the counts from the individual data files do not sum to the total for the combined data file.

lists (M_{111}) while 2,005 (27 percent) of the killings were reported in the HRW and ABA/CEELI-Center, but not the PHR list (M_{101}).

Table 2. Overlap Percentages within Data Sources

Overlap (HRW- PHR - ABA/CEELI-CENTER)	Clusters		
	HRW	PHR	ABA/CEELI-Center
M_{111}	0.13	23.81	0.09
M_{110}	0.05	9.52	
M_{101}	51.29		37.01
M_{011}		38.10	0.15
M_{100}	48.53		
M_{010}		28.57	
M_{001}			62.75
Totals	100	100	100
N	3,909	21	5,417

Table 2 shows the overlap as the percentage of the number of killings within in each list. For example, 0.13 percent of the 3,909 HRW killings were also listed in the PHR and ABA/CEELI-Center lists (M_{111}) while nearly 24 percent of the 21 PHR killings were reported in the other two lists.

Table 3. Aggregate Overlap Percentages within Data Sources

	Records		
	HRW	PHR	ABA/CEELI-Center
None	48.53	28.57	62.75
Double	51.34	47.62	37.16
Triple	0.13	23.81	0.09
Totals	100	100	100
N	3,909	21	5,417

Table 3 shows the percent of non-matches and double and triple-matches as the percentage of the number of killings reported in each list. Note that for each list, a relatively high number of killings were reported in at least one other list. In the HRW, PHR and ABA/CEELI-Center lists, 52 percent, 71 percent and 37 percent of the reports were double-or triple-matched, respectively.

Sources of Bias in Estimates

Characteristics of the killings, as well as the data collection and preparation process can introduce either upward or downward bias into these estimates.⁵⁴ Some of these factors influence our estimates while others do not. The following section addresses potential sources of bias and discuss what, if any, effects they may have on these estimates.

Homogeneity of Catchability. Homogeneity within lists results when the probability of inclusion on a source list does not vary from individual to individual. Heterogeneity, or unequal probabilities of being listed in the data sources, can generate bias in the resulting estimates (the direction of bias depends on the pattern of heterogeneity). Studies relying on voluntary reporting are especially susceptible to this form of bias. While this study does not rely strictly on voluntary reporting, there are some characteristics of events that may affect the homogeneity of catchability. First, some witnesses may be more interested in reporting their experiences than other witnesses. Research in account-making in response to stressful events indicates that individuals psychologically benefit from relating these traumatic experiences to others.⁵⁵ Thus, witnesses who experienced the loss of family members or for whom the killings may have been more “personal” may be more likely than witnesses of less personally traumatic events to relate their experiences to researchers. Some victims may seek out an audience for their accounts for personal reasons; others may be making an overt attempt to document the events that occurred. Regardless of the reason, there will be some individual-based sources of heterogeneity in reporting events. However, the efforts of researchers to contact a large number of witnesses serves to mitigate this particular form of heterogeneity of catchability.

⁵⁴ For more detail on sources of bias, see Cowan, *supra* note 45; J. N. Darroch et al., *A Three-Sample Multiple-Recapture Approach to Census Population Estimation with Heterogenous Catchability*, 81(394) J. A. STAT. A. 1137 (1993).

⁵⁵ See JUDITH HERMAN, *TRAUMA AND RECOVERY* (1992); See also Terri L. Orbuch, *People's Accounts Count: The Sociology of Accounts*, 23 ANN REV. SOCIOLOGY 455(1997).

There are additional potential sources of list heterogeneity. Within these lists, we observed differences across time and space in the likelihood that a witness will report their experiences to researchers. Analyses of the overlap of reports of killings across lists indicate that across both time and geography there exists variability in the probability of any killing being reported. While it is difficult to estimate the exact amount of bias caused by heterogeneity of catchability, AAAS does not expect that these estimates contain significant upward bias from this source.⁵⁶

Event Clustering. As stated previously, a necessary assumption for unbiased estimates using the capture-recapture technique is that within any data source, the probability of selection is equal for all events. Given the nature of the violence studied, the probability of selection is probably not equal for all events. That is, within any killing incident, there are often groups with unnamed victims. Therefore, there are two probabilities of the event being reported. First is the probability that a particular killing cluster is reported. Second is that, given that the cluster is reported, there is a separate probability that a specific killing within the cluster is reported to the researcher by name or by inclusion in a quantified group. In addition, if a killing cluster is not reported to researchers, the probability is zero that any individual killing within that cluster is reported. Although this clustering effect has been shown to introduce bias into the generated estimates within two-sample studies, in simulations the bias does not exceed one percent.⁵⁷

Research on two-sample studies with clustered data indicates that the type of bias introduced varies depending on the relationship between cluster size and probability of cluster selection in both data sources. Where the probability of cluster selection is unrelated to cluster size in both data sources, there are techniques that can be used to correct for any introduced bias, but when the probability of selection varies according to cluster size, the bias introduced is difficult to determine. However, it appears that the net effect of clustering on the estimates is reasonably small. Given the event being studied here, it is likely that the probability of cluster selection does vary according to cluster size and that the relationship is similar for all data sources. It is probable that the fewer the number of individuals killed in a single incident, the less likely the event is to be reported (i.e., fewer witnesses exist to report the event). Thus, as the number of killings within a cluster increase, the probability that the cluster is reported to

⁵⁶ Research that has modeled the effect of variable catchability on capture-recapture estimates do not find that it contributes a significant amount to the overall bias. E.B. Hook and R.R. Regal, *Effect of Variation in Probability of Ascertainment by Sources (Variable Catchability) upon Capture-Recapture Estimates of Prevalence*, 137 AM. J. EPIDEMIOLOGY 1148 (1993).

⁵⁷ Cowan, *supra* note 45.

researchers could also increase. AAAS believes that clustering may introduce a small, downward bias to the estimates and that this effect could be tested with additional data.

Independence of Lists. Independence of lists occurs when the probability of an event being included in one list does not depend on whether the event is included on another list. For example, if researchers in the different projects coordinated efforts to only interview refugees who had not provided accounts to one of the other data collection projects, there would exist a negative dependence between the lists and a resulting upward bias in the estimates. If researchers shared information that would lead each other to potential witnesses, the positive dependence between the lists would result in a downward bias in the estimates. However, there were no overt efforts by any of the researchers to exclude or include witnesses who had participated in another data collection project, and therefore AAAS anticipates no bias from dependence between the lists.

Unpurged Out of Scope Reports. Upward bias occurs if reports of events that did not occur within the scope of the study are included in the analyses. In these analyses, the major boundaries of this project were of time and space. AAAS estimated only the number of killings that occurred between March 20 and June 12, 1999 within the 29 municipalities of the province of Kosova/Kosovo. In the process of these analyses, all cases with out of range or unknown dates were dropped from the analysis. In addition, the few reports of killings that occurred outside of Kosova/Kosovo were excluded from analyses. There were incidents for which witnesses could not accurately identify a specific location, and these cases were evaluated for whether or not they occurred within Kosova/Kosovo. Those that did not occur within the province were not included in the study. Thus, even those incidents that were not coded for their specific municipality within Kosova/Kosovo could be included in the analysis without biasing the estimates. It is unlikely that unpurged out-of-scope reports created any significant bias to these estimates.

Perfect Matching. One assumption required for capture-recapture techniques is that all duplicate reports across lists are matched perfectly. That is, there are no falsely matched records (i.e., reports of separate killings that are mistakenly matched as duplicate reports of the same killing) and no false unmatched records (i.e., duplicate reports of the same killing that are mistakenly left unmatched). In the HRW and ABA/CEELI-Center lists, there is an additional required assumption—that there is perfect elimination of duplicate reports within each of the lists. That is, because the research techniques from both of these studies were such that killings

could be reported by multiple witnesses, these duplicate reports must be detected and eliminated.

The elimination of false matches and non-matches is primarily dependent upon the development of a matching criteria that allows for sufficient discrimination between events and identification of matching events. The three lists used in these analyses were sorted by location and date of killing and compared across all of the characteristics of the killing, including the name, sex and age of victim and the type of perpetrator. With issues of matching and potential bias in mind, the identification of duplicate reports within lists and the matching of reports across lists was conducted with the intent to err on the side of over-matching records. That is, matchers were instructed that if they found a possible match, but were not certain about whether the reports were of the same killing, they should identify the pair as a match.

One of the most effective ways to match victims is by name. However, while most of the killing records had valid date and location information, there were a significant number of records that did not contain any victim names. It is reasonable to assume that among those incidents where the victims were named, there were few incorrect non-matches. However, among the unnamed victims, the matching process was less certain, and there may have been more errors. Indeed, matching rates do differ by whether the victim was named. For example, of the incidents in the HRW list for which victims were named, approximately 49 percent were matched to either the PHR or ABA/CEELI-Center lists. Of the incidents where victims were unnamed, approximately 52 percent were matched to either the PHR or ABA/CEELI-Center lists. Among the ABA/CEELI-Center data, six percent of the named records were matched to either the HRW or PHR lists. On the other hand, of the unnamed clusters, approximately 44 percent were matched to either the HRW or PHR lists.

In the case of the HRW list, roughly equivalent proportions of named and unnamed victims were matched to the other lists, while for the ABA/CEELI-Center list, a greater proportion of unnamed than named victims were matched. The question of whether these lists have been over- or under- matched cannot be resolved empirically. However, while there was potential for under-matching that could result in upward bias in the overall estimate, the high rate of matching across lists suggests that any upward bias is minimal.

Matching Rates Across Data Sources. Bias can occur when there are a small number of matches across lists. Across the three lists used in these analyses, 28 percent of the documented killings were reported in two or three of the lists. These results indicate that the matching rate across lists

is high enough to negate concerns about an upward bias in the estimates from this source.

Overall, there are several sources of potential bias in these estimates. For these sources, the effect on the overall estimate cannot be estimated empirically. However, the analysis process was designed to minimize upward bias whenever possible in favor of a downward bias. Of the possible sources of bias, it is likely that dependence of lists, unpurged out of scope events and matching rates do not introduce significant bias into these estimates. Heterogeneity of catchability may introduce a small positive bias into estimates, and the amount of bias introduced by imperfect matching within and across lists or by event clustering is unknown. However, AAAS is confident that, overall, there is no significant upward bias to these estimates.

Supplemental Data on Expulsions

Additional data were used to provide comparisons between the documented killings and estimates of expulsions between March 20 and June 12, 1999. These supplemental data originate from research by Ball⁵⁸ on the flight of ethnic Albanians from Kosova/Kosovo between March and May of 1999. Several sources of data were used to generate the estimates of expulsions. The primary data consisted of records maintained by border guards who registered refugees crossing into Albania. Supplementing these data were:

- daily reports provided by the United Nations High Commission for Refugees (UNHCR) from March 24 to April 28, 1999
- daily reports provided by the Albanian Government's Emergency Management Group (EMG) for the period from April 14 to May 28, 1999
- registration of 1,837 Kosovar Albanian families by a joint research team from the Institute for Policy and Legal Studies (IPLS) and AAAS
- 83 interviews of Kosovar Albanians within four camps conducted by the joint IPLS/AAAS team
- 136 interviews conducted by the University of California (Berkeley) among Kosovar refugees from refugee camps and private residences in July 1999
- 123 interviews conducted by Human Rights Watch with Kosovar Albanians in Albania from March to June 1999.⁵⁹

⁵⁸ BALL, *supra* note 27.

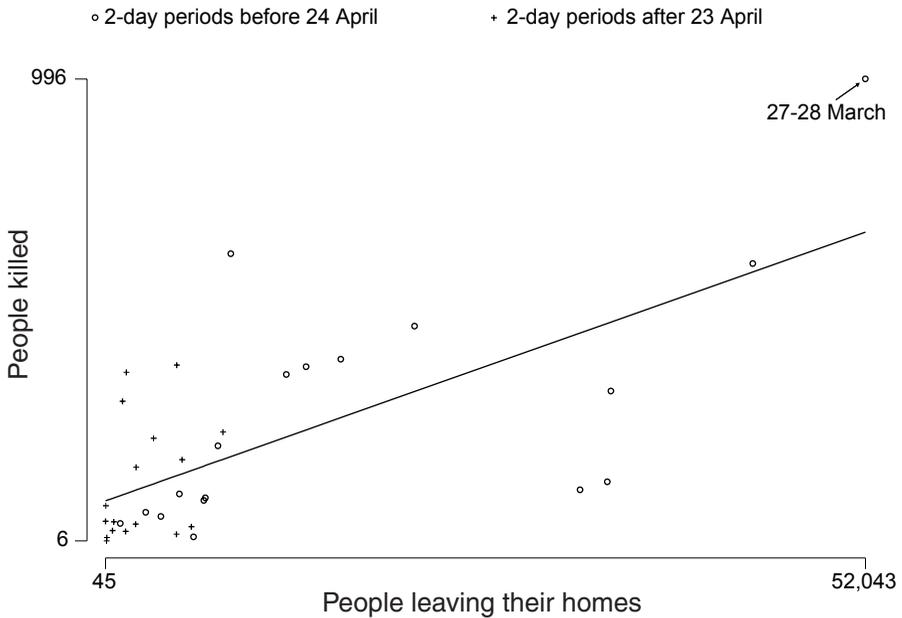
⁵⁹ Some of these 123 interviews were also used to generate the estimates of killings in the current study.

- 1,180 interviews conducted by PHR/Columbia in their survey of Kosovar Albanians from April to May 1999.⁶⁰

Ball first generated estimates of the number of refugees who crossed the borders into Albania, using border records supplemented by the other data sources to impute missing data. Using data on villages of origin and travel times from the in-depth interviews, Ball was then able to generate estimates of locations and departure dates for Albanian refugees.⁶¹ These estimates of locations and dates of departure are then compared to the documented killings by date and municipality.

The comparisons of killings and expulsions were generated by sorting expulsion data by two-day intervals and by municipality. The documented reports of killings and estimated expulsions showed a great level of correspondence in their patterns, as was shown in Figures 2 and 4 and can be seen by the following two figures. Figure 5 shows a scatterplot of documented killings and estimated expulsions by date. The plot shows a rea-

Figure 5: Scatterplot of Documented Killings and Estimated Expulsions by Time



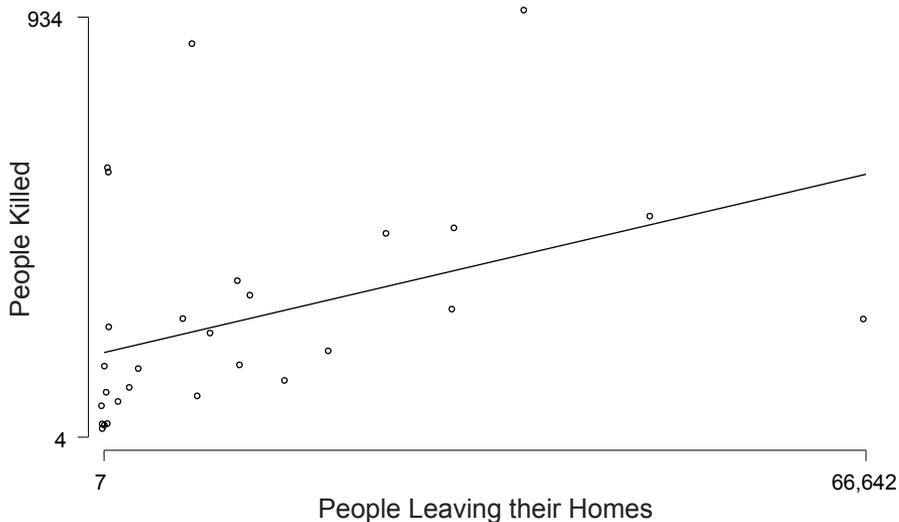
⁶⁰ These are the same 1,180 interviews that provided the 59 PHR cases used in the current study.

⁶¹ For detailed information on the data used and the estimation process, see BALL, *supra* note 27.

sonably high level of correspondence between documented killings and estimated expulsions; the line indicates the slope of the estimated regression between the two. Of particular note is the data point in the upper-right hand corner of the plot. This data point represents March 27-28, when almost 1,000 Albanians were documented as having being killed and over 50,000 were estimated as having been expelled from their villages.

Figure 6 presents a scatterplot of the documented killings and estimated expulsions by municipality. As with the scatterplot by date, this figure also indicates a high level of correspondence between the documented killings and estimated expulsions. The one main outlying observation is in the lower right-hand corner of the scatterplot; in the municipality of Prizren/Prizren, there were a high number of estimated expulsions but a relatively low number of documented killings. Regardless of this one municipality, the pattern is clear; in municipalities with high levels of estimated expulsions there were also a high number or documented killings, while in municipalities with low levels of estimated expulsions there were a low number of documented killings.

Figure 6: Scatterplot of Documented Killings and Estimated Expulsions by Municipality



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III. Authoring and Contributing Organizations

Authoring Organizations

AAAS Science and Human Rights Program

The Science and Human Rights Program of the American Association for the Advancement of Science (AAAS) seeks to protect the human rights of scientists and to bring the methods of science to human rights work. The Program develops and advances methods for human rights documentation and monitoring, fosters support for human rights among scientists, and conducts research on a variety of related issues. The Program's work is based on the premise that respect for human rights is essential to the conduct of science. For more information about the Program and its activities, visit <http://shr.aaas.org>.

ABA Central and East European Law Initiative

The Central and East European Law Initiative (CEELI) is a public service project of the American Bar Association (ABA). The project is designed to advance the rule of law by supporting the law reform process underway in Central and Eastern Europe and the New Independent States of the former Soviet Union (NIS). Through various programs, CEELI makes available the legal expertise of American and European volunteers to assist emerging democracies in modifying or restructuring laws and legal systems. The ABA/CEELI War Crimes Documentation Project (WCDP) began in May 1999 with funding from the U.S. Agency for International Development and the U.S. State Department. The WCDP main objectives are twofold: 1) to assist efforts to investigate war crimes and prosecute perpetrators, and 2) to increase public awareness of war crimes, their prosecution, and the role of the International Criminal Tribunal for the former Yugoslavia (ICTY) in the process. On war crimes issues, ABA/CEELI has worked closely with several other nongovernmental organizations, the Coalition for International Justice (CIJ), Chicago-Kent College of Law, and

The Center for Peace Through Justice. For more information about ABA/CEELI and its activities, visit <http://www.abanet.org/ceeli/>.

Contributing Organizations

The Center for Peace Through Justice

The Center for Peace Through Justice is a not-for-profit Albanian NGO of lawyers that operates in the field of law with a special focus on human rights and public international law issues. The Center was created in June 1999, formalizing a coalition of seven Albanian NGOs that had previously consolidated their efforts in a Human Rights Documentation Project on Kosovo with the support of the U.S. Agency for International Development's ORT Democracy Network Program. The Center's mandate provides for three main areas of assistance: a) Documentation and reporting of human rights violations and other public international law issues, primarily in the Balkans; b) Direct legal assistance through free clinics to meet the needs of certain vulnerable groups; and c) Training and instruction, predominately for the law faculty students in an effort to augment their curriculum with human rights and other international law information.

Since its creation, the Center has been actively involved in an intensive documentation project on war crimes and human rights violations in Kosova/Kosovo that occurred during the time period 1998-1999, primarily to assist The International Criminal Tribunal for the Former Yugoslavia. Together with the ABA/CEELI War Crimes Documentation Project, The Center has gathered and processed a large number of interview forms into an ICTY-approved database, which have subsequently been sent to ICTY. These activities have been made possible through the financial and programmatic support of ABA/CEELI. For more information, visit The Center's website at <http://www.thecenter-ptj.org>.

Human Rights Watch

Human Rights Watch conducts regular, systematic investigations of human rights abuses in some 70 countries around the world. The organization addresses the human rights practices of governments of all political stripes, of all geopolitical alignments, and of all ethnic and religious persuasions. Human Rights Watch defends freedom of thought and expression, due process and equal protection of the law, and a vigorous civil society; we document and denounce murders, disappearances, torture, arbitrary

imprisonment, discrimination, and other abuses of internationally recognized human rights. Our goal is to hold governments accountable if they transgress the rights of their people.

Human Rights Watch began in 1978 with the founding of its Europe and Central Asia division (then known as Helsinki Watch). Today, it also includes divisions covering Africa, the Americas, Asia, and the Middle East. In addition, it includes three thematic divisions on arms, children's rights, and women's rights. It maintains offices in New York, Washington, Los Angeles, London, Brussels, Moscow, Dushanbe, Rio de Janeiro, and Hong Kong. Human Rights Watch is an independent, nongovernmental organization, supported by contributions from private individuals and foundations worldwide. It accepts no government funds, directly or indirectly.

Human Rights Watch began work on Kosova/Kosovo in 1990. Since then, numerous reports and statements have covered human rights abuses in the province and, more recently, the armed conflict in 1998 and 1999. All material can be viewed or ordered at the Human Rights Watch website: <http://www.hrw.org>.

Physicians for Human Rights

Physicians for Human Rights mobilizes the health professions and enlists support from the general public to protect and promote the human rights of all people. PHR believes that human rights are essential preconditions for the health and well-being of all members of the human family.

Using medical and scientific methods, PHR investigates and exposes violations of human rights worldwide and works to stop them. PHR supports institutions in holding perpetrators of human rights abuses, including health professionals, accountable for their actions. PHR educates health professionals and medical, public, health, and nursing students and organize them to become active in supporting a movement for human rights and creating a culture of human rights in the medical and scientific professions.

As one of the original steering committee members of the International Campaign to Ban Landmines, PHR shared the 1997 Nobel Peace Prize. PHR currently serves as coordinator of the U.S. Campaign to Ban Landmines.

PHR has sent almost a dozen delegations to the Kosova/Kosovo region since 1998. For more information, visit the PHR website at <http://phrusa.org>.