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THE DEMOCRATIC REPUBLIC OF THE CONGO

Information on the Rate of Sexual Violence in War-Torn Eastern DRC and Adjoining Countries

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Why GAO Did This Study

Large numbers of civilians in war-torn areas of the Democratic Republic of the Congo (DRC) have been the victims of horrific violence, including rape, mutilation, and sexual slavery carried out by armed groups and others. The Dodd-Frank Wall Street Reform and Consumer Protection Act mandated GAO to submit to appropriate congressional committees a report assessing the rate of sexual and gender-based violence in war-torn areas of the DRC and adjoining countries. This report aims to provide Congress with the best possible understanding of the most recent estimates of sexual violence in eastern DRC and adjoining countries as it considers the range of policy options available to address the alarming incidence of such violence in the region.

This report identifies and assesses available information on sexual violence in war-torn eastern DRC and adjoining countries. GAO reviewed and analyzed reports, memorandums, and other documents and interviewed officials from the Department of State (State), other United States agencies, and the United Nations (UN), as well as researchers and representatives from nongovernmental organizations.

What GAO Recommends

This report does not contain recommendations. GAO provided a draft of this report to State and other relevant agencies for review and comment. These agencies reviewed the report and responded that they did not have comments.

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What GAO Found

Of the two types of data on sexual violence from war-torn eastern DRC and adjoining countries GAO reviewed—data from population-based surveys and case file data—population-based surveys are more appropriate for estimating a rate of sexual violence. Unlike case file data, surveys are conducted using the techniques of random sampling and their results are generalizable. However, there are limitations and challenges to using surveys to gather sexual violence data and estimate rates of violence, particularly in eastern DRC. Specifically, GAO found the following:

- Three population-based surveys provide data on the rate of sexual violence in eastern DRC. The most recent survey, conducted in eastern DRC in 2010, estimated that 9 percent of the population had experienced some form of sexual violence in the 1-year period from March 2009 through March 2010. An earlier survey in eastern DRC conducted in late 2007 estimated about 16 percent of the population had experienced sexual violence over the period 1993 through 2007, although this survey did not employ the standard survey estimation techniques used in the 2010 survey. The third survey was conducted in early to mid-2007 and estimated that about 8 percent of females in North Kivu and 6 percent of females in South Kivu had experienced sexual violence within the 1-year period preceding the survey.
- Two population-based surveys for Uganda—the only adjoining country for which such information is available—provide data on the rate of sexual violence. The most recent survey, conducted in 2010 in four districts in northern Uganda, estimated less than 0.5 percent of the population reported experiencing sexual violence at the hands of armed groups in the 1-year period from April 2009 to April 2010. An earlier survey conducted nationwide in Uganda in 2006 estimated 39 percent of females and 11 percent of males had experienced sexual violence at some point in their lifetimes.
- There are limitations and challenges to using population-based surveys to gather data and estimate rates of sexual violence, particularly in war-torn areas like eastern DRC. For example, there can be undercoverage due to poor infrastructure and insecurity which can limit access to some areas; underreporting, as survey response rates partly depend on whether or not sexual violence victims are willing to discuss such difficult experiences; and higher survey costs if large sample sizes are required.
- Case file data, such as data collected by medical service providers or law enforcement agencies on sexual violence victims, can provide indicators that sexual assaults are occurring in certain locations and can help service providers respond to the needs of victims. However, since case file data are based on a nonrandom sample, the results of analyzing such data are not generalizable. Also, UN officials and others noted that case file data are largely anecdotal and not uniform, and service providers are generally hesitant to share their data with outside parties.

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Abbreviations

DRC	Democratic Republic of the Congo
GBVIMS	Gender-Based Violence Information Management System
IRC	International Rescue Committee
MONUC	UN Organization Mission in the DRC
MONUSCO	United Nations Organization Stabilization Mission in the Democratic Republic of the Congo
NGO	nongovernmental organization
OMB	Office of Management and Budget
UC	University of California
UN	United Nations
UNFPA	United Nations Population Fund
UNHCR	UN High Commissioner for Refugees
USAID	United States Agency for International Development

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G A O

Accountability * Integrity * Reliability

United States Government Accountability Office
Washington, DC 20548

July 13, 2011

Congressional Committees:

Large numbers of civilians in war-torn areas of the Democratic Republic of the Congo (DRC) have been the victims of horrific sexual violence, including rape, mutilation, and sexual slavery carried out by armed groups. According to United Nations (UN) and U.S. officials, researchers, and nongovernmental organization (NGO) representatives, sexual violence—a form of gender-based violence—includes any sexual act, attempted or perpetrated, such as rape or sexual slavery, carried out against the will of someone, whether male or female. Sexual violence has been perpetrated against the civilian population (men, women, and children) by members of illegal armed groups and some Congolese national military units, as well as by other civilians. While opportunistic acts of sexual violence occur, members of illegal armed groups and Congolese military units also use sexual violence to exact revenge on communities for their perceived cooperation with rival groups. Sexual violence has been a feature of conflict in the DRC at least since the Congolese civil war of the mid-1990s.

Although warfare between the DRC and its neighbors has officially ended, conflict, especially in the eastern part of the DRC, has persisted. According to UN officials, U.S. agency officials, and subject matter experts, the entire DRC has been affected by war to varying degrees, but North Kivu, South Kivu, and the Ituri District in Orientale Province (hereafter referred to as eastern DRC) continue to suffer from ongoing conflict and violence and are considered war-torn; three countries that border eastern DRC are Rwanda, Uganda, and Burundi.

There are two basic types of data on sexual violence from war-torn eastern DRC and adjoining countries: (1) data from population-based surveys, and (2) case file data, such as data collected by medical service providers or data collected by law enforcement or international entities on sexual violence victims. Population-based surveys identify the extent of something specific (such as whether a respondent has been sexually assaulted) within a given population based on participants' responses. According to some UN officials and NGO representatives, analyzing case file data helps service providers better understand the conditions on the ground in eastern DRC so they can better address sexual violence and assist sexual violence victims. Between the two basic types of data on sexual violence, data from population-based surveys provide information

that is more appropriate for estimating a rate of sexual violence because such surveys are conducted using the techniques of random sampling (as opposed to nonrandom sampling, such as reviewing medical or clinical intake records), and their results are generalizable to a target population.¹

This report responds to a requirement in the Dodd-Frank Wall Street Reform and Consumer Protection Act (Pub. L. 111-203, sec. 1502(d)) that we submit an annual report that assesses the rate of sexual and gender-based violence in war-torn areas of the DRC and adjoining countries to appropriate congressional committees.² In this report, we identify and assess available information on sexual violence in war-torn eastern DRC, as well as three neighboring countries that border eastern DRC—Rwanda, Uganda, and Burundi.³

To respond to this objective, we reviewed relevant provisions of the Dodd-Frank Wall Street Reform Act and reviewed and analyzed relevant reports and other documents from the Department of State (State); the United States Agency for International Development (USAID); the Department of Defense (Defense); various UN agencies, including the United Nations Population Fund (UNFPA); nongovernmental agencies, such as the International Rescue Committee (IRC); and research organizations, such as the University of California (UC) Berkeley Human Rights Center, on sexual violence data collected in eastern DRC and

¹A probability sample is one where every member of the survey population has a known nonzero probability of selection, and that probability could be computed for any member. Because of this, the accuracy of estimates, whether high or low (usually expressed as a margin of error) can be calculated.

²The act specifies the appropriate congressional committees as the (1) House Committee on Appropriations, (2) House Committee on Foreign Affairs, (3) House Committee on Ways and Means, (4) House Committee on Financial Services, (5) Senate Committee on Appropriations, (6) Senate Committee on Foreign Relations, (7) Senate Committee on Finance, and (8) Senate Committee on Banking, Housing, and Urban Affairs.

³Although the Dodd-Frank Wall Street Reform Act stated that GAO's report should assess the rate of "sexual and gender-based violence," UN officials and researchers advised us to focus our review on assessing "sexual violence." UN officials said that the term "sexual and gender-based violence" is redundant because sexual violence is included in the definition of gender-based violence. Violence against women, a form of gender-based violence, includes broad violations not related to sexual violence and refers to any act that results in "physical, sexual, or mental harm or suffering to women"; UN officials said it includes forced early marriage, harmful traditional practices, and domestic abuse. Violence against women does not include sexual violence against adult males or boys and would include other types of nonsexual violence against women.

adjoining countries. We also interviewed relevant officials and representatives from these entities regarding data collected on sexual violence in eastern DRC and adjoining countries. We identified five recent population-based surveys that contain estimates on rates of sexual violence in eastern DRC and adjoining countries. We evaluated the methodological strengths and shortcomings of these existing estimates by discussing the specifics of these surveys with researchers and statisticians specializing in the scientific measurement of human rights issues, and conducting a rigorous analysis of each of the five relevant surveys to identify their respective strengths and limitations. We also reviewed the Office of Management and Budget's (OMB) *Standards and Guidelines for Statistical Surveys*⁴ and derived a number of survey research principles relevant to assessing the surveys. Appendix I provides more details on our objective, scope, and methodology.

We conducted this performance audit from November 2010 to July 2011 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

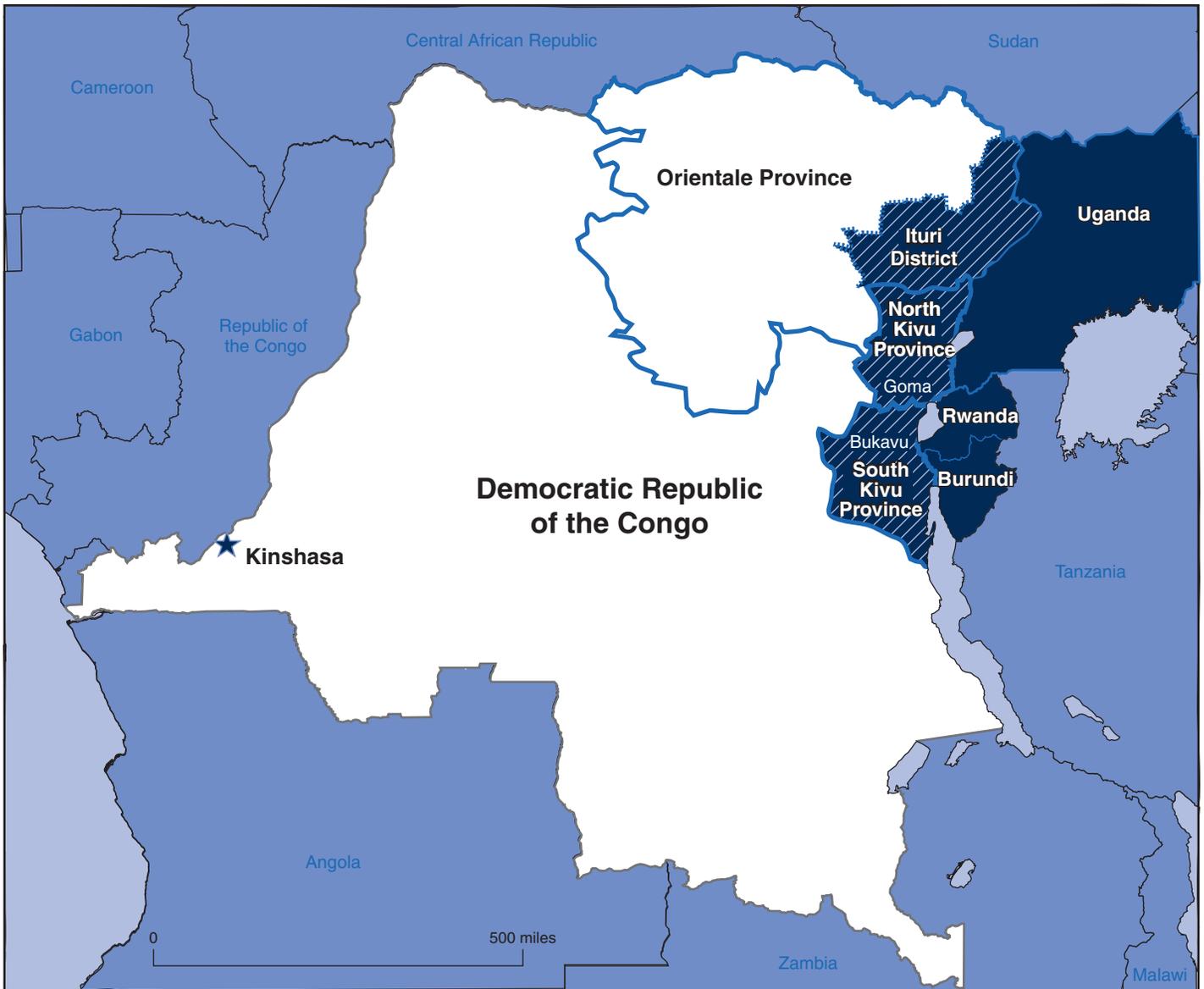
⁴OMB, Statistical Programs and Standards, *Standards and Guidelines for Statistical Surveys* (Washington, D.C.: September 2006). See www.whitehouse.gov/omb (last accessed Apr. 26, 2011).

Background

The DRC is a vast mineral-rich nation with an estimated population of approximately 68 million to 72 million people in an area that is roughly one-quarter the size of the United States.⁵ It was colonized in 1885 as a personal possession of Belgian King Leopold II, administered by the Belgian government starting in 1907, and achieved independence from Belgium in 1960. For almost 30 years of the postindependence period, the DRC was known as Zaire and was ruled by an authoritarian regime under Joseph Mobutu. Following the 1994 genocide in Rwanda, some perpetrators of the genocide and refugees fled into eastern DRC. See figure 1 for a map highlighting eastern DRC and countries that border eastern DRC.

⁵According to the 2010 *State Department Background Notes*, the estimated population for the DRC is 68 million, while the 2011 *CIA World Factbook* estimates DRC's population at 71.7 million.

Figure 1: The DRC, Including Eastern DRC (North and South Kivu Provinces and the Ituri District of Orientale Province), and Countries That Border Eastern DRC (Rwanda, Uganda, and Burundi)



Source: Map Resources (map).

The Mobutu regime was toppled in 1997 by Laurent Kabila, who led a rebel group from eastern DRC with the assistance of Rwanda and Uganda. Kabila was assassinated in 2001 and leadership shifted to his son, Joseph Kabila. During the period of the senior Kabila's regime, the

nation experienced a period of civil war during which numerous rebel groups, with the assistance of Rwanda, Uganda, and other neighboring countries, captured significant parts of the DRC. The war continued into the regime of Joseph Kabila, and resulted in the deaths of an estimated 5.4 million people by 2007.⁶

After decades of instability and war, the central government in the capital, Kinshasa, currently has little administrative capacity and control over remote regions, such as eastern DRC. The lack of control is exacerbated by the long distances and the rudimentary infrastructure, which make transportation and communication difficult. While the precise magnitude of sexual violence in the DRC is difficult to establish, the high number of sexual assaults in the DRC, and the severity of these assaults, has attracted the attention of the international community, including the U.S. government, other foreign governments, the UN, and NGOs. State has identified the DRC as a priority focus for U.S. efforts to prevent and respond to violence against women and girls. In August 2009, Secretary of State Hillary Rodham Clinton traveled to the city of Goma in North Kivu in eastern DRC, where she met with victims of sexual violence and the providers of medical and other services to those victims; while in Goma, the Secretary announced \$17 million in funding to assist female victims of sexual violence in the DRC. Additionally, State and USAID coordinate multiple programs in the DRC designed to assist the victims of sexual violence, including through legal aid to facilitate prosecutions.

The UN Organization Mission in the DRC (MONUC) was first deployed to the DRC in 1999 to support the implementation of a cease-fire agreement. Over the past 11 years, MONUC has steadily grown in size from an initial force of about 5,500 troops to its authorized size, through June, 30, 2011, of more than 20,000 total military and police personnel. MONUC's mandate prioritizes the protection of civilians. In 2010, MONUC was renamed the United Nations Organization Stabilization Mission in the Democratic Republic of the Congo (MONUSCO) to reflect an increased emphasis on stabilization. The United States is the largest donor to MONUSCO, contributing almost one-third of MONUSCO's \$1 billion annual budget. In addition, in early 2010, the UN Secretary General

⁶The International Rescue Committee conducted a series of population-based surveys to determine the conflict-related mortality rate in the DRC. Although we did not evaluate these studies, it should be noted that the challenges and limitations that exist generally for population-based surveys are relevant to this series of surveys and resulting estimates.

appointed Margot Wallström as Special Representative for the Secretary General on Sexual Violence in Conflict. The primary role of the Special Representative is to keep the issue of sexual violence in the forefront of public and diplomatic dialogue.⁷ A number of NGOs are also active in addressing sexual violence in the DRC through providing medical, legal, and vocational training services to victims of sexual violence; researching sexual violence issues; and advocating for specific policies and prevention mechanisms to end the violence and/or provide assistance to sexual violence victims.

Information on the Rate of Sexual Violence in War-Torn Eastern DRC and Adjoining Countries

We identified five population-based surveys, shown in table 1 below, that provide data on the rate of sexual violence in eastern DRC and Uganda.

Table 1: Population-Based Surveys That Estimate the Rate of Sexual Violence in Eastern DRC and Uganda

Author(s) and publication date	Dates of data collection	Time period evaluated	Survey area	Survey participants	Estimated rate of violence	Multi-stage cluster survey ^a	Weighting ^b	Confidence intervals ^c
McGill University (August 2010)	March 2010	1 year; 2 years; 1994-2010	Territories in North Kivu, South Kivu, and the Ituri District of Orientale Province	Males and females 18+	9 percent (1 year), 13 percent (2 year), 33 percent (1994-2010)	Yes	Yes	Yes

⁷The UN Action Against Sexual Violence in Conflict also unites a number of UN entities with the goal of ending sexual violence in conflict. It is a concerted effort by the UN to improve coordination and accountability, amplify programming and advocacy, and support national efforts to prevent sexual violence and respond effectively to the needs of victims.

Author(s) and publication date	Dates of data collection	Time period evaluated	Survey area	Survey participants	Estimated rate of violence	Multi-stage cluster survey ^a	Weighting ^b	Confidence intervals ^c
UC Berkeley (DRC) (August 2008)	September to December 2007	1993 through 2007	North Kivu, South Kivu, Ituri District of Orientale Province	Males and females 18+	16 percent	Yes	No ^d	No ^d
DRC Ministry of Planning (August 2008)	January to August 2007	1 year prior, lifetime of participant	North Kivu, South Kivu ^e	Females ages 15-49 ^f	1 year- 8 percent (N. Kivu), 6 percent (S. Kivu); lifetime- 25 percent (N. Kivu), 18 percent (S. Kivu) among females	Yes	Yes	Yes ^g
UC Berkeley (Uganda) (December 2010)	April to May 2010	1 year, 1987 to 2005	Alcholi districts in northern Uganda	Males and females 18+	Less than 0.5 percent (1 year), 2 percent (1987 to 2005)	Yes	Yes	No ^d
Uganda Bureau of Statistics (August 2007)	May to October 2006	Lifetime of participant	National ^h	Males, 15-54 females 15-49	39 percent (females), 11 percent (males)	Yes	Yes	Yes ^g

Source: GAO analysis of population-based surveys.

^aThese multistage cluster surveys include stratification, a technique that ensures representation across geographic areas, and clustering of villages, a typical practice for household surveys in developing countries that can reduce the cost of conducting a survey by reducing the number of locations to which interviewers must travel.

^bStatistical weighting is a procedure used when deriving generalizable estimates from a complex sample.

^cConfidence intervals are used to indicate the precision of estimates.

^dAfter reviewing the draft report, UC Berkeley researchers commented that confidence intervals were not provided for the DRC and Uganda reports that we reviewed because these reports were aimed at a general audience. Additionally, they opined that the use of weights has only a minor impact on estimates, although the researchers acknowledged that weights could have been applied to the study conducted in eastern DRC. These researchers emphasized the lack of reliable population data in general, a limitation that we acknowledge in this report, as the most serious limitation to conducting a survey in eastern DRC.

^eThis survey includes data for Orientale Province but does not provide estimates on the rate of violence for the Ituri District, located within Orientale Province.

^fMales 15-59 were also surveyed; however, only females were asked about their experiences with sexual violence.

^gThe Democratic Republic of the Congo Demographic and Health Survey provided confidence intervals for many, but not all, variables. The DRC Ministry of Planning has provided a dataset and a Web-based tool for researchers to calculate the confidence intervals for many key population and health statistics. Similarly, the Uganda Demographic and Health Survey provided confidence intervals for many, but not all, variables, and the Uganda Bureau of Statistics has provided a similar dataset and a Web-based tool for researchers to calculate confidence intervals on any particular variable.

^hThe 2006 Uganda Demographic and Health Survey also provides estimates by region.

Three Population-Based Surveys Address the Rate of Sexual Violence in Eastern DRC

We identified three population-based surveys for eastern DRC that provide data on the rate of sexual violence: (1) a survey by McGill University researchers in partnership with the Uniformed Services University of the Health Sciences and others (McGill University),⁸ (2) a survey by the UC Berkeley Human Rights Center (UC Berkeley),⁹ and (3) a survey by the Democratic Republic of the Congo Ministry of Planning with support of the Ministry of Health.¹⁰ All three surveys were conducted since 2006 and utilized random sampling of the population in parts of eastern DRC to identify whether respondents had been the victims of sexual violence, among other things.

⁸The results of this survey were published in an article entitled “Association of Sexual Violence and Human Rights Violations With Physical and Mental Health in Territories of the Eastern Democratic Republic of the Congo” in the August 4, 2010, issue of the *Journal of American Medical Association* (JAMA). The JAMA article lists the following author affiliations. Dr. Kirsten Johnson (McGill University; Harvard Humanitarian Initiative), Dr. Jennifer Scott (Harvard Humanitarian Initiative; Division of Women’s Health, Brigham and Women’s Hospital), Dr. Lynn Lawry (Division of Women’s Health, Brigham and Women’s Hospital; International Health Division, Office of the Secretary of Defense for Health Affairs; Uniformed Services University of the Health Sciences), Bigy Rughita (International Medical Corps), Jana Asher (Carnegie Mellon University; StatAid), Michael Kisielewski (StatAid), and Dr. Ricardo Ong (Special Operations Command Africa-United States Command). According to the JAMA article, the study was conceptualized and designed by Jana Asher and Dr. Lynn Lawry. The survey was funded in large part by Africa Command; International Medical Corps and McGill University also provided funding, and researchers provided in-kind and voluntary contributions.

⁹The Payson Center for International Development and the International Center for Transitional Justice also contributed to this study. Research and production of the UC Berkeley report on eastern DRC were made possible by grants from the John D. And Catherine T. MacArthur Foundation, Humanity United, Swedish International Development Cooperation Agency, the European Commission, and the BBC World Service Trust.

¹⁰The 2007 Democratic Republic of the Congo Demographic and Health Survey was funded by USAID, the United Kingdom Department for International Development, the UN Children’s Fund, the UN Population Fund, and the World Bank.

McGill University Survey (2010)

Data from a survey conducted by McGill University in 2010 estimated that 9 percent of the population had experienced sexual violence in the 1-year period from March 2009 through March 2010,¹¹ and 13 percent of the population had experienced sexual violence in the 2-year period from March 2008 through March 2010.¹² The McGill University survey found that self-reported sexual violence and other human rights violations were prevalent in specific territories of eastern DRC. Over the period covered by the survey—1994 through 2010—the survey estimated about 33 percent of the population had experienced some form of sexual violence.

The McGill University survey employed a rigorous methodology and utilized generally accepted survey design, implementation, and analysis principles. The survey was conducted in March 2010 and provides the most recent information on the rate of sexual violence in eastern DRC. The survey employed statistical weighting, a procedure used when deriving generalizable estimates from a complex sample.¹³ The survey estimates are also accompanied by 95 percent confidence intervals, which give an indication of the precision of estimates. Additionally, the survey was designed as a multistage cluster survey. This multistage cluster survey included stratification by region, a technique that ensures representation across geographic areas, and clustering of villages, a typical practice for household surveys in developing countries that can reduce the cost of conducting a survey by reducing the number of locations to which interviewers must travel.¹⁴

¹¹The 95 percent confidence interval is 6 to 12 percent.

¹²The 95 percent confidence interval is 9 to 17 percent. One- and two-year estimates were provided by StatAid specifically for this GAO report.

¹³The term “complex sample” refers to one that requires special consideration during the calculation of point and interval estimation because of design aspects such as (but not limited to) stratification or clustering.

¹⁴McGill University’s survey used implicit stratification whereby the villages were sorted by geographic location (north to south) and selected in a systematic fashion. Implicit stratification therefore ensures some representation from a wide variety of locations. Under most conditions, stratification decreases variances of estimates, compared with variances from a simple random sample. McGill University’s survey also considered the villages as clusters. Although clustering usually increases variances of estimates, compared with variances from a simple random sample, it has the benefit of reducing the number of locations to which interviewers must travel.

However, the findings from the survey conducted by McGill University are not generalizable to the entire population in eastern DRC. Some of the villages in eastern DRC were inaccessible because of security concerns, difficult terrain, or poor infrastructure; consequently, the survey is generalizable only to certain territories surveyed in eastern DRC. The territories of Mwenga and Walikale in eastern DRC are not represented in this survey, and if the rates of sexual violence were higher in these areas, then the overall rate of sexual violence identified in this survey would be an underestimate. For example, according to UN officials, more than 300 people were mass-raped in 13 villages in Walikale, North Kivu, by armed groups between July 30 and August 2, 2010. Figures on this attack and others like it in Mwenga or Walikale would not have been captured in this survey, if any occurred.

UC Berkeley Survey (2007)

A survey conducted by UC Berkeley, in partnership with the International Center for Transitional Justice and the Payson Center for International Development at Tulane University, in late 2007, estimated about 16 percent of the population had experienced sexual violence over the period 1993 through 2007. Additionally, the survey estimated that 23 percent of the population had witnessed an act of sexual violence in their lifetimes. The UC Berkeley survey was conducted between September and December 2007 on attitudes about peace, justice, and social reconstruction in eastern DRC. It was designed similarly to McGill University's, as a multistage cluster survey, but it is difficult to assess the accuracy of the survey because it did not employ the standard survey estimation techniques used in the 2010 survey conducted by McGill University. UC Berkeley followed generally accepted survey design and implementation principles, but the analysis did not employ the use of statistical weights. The use of weights is a generally accepted analysis procedure when deriving generalizable estimates from a complex sample. Although researchers at UC Berkeley planned for a self-weighting sample (one where every element in the population has the same probability of being selected), the final sample was not self-weighting. The decision not to use weights in the analysis of the survey data means that we cannot conclude how different the reported estimates of sexual violence rates from this survey are from what would have been otherwise obtained had the data been weighted using complex sample design formulas. In addition, reporting of estimates is generally accompanied by a measure of

DRC Ministry of Planning
Survey (2007)

precision, such as a margin of error or a confidence interval.¹⁵ As this survey does not provide a margin of error, it means that we cannot assess the precision of its estimates.

The Democratic Republic of the Congo Demographic and Health Survey was conducted nationwide from January to August 2007 by the DRC Ministry of Planning with the support of the DRC Ministry of Health and a number of foreign government, international, and nongovernmental organizations, including USAID, various UN agencies, and the World Bank.¹⁶ The survey estimated that in North Kivu and South Kivu provinces, about 8 percent and 6 percent of females between the ages of 15 and 49, respectively, had experienced sexual violence within the 1-year period preceding the survey. The survey also estimated that in North Kivu and South Kivu provinces about 25 percent and 18 percent of females, respectively, had experienced sexual violence at some point in their lives. It was a nationally representative survey designed to provide information on fertility, mortality, family planning, and reproductive health of women in the DRC and includes some information on the rate of sexual violence in the DRC for females.

The survey followed generally accepted survey design, implementation, and analysis principles and was designed as a multistage stratified cluster survey. Survey estimates were calculated using statistical weighting, and these estimates were accompanied by 95 percent confidence intervals indicating the precision of an estimate.¹⁷ However, the survey does not include estimates on the rate of sexual violence for male victims; the survey questionnaire asked women about their experiences with sexual violence within the larger framework of exploring issues related to domestic

¹⁵When a probability procedure is based on random selection, the realized sample is only one of a large number of samples that might have been drawn. Since each sample typically would have provided different estimates, confidence in the precision of a particular sample's results is expressed as a confidence interval with some specified level of confidence (e.g., plus or minus 7 percentage points with 95 percent confidence).

¹⁶Preliminary planning for the next Democratic Republic of the Congo Demographic and Health Survey has been initiated.

¹⁷The Democratic Republic of the Congo Demographic and Health Survey provided confidence intervals for many, but not all, variables. As the survey included hundreds of variables, the DRC Ministry of Planning has provided a dataset and a Web-based tool for researchers to calculate the confidence intervals for many key population and health statistics.

violence. Also, while this survey includes data for Orientale Province it does not provide estimates on the rate of sexual violence for the Ituri District, located within Orientale Province, which, along with North Kivu and South Kivu provinces, has been defined as war-torn eastern DRC.¹⁸

Two Population-Based Surveys Address the Rate of Sexual Violence in Uganda; No Studies Address Rates in Other Adjoining Countries

We identified two population-based surveys on sexual violence in Uganda; one was a 2010 survey conducted by UC Berkeley in four districts in northern Uganda that was the third installment in a series of surveys¹⁹ and the other is the 2006 Uganda Demographic and Health Survey,²⁰ a nationwide survey implemented by the Uganda Bureau of Statistics. Both surveys provide some information about the rate of sexual violence, albeit in different portions of Uganda surveyed. We did not identify population-based surveys with data on the rate of sexual violence for two other adjoining countries, Burundi and Rwanda.²¹

UC Berkeley Survey (2010)

UC Berkeley conducted a series of population-based studies, in 2005, 2007, and 2010, that examined attitudes about social reconstruction and justice in parts of northern Uganda. The surveys were conducted in the aftermath of the Lord's Resistance Army's persistent attacks on civilians in these parts of northern Uganda; from 1987 through 2005, the Lord's Resistance Army killed, mutilated, and perpetrated sexual violence

¹⁸We note that an article entitled "Estimates and Determinants of Sexual Violence Against Women in the Democratic Republic of the Congo" in the June 2011 issue of the *American Journal of Public Health* uses the survey data from the 2007 DRC Demographic and Health Survey, in conjunction with DRC population estimates, to project the number of women and girls aged 15-49 who have been victims of sexual violence in the DRC. As acknowledged in the journal article and documented in our report, limitations with population-based survey data and the lack of reliable census or population data affect the accuracy of any projections derived from such data. Moreover, the journal article does not present confidence intervals for projections on the number of sexual violence victims; therefore we cannot assess the precision of these projections.

¹⁹This report was funded by grants from USAID's Northern Uganda Transitional Initiative and the John D. And Catherine T. MacArthur Foundation and Humanity United.

²⁰This survey was funded by the government of Uganda, USAID, the President's Plan for AIDS Relief, the United Kingdom Department for International Development, the UN Children's Fund, the UN Population Fund, the Health Partnership Fund, and the Government of Japan. Sexual violence data from the 2011 Uganda AIDS Indicator Survey, a type of demographic and health survey, will be available in May 2012.

²¹Data on sexual violence from the 2010 Rwanda Demographic and Health Survey will be released early 2012.

against civilians in northern Uganda. One of the principal objectives of the series of surveys was to measure overall exposure to violence perpetrated by armed groups, including sexual violence, among respondents. The most recent survey, conducted in 2010 in four districts in northern Uganda, estimated that less than 0.5 percent of the population reported experiencing sexual violence at the hands of armed groups in the 1-year period from April 2009 to April 2010.²² The survey also estimated that 2 percent of the population reported experiencing sexual violence at the hands of armed groups during the period of conflict in this part of Uganda (from 1987 to 2005).

The survey by UC Berkeley conducted in northern Uganda between April and May of 2010 employed a rigorous methodology, and, similar to the other studies we have discussed, this survey followed generally accepted survey design and implementation principles and was designed as a multistage stratified cluster survey. Also, the survey's estimates were calculated using weights, a generally accepted analysis procedure used when deriving generalizable estimates from a complex sample. However, the analysis did not contain confidence intervals, which means it provided no indication of the precision of these estimates. Moreover, while the survey is generalizable to the four districts in northern Uganda that it covered, the results of this survey cannot be used to generate a nationwide rate of sexual violence in Uganda.

Uganda Bureau of Statistics
Survey (2006)

Conducted in May through October 2006 and implemented by the Uganda Bureau of Statistics with the support of several foreign government agencies including USAID and various UN agencies, the Uganda Demographic and Health Survey is a nationally representative survey that provides limited information on the rate of sexual violence in Uganda in the context of its broader purpose—to provide nationwide information on demographic, health, and family planning trends in Uganda. According to the results of this survey, an estimated 39 percent of females and 11 percent of males had experienced sexual violence in their lifetimes.²³

²²Data collection was conducted in April-May 2010 and asked about respondents' experiences of sexual violence in the 1-year period prior to when the survey was conducted.

²³The Uganda Demographic and Health survey estimated that the rate for sexual violence for men ages 15-54 and ages 15-49 were 11.2 percent and 10.9 percent, respectively.

The survey followed generally accepted survey design, implementation, and analysis principles and was designed as a multistage stratified cluster survey. Survey results were calculated using the technique of statistical weighting, and estimates were accompanied by 95 percent confidence levels indicating the precision of the estimates.²⁴ However, as the data from this survey are from 2006 and cover lifetime exposure to sexual violence, the Uganda Demographic and Health Survey does not provide a good basis for estimating the most recent annual rate of sexual violence in Uganda. Also, as the survey specifically interviewed women aged 15-49 and men aged 15-54, the results of this survey are limited in their generalizability to these gendered age groupings.

Population-Based Surveys Present Challenges and Limitations when Used to Gather Data and Estimate the Rate of Sexual Violence

Sampling and Nonsampling Errors Can Present Challenges for Population-Based Surveys

According to researchers, undercoverage can be a significant limitation when conducting surveys using random sampling in war-torn, conflict-ridden locations. This limitation can be due to several factors. Some researchers said in eastern DRC it can be because villages are inaccessible because of security concerns or lack of transportation infrastructure, especially in remote villages in eastern DRC where violence is ongoing or likely. According to researchers, accessing insecure and/or remote locations to conduct surveys could require procuring security services, which can drive up the cost of the survey. Surveys that suffer from undercoverage are limited because their results can be generalized only to certain areas. For example, as previously noted, the survey conducted by McGill University is generalizable only to certain territories surveyed in eastern DRC; the territories of Mwenga and Walikale in eastern DRC are not represented in this survey, and the survey's results cannot be generalized to these territories.

²⁴The Uganda Demographic and Health Survey provided confidence intervals for many, but not all, variables. As the survey included hundreds of variables, the Uganda Bureau of Statistics has provided a dataset and a Web-based tool for other researchers to calculate the confidence intervals on any particular variable.

In addition, several UN officials and NGO representatives said that conducting population-based surveys on sexual violence is especially challenging in eastern DRC because of the sensitive nature of asking survey respondents to reveal that they have been victims of sexual violence and the fear of social stigma that can result from revealing such victimization. Thus, according to U.N. officials, NGO representatives, and researchers, data from population-based surveys may suffer from underreporting because response rates depend, in part, on whether or not victims are willing to discuss experiences of sexual violence.²⁵ In addition, survey respondents may hesitate to report if they do not expect that health services would be provided. Some U.S. officials and NGO representatives said that conducting surveys in war-torn areas, like remote parts of eastern DRC, where services are not available, can raise the expectations of respondents that they will receive services; consequently, such respondents can become frustrated if they do not receive these services. Having services available is important because, according to NGO representatives, when female victims discuss sexual violence, they often disclose other issues, such as forced early marriage and domestic abuse.

Costs to Conduct a Survey
Can Increase if More Precise
Estimates Are Needed over
Time

Going forward, since the reporting requirement in the Dodd-Frank Act is annual, information on any change in the rate of sexual violence from one year to the next will be needed. Survey costs can increase if more precise estimates are needed to determine whether the rate of sexual violence has changed significantly between two points in time. Survey costs rise because more precise estimates require a larger sample—a larger number of individuals—from the population being surveyed than would be the case for a survey that makes an estimate for one point in time. A main component of cost for a population-based survey is the staff and other resources required to survey a sample large enough to complete the work. According to researchers we spoke to, the goals of their surveys

²⁵Nonresponse bias is a function of the response rate and how respondents and nonrespondents differ with respect to what is being measured. Overall response rates are calculated by multiplying the response rates from several stages together. The response rates for the five surveys we reviewed are 99 percent (McGill University Survey), 85 percent before replacement at household level (UC Berkeley-DRC Survey), 95 percent (men) and 96 percent (women) (DRC Ministry of Planning Survey), 95 percent overall (96 percent at household level and 99 percent at individual level) (UC Berkeley-Uganda Survey), and 89 percent (men) and 92 percent (women) (Uganda Bureau of Statistics). Surveys with high response rates can have high nonresponse biases, but the higher the response rate, the lower the *risk* of nonresponse bias (Robert M. Groves et al., *Survey Methodology*, 2nd ed. (Hoboken, N.J.: John Wiley and Sons, 2009), 59.

Surveys Conducted in Eastern DRC Are Limited by a Lack of Reliable Population Data and May Lack Qualitative Detail on Sexual Violence Attacks

were to make estimates for one point in time. If the ability to detect small year-to-year differences is desired, the sample size needed could dramatically increase. This larger sample will not only drive up the cost of the survey, but it may be difficult, compared with a sample needed for a one-point-in-time estimate, to precisely measure whether the rate of violence has changed significantly. See appendix II for an illustration of how sample sizes will increase when more precise estimates are needed to determine whether the rate of sexual violence has changed significantly over time.

According to UN officials and researchers, surveys conducted in eastern DRC are hampered by a lack of reliable baseline census or population data on which to base the surveys. One group of researchers noted that reliable population data are seldom available in conflict areas. For example, they told us that, using the most recent population data from eastern DRC, a researcher could only estimate that DRC's population is somewhere between 55 million and 70 million people. Inaccurate population estimates can affect the estimated rates of sexual violence resulting from population-based surveys. In addition, according to UN officials and a researcher, population-based surveys will not capture the stories of those outside the populations of surveyed villages, such as civilians who have been abducted by armed groups and villagers who have left their home villages to flee violence or poor economic conditions.

As previously stated, population-based survey data are the more appropriate type of data for estimating sexual violence rates. However, results from surveys conducted on sexual violence may lack qualitative details and contextual sophistication that can help policymakers understand the context and conditions in which that violence has occurred. According to some UN officials and NGO representatives, analyzing case file data helps service providers better understand the conditions on the ground in eastern DRC so they can better address sexual violence and assist sexual violence victims. Also, some UN officials noted that trend data (identifying local patterns of when, where, and what type of violence occurs, etc.) can be more important than determining the rate of sexual violence that is generalizable to a wider population.

For example, as previously noted, more than 300 people were mass-raped in 13 villages in Walikale, North Kivu, by armed groups between July 30 and August 2, 2010. NGO representatives and UN officials noted that the contextual details of the magnitude and severity of this mass attack would not have been captured in a survey. According to some

Different Locations, Time Periods, and Methodological Approaches of Surveys Make It Difficult to Compare Their Results

NGO representatives and UN officials, the best source of real-time, in-depth information on the details of these attacks came from the case file data collected by service providers. Also, surveys and their results may not always capture the cultural context of those surveyed. For example, one group of researchers said that in-depth interviews with males in eastern DRC—who had previously reported experiencing sexual violence—revealed that these males were actually reporting sexual violence experienced by a female family member, such as a wife, rather than by the males themselves.

It is difficult to compare the results of different population-based surveys because the methodological approach of each survey is typically designed to meet the researchers' specific objectives. As a result, the surveys can cover specific geographic areas, age groups of respondents, and dates of data collection, and may vary in defining sexual violence. For example, McGill University's survey covered specific parts of eastern DRC using an in-depth questionnaire in 2010 to record exposure to conflict-related sexual violence among adults 18 and older from 1994 to 2010. The survey conducted by UC Berkeley in 2007, on the other hand, covered parts of eastern DRC as well as other parts of the country and included one question on exposure to sexual violence among adults 18 and older. And the Democratic Republic of the Congo Demographic and Health Survey, conducted nationwide from January to August 2007, asked women about their experiences with sexual violence and breaks out its data to include North Kivu and South Kivu but does not include any data specifically for the Ituri District in Orientale Province. There are other differences between the surveys as well; for example, while the McGill survey asked respondents to identify if they had experienced explicitly defined incidences of sexual violence (such as rape, sexual molestation, or stripping of clothing), the UC Berkeley survey left the term "sexual violence" undefined and open to the interpretation of the respondent. Also, in the UC Berkeley survey, interviewers were assigned to same-sex respondents; the McGill survey did not explicitly match interviewers with respondents of the same gender.

In Uganda, the survey conducted by UC Berkeley in 2010 focused specifically on four territories in northern Uganda and measured exposure to sexual violence between 1987 and 2005 and from 2009 to 2010 among adults 18 and older. In contrast, the Uganda Demographic and Health Survey was a national survey conducted in 2006 on many different health issues, including measuring lifetime exposure to sexual violence among women aged 15-49 and men aged 15-54. UC Berkeley's survey in Uganda, as in eastern DRC, left the term "sexual violence" undefined and

open to the interpretation of the respondent. In contrast, in its survey on Uganda, the Uganda Demographic and Health Survey asked respondents to identify if they had experienced explicitly defined incidences of sexual violence.

Service Providers Collect Data on Sexual Violence in Eastern DRC and Adjoining Countries, but the Data Are Not Suitable for Estimating a Rate of Sexual Violence

Providers of medical services to victims of sexual violence in eastern DRC and adjoining countries and others collect case file data on sexual violence. According to UN officials and NGO representatives, case file data are not intended to capture the prevalence of sexual violence. For service providers, the UN, and NGOs active in eastern DRC, case file information on sexual violence can provide indicators that sexual assaults are occurring in certain locations and can help service providers respond to the needs of victims. According to a number of NGOs, case file data provide the context to understand the evolving nature of sexual violence in war-torn areas like eastern DRC. However, as case file data are not based on a random sample and the results of analyzing these data are not generalizable, case file data are not suitable for estimating a rate of violence.

Many Service Providers Collect Case File Data on Sexual Violence in Eastern DRC, Notably UNFPA and IRC

A number of organizations, including UNFPA and IRC, collect case file data on sexual violence in eastern DRC based on information about victims who report their experiences with sexual violence. Within the framework of the UN's Comprehensive Strategy on Combating Sexual Violence in the DRC,²⁶ UNFPA is responsible for the data and mapping component and collects data on recorded cases of sexual violence throughout the DRC. According to IRC representatives, IRC is the largest NGO service provider operating in the DRC and also collects case file data on sexual violence victims who seek its services.

Utilizing information gathered from medical service providers, UNFPA reported that 15,373 cases of rape occurred during the 2010 calendar year in the entire DRC. Of the 15,373 cases of rape reported, 9,533 (or 62 percent) of reported rapes took place in North Kivu (5,485), South Kivu

²⁶According to information on MONUSCO's Web site, the Comprehensive Strategy on Combating Sexual Violence in the DRC, developed with the consultation of the provincial and national levels of DRC governments, international NGOs, civil society actors, and relevant UN agencies, provides a framework for all actors working in combating sexual violence in the DRC via five components: (1) protection and prevention, (2) ending impunity for perpetrators, (3) security sector reform, (4) assistance for victims of sexual violence, and (5) data and mapping.

(2,844) or Orientale Province (1,204). UNFPA compiles case file data on sexual violence from a number of sources, including medical service providers and NGOs. While UNFPA officials acknowledged that case file data are not appropriate for estimating a rate of sexual violence, they stated that their case file data provide a useful tool for identifying patterns such as the relationships between the perpetrator and victim, the profile of victims, and where abuses are occurring.

IRC representatives stated that IRC has been treating victims of sexual violence and collecting its case file data on sexual violence in the DRC since 2002. IRC has provided services to over 40,000 victims of sexual violence since 2002, according to IRC representatives. IRC representatives estimate that they treat 350-400 victims each month. In the DRC, IRC works through eight service providers that include seven national partners and one international NGO to provide services to victims of sexual violence in two territories in North Kivu and six territories in South Kivu.²⁷ According to IRC representatives, these eight organizations use the case file data that IRC collects to inform their programming for victims of sexual and other types of violence in eastern DRC. IRC also has a lead role in coordinating the Gender-Based Violence Information Management System (GBVIMS) initiative with the UN High Commissioner for Refugees (UNHCR) and UNFPA. The initiative is designed to enable service providers to safely collect, store, and analyze case file data on reported sexual violence incidents. The objective of the initiative is to enhance the collection and reliability of service provider-collected case file data by simplifying and harmonizing data collection and enabling the safe and ethical sharing of reported case file data.²⁸ The initiative is currently being piloted in North and South Kivu by IRC and was fully implemented in Uganda in January 2009, according to a UN official. According to this official, UNFPA and an international NGO are currently evaluating the applicability of the initiative in Rwanda.

There are other organizations that provide analyses of sexual violence in eastern DRC using case file data from service providers. Notably, a report

²⁷ Additionally, IRC also works with 30-35 smaller, community-based organizations in eastern DRC.

²⁸ The coordinators of GBVIMS anticipate that this system will result in more informed programmatic decision making and will improve data sharing and collaboration for service providers and others involved with assisting victims of sexual violence.

Case File Data on Sexual
Violence in Rwanda, Uganda,
and Burundi Are Limited

produced by the Harvard Humanitarian Initiative with support from Oxfam America reviewed case file data on sexual violence victims that had received medical care from Panzi Hospital in Bukavu, South Kivu.²⁹ Also, some advocacy NGOs, such as Human Rights Watch, publish reports that include information on sexual violence in eastern DRC that is based on case file data from service providers. Other organizations that provide services to sexual violence victims, including Doctors Without Borders and the International Committee of the Red Cross, collect and track their own case file data, but will not share their data outside their organization because of security concerns, including fear of retribution against victims or their families and the possibility that victims could be ostracized by their families and/or communities if their identities or experiences were revealed.

Besides UNFPA, there are other UN agencies that publish reports with information on reported cases of sexual violence. For example, the November 2010 Report of the Secretary General on the implementation of Security Council resolutions 1820³⁰ and 1888³¹ reported that there were 15,314 and 15,297 cases of sexual violence in the DRC reported in 2008 and 2009, respectively. UN officials said that, in UN reports, the totals of sexual violence cases reported are very likely underestimated for a number of reasons, including the existence of stringent verification and validation guidelines for UN agencies. Country reports on human rights practices, drafted annually by the State Department, collecting information on human rights from a number of sources, also include information on reported cases of sexual violence.

According to U.S. officials, UN officials, and NGO representatives, case file data on sexual violence in Rwanda, Uganda, and Burundi are limited compared with data for eastern DRC. NGO representatives stated that because of the ongoing conflict in eastern DRC, there are many service provider organizations in that area assisting victims of sexual violence and collecting data on services provided. According to these experts,

²⁹Panzi Hospital is a 334-bed hospital. The majority of patients at Panzi Hospital are rape victims being cared for under the hospital's Victims of Sexual Violence Program.

³⁰United Nations Security Council, Resolution 1820 (2008) [on Women and Peace and Security], 19 June 2008, S/RES/1820 (2008).

³¹United Nations Security Council, Resolution 1888 (2009) [on Women and Peace and Security], 30 September 2009, S/RES/1888 (2009).

current case file data on sexual violence reported in Rwanda, Uganda, and Burundi are generally not associated with any armed conflict. The 2009 and 2010 *Department of State Human Rights Reports* found the following:

- In Rwanda, courts tried 239 reported rape cases, of which 159 were new and filed in court, and 1,463 cases were pending in court at the end of 2010. The 2009 edition of the same report stated that the police investigated 2,356 cases of rape and that 1,487 new cases of rape were filed in court.
- In Uganda, rapes were underreported and few cases investigated—619 rape cases were registered with the police in 2009, of which 240 went to court, resulting in 12 convictions. The 2009 edition of the same report indicated that 1,536 rape cases were registered with the police in 2008.
- In Burundi, rape was underreported for cultural reasons, fear of reprisals, and the unavailability of medical care. State reported that as of September 2010, one NGO operating in Burundi received reports of 3,701 cases of rapes and domestic violence and a medical facility received 742 victims during the year at its center for rape victims in Burundi's capital. In the 2009 edition of the same report, State said that the same NGO received reports of 3,019 cases of rape and domestic violence during the first half of 2009. Another local NGO in Burundi's capital reported receiving an average of 131 rape victims monthly. Also, an international NGO working in partnership with a medical facility in Burundi's capital reported that the medical center treated at least 7,800 people who suffered from sexual violence over the course of 6 years (from 2004 to 2009).

Case File Data Have Shortcomings and Biases That Significantly Limit Their Utility for Discussing the Rate of Sexual Violence

Case file information on sexual violence from service providers can provide useful insights on sexual violence and is useful to help service providers adjust programmatic responses to assist victims of sexual violence; however, it has shortcomings and biases that significantly limit its utility for estimating the rate of sexual violence. Most important, because case file data are not generated from a random sample, they cannot be used to make generalized statements about the rate of violence in a given area. In addition, service provider data have other shortcomings and biases that significantly limit their utility for discussing the rate of sexual violence.

Access to Clinics and Social Stigma Affect if and when Victims Report Sexual Violence to Service Providers

Case file data from service providers only record if and when victims of sexual violence seek medical or other available services. According to UN officials and researchers, service providers collecting these data rely on victims visiting hospitals, clinics, or government or UN offices, which depends on victims' access to these locations and interest in coming forth to report victimization. UN officials said there are a number of factors that can affect whether or not and how frequently a victim of sexual violence will seek services at a facility, including (1) whether drugs or other treatments are available at a facility, (2) whether a facility is open or closed at particular days or times, (3) overcoming fear or lack of finances to travel (often through insecure areas) to visit a facility, and (4) a decision by some victims to forgo treatment if they believe they are not seriously physically injured. Victims of sexual violence also have to overcome social stigma to seek such services. UN officials also said there can be significant time delays between when a sexual violence attack occurs and when that attack is actually reported.³²

Other factors can compound underreporting of sexual violence in eastern DRC. NGO representatives said that males and children are also victims of sexual violence in eastern DRC, but they rarely seek services and few services are specifically designed for them.³³ In addition, UN officials said that while service providers record information on those seeking assistance for themselves, other victims who cannot reach medical or other care in time go unreported. Moreover, according to UN officials, many victims seek medical assistance only when medical symptoms significantly affect their well-being.

³²According to UN officials, if, for example, an incident took place in 2003, it might be first registered in 2009 or, depending on the strength of record keeping at that service provider, not registered at all.

³³According to representatives of one service provider organization, almost 99 percent of the people they provide sexual violence victim services to are female.

Service Provider Case File Data on Sexual Violence Are Largely Anecdotal and Not Uniform, and Service Providers Are Generally Hesitant to Share Their Data with Outside Parties

UN officials, NGO representatives, and researchers noted that case file data are largely anecdotal and not uniform, and are collected and maintained in an ad hoc and confidential manner by service providers. Because of the way case file data are collected and maintained, it is unknown how many victims may be counted multiple times by the same service provider or by different service providers. Some UN officials and NGO representatives said that as data are collected and combined and the number of reported cases of sexual violence increases, so does the possibility of counting the same victim multiple times. According to UN officials, the lack of a clear referral process between service providers, the unclear identification of victims, and the flow of internally displaced civilians also complicate efforts to collect and maintain reliable data on recipients of services. However, some UN officials noted that the service provider case data that UNFPA collects are verified by UN officials and are subject to more stringent review processes than service provider case data collected by other organizations.³⁴

UN officials and NGO representatives said service providers generally are hesitant to share their case file data with each other or outside parties, such as the UN. UN officials said that in addition to striving to protect the identities of sexual violence victims, service providers sometimes compete over the limited financial resources available to assist victims and therefore have little incentive to share their data with each other or outside parties. UN officials and NGO representatives also noted that service providers view their own case file data as the number of reported sexual violence victims successfully treated by their organization. Consequently, an increase in the number of reported sexual violence victims successfully treated (i.e., their case file data) is viewed as a positive indicator of successful programming because it means victims are overcoming social stigma to come forward to seek the organization's services.

³⁴Because of this fact, some UN officials said UNFPA data on sexual violence cases provide an extremely underreported figure compared to actual sexual violence.

Agency Comments and Our Evaluation

We provided a draft of this report to the Secretaries of State and Defense, and to the United States Agency for International Development, for their review and comment. All three agencies responded that they had no comments on the draft of this report. We also provided relevant portions of the draft of this report to the respective entities responsible for the population-based surveys we reviewed in this report for their technical comments and received technical comments, which we incorporated as appropriate.

We are sending copies of this report to appropriate congressional committees. In addition, this report will be available on GAO's Web site at <http://www.gao.gov>.

If you or your staffs have any questions about this report, please contact me at (202) 512-4347 or yagerl@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Key contributors to this report are listed in appendix IV.



Loren Yager, Director
International Affairs and Trade

List of Committees

The Honorable Daniel K. Inouye
Chairman

The Honorable Thad Cochran
Ranking Member
Committee on Appropriations
United States Senate

The Honorable Tim Johnson
Chairman

The Honorable Richard C. Shelby
Ranking Member
Committee on Banking, Housing, and Urban Affairs
United States Senate

The Honorable Max Baucus
Chairman

The Honorable Orrin G. Hatch
Ranking Member
Committee on Finance
United States Senate

The Honorable John F. Kerry
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The Honorable Richard G. Lugar
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Committee on Foreign Relations
United States Senate

The Honorable Harold Rogers
Chairman

The Honorable Norman D. Dicks
Ranking Member
Committee on Appropriations
House of Representatives

The Honorable Spencer Bachus
Chairman

The Honorable Barney Frank
Ranking Member
Committee on Financial Services
House of Representatives

The Honorable Ileana Ros-Lehtinen
Chairman

The Honorable Howard L. Berman
Ranking Member
Committee on Foreign Affairs
House of Representatives

The Honorable Dave Camp
Chairman

The Honorable Sander Levin
Ranking Member
Committee on Ways and Means
House of Representatives

Appendix I: Objective, Scope, and Methodology

In response to a requirement in the Dodd-Frank Wall Street Reform and Consumer Protection Act (Pub. L. 111-203, sec. 1502(d)) that GAO submit an annual report that assesses the rate of sexual and gender-based violence in war-torn areas of the Democratic Republic of the Congo (DRC) and adjoining countries to appropriate congressional committees¹ and based on parameters agreed upon with appropriate congressional staff, we identified and assessed available information on sexual violence in war-torn eastern DRC, as well as three neighboring countries that border eastern DRC—Rwanda, Uganda, and Burundi. To assess the rate of sexual violence in eastern DRC and adjoining countries, we reviewed Section 1502(d)(1) of the Dodd-Frank Wall Street Reform and Consumer Protection Act (Pub. L. 111-203), and reviewed the transcripts of relevant hearings related to the act, as well as reports, statements, and other documents from the Department of State, the United States Agency for International Development, and the Department of Defense (Office of the Assistant Secretary of Defense, Health Affairs), including the *State Human Rights Report*. We reviewed and analyzed relevant reports and guidance issued by United Nations agencies, including United Nations Population Fund reports on reported cases of sexual violence in the DRC and the United Nations Comprehensive Strategy for Combating Sexual Violence in the Democratic Republic of Congo. We also reviewed various documents and reports by nongovernmental agencies, such as the International Rescue Committee (IRC), subject matter experts, and research organizations, such as from the University of California (UC) Berkeley Human Rights Center, on sexual violence and the application of scientific measurement to human rights in the DRC and adjoining countries.

During the course of our review, we interviewed officials from the Department of State, the United States Agency for International Development, and the Department of Defense. To understand the role of the United Nations in gathering data on sexual violence in the DRC, we interviewed officials from various agencies within the United Nations including the United Nations Population Fund and the Special Representative to the Secretary General on Sexual Violence in Conflict.

¹The act specifies the appropriate congressional committees as the (1) House Committee on Appropriations, (2) House Committee on Foreign Affairs, (3) House Committee on Ways and Means, (4) House Committee on Financial Services, (5) Senate Committee on Appropriations, (6) Senate Committee on Foreign Relations, (7) Senate Committee on Finance, and (8) Senate Committee on Banking, Housing, and Urban Affairs.

We met and corresponded with a number of representatives from nongovernmental organizations, researchers, and recognized subject matter experts regarding the DRC and the application of scientific measurement to human rights to discuss sexual violence in the DRC and adjoining countries, the types of information that are collected on sexual violence in the DRC and adjoining countries, and the benefits and limitations associated with each type of information.

We identified five recent population-based surveys that contain estimates on rates of sexual violence in eastern DRC and adjoining countries. To evaluate the relative accuracy and methodological strengths and shortcomings of these existing estimates, we interviewed and discussed the specifics of these surveys with researchers and statisticians specializing in the scientific measurement of human rights issues. In addition, we conducted a rigorous analysis of the five relevant surveys and identified strengths and limitations associated with each survey. We also reviewed the Office of Management and Budget's (OMB) *Standards and Guidelines for Statistical Surveys*² and derived a number of survey research principles relevant to assessing the surveys, which can be found in appendix III. Although OMB's standards were not final until 2006, the vast majority of OMB's guidelines represent long-established, generally accepted professional survey practices that preceded the 2006 standards by several decades. We also examined the potential risk for survey error—that is, “errors inherent in the methodology which inhibit the researchers from obtaining their goals in using surveys” or “deviations of obtained survey results from those that are true reflections of the population.”³ Survey error could result from issues related to sampling (including noncoverage of the target population and problems with the sampling frame), measurement error, data-processing errors, and nonresponse.⁴

²OMB, Statistical Programs and Standards, *Standards and Guidelines for Statistical Surveys* (Washington, D.C.: September 2006). See www.whitehouse.gov/omb (last accessed Apr. 24, 2011).

³Robert M. Groves, *Survey Errors and Survey Costs* (New York, N.Y.: John Wiley and Sons, 2004), 6.

⁴OMB, Federal Committee on Statistical Methodology, “Measuring and Reporting Sources of Error in Surveys, Statistical Policy” [Working Paper 31] (Washington, D.C.: July 2001).

To estimate sample sizes associated with comparing the rate of sexual violence across two surveys, we started with the 1-year estimate from the McGill University survey (0.09) and assumed a range of possible changes in that rate. Then, assuming alpha equals 0.05,⁵ power equals 0.8,⁶ and design effect equals 2.8393,⁷ we estimated sample sizes according to an established formula.⁸

We conducted this performance audit from November 2010 to July 2011 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

⁵OMB, Federal Committee on Statistical Methodology, "Measuring and Reporting Sources of Error in Surveys, Statistical Policy." A Type I error is made when the tested null hypothesis is falsely rejected when in fact it is true. The probability of making a Type I error is denoted by alpha (α). For example, with an alpha level of 0.05, the analyst will conclude that a difference is present in 5 percent of tests where the null hypothesis is true.

⁶OMB, Federal Committee on Statistical Methodology, "Measuring and Reporting Sources of Error in Surveys, Statistical Policy." The power ($1 - \beta$) of a test is defined as the probability of rejecting the null hypothesis when a specific alternative hypothesis is assumed. For example, with $\beta = 0.20$ for a particular alternative hypothesis, the power is 0.80, which means that 80 percent of the time the test statistic will fall in the rejection region if the parameter has the value specified by the alternative hypothesis.

⁷The design effect is the ratio of the true variance of a statistic (taking the complex sample design into account) to the variance of the statistic for a simple random sample with the same number of cases. Design effects differ for different subgroups and different statistics; no single design effect is universally applicable to any given survey or analysis. This design effect was calculated by the researchers.

⁸Joseph L. Fleiss, *Statistical Methods for Rates and Proportions, 2nd ed.* (New York, N.Y.: John Wiley and Sons, 1981), 41-42.

Appendix II: Estimated Survey Sample Size Scenarios

The sample size for a survey can increase significantly if the ability to detect small differences in the rate of sexual violence between two points in time is desired. The McGill survey, with a sample of 998, estimated the rate of sexual violence in the 1-year period from March 2009 through March 2010 to be 9 percent with a margin of error of plus or minus 3 percent. This sample size may not be sufficient to compare across years. Table 2 demonstrates how sample sizes must increase if more precision is needed to determine whether rates of violence have changed significantly from one year to the next. We started by assuming the Year 1 rate to be the proportion McGill University found to have experienced sexual violence in the preceding year (9 percent). Then we looked at various scenarios to see what sample sizes would be needed given a range of changes in the rate. For example, to determine whether a 10 percent increase in the rate of sexual violence occurred, researchers would have to survey over 47,000 individuals at one point in time and interview 47,000 at a second point in time.

Table 2: Sample Sizes for a Fixed Proportion in Year 1

Proportion		Change (percent decrease)	Sample size for each year
Year 1 (percent)	Year 2 (percent)		
9	5.4	40	2,450
9	6.3	30	4,524
9	7.2	20	10,550
9	8.1	10	43,650
9	9.9	-10	47,711
9	10.8	-20	12,581
9	11.7	-30	5,878
9	12.6	-40	3,466

Source: GAO analysis.

Note: The above sample sizes were calculated assuming the following: alpha equals 0.05, power equals 0.80, and design effect equals 2.8393. For more details on the sample size calculation, see appendix I. The sample size used in the McGill University study is 1,005 households, of which 998 responded.

Appendix III: Principles for Evaluating Surveys

GAO found that the five population-based surveys we reviewed followed generally accepted survey design and implementation principles, but the quality of survey analysis varied. As a result of our review, we have documented the strengths of the surveys as well as the limitations that raise the risk of potential error in the surveys' results and we note where those limitations directly or potentially affect the analysis of the survey data.

Table 3 outlines the generally accepted survey research principles, derived in part from OMB's guidelines, that we used in our assessment. The table is a guide primarily to how we evaluated the strengths and limitations of the design, implementation, and analysis of the surveys. However, we caution that survey development is not a linear process; steps appearing in one section of table 3 may also affect other sections of the project. Direct fulfillment of each step, while good practice, is not sufficient to ensure quality. Additional related practices, and the interaction of various steps throughout the course of project development and implementation, are essential to a successful survey effort. Table 3 shows the principles that underlie the analysis and evaluation of the five surveys in this report.

Table 3: Principles We Used to Assess the Surveys

Survey element	Principle
Planning and design	Did the survey have a clear rationale?
	Did a review of existing studies, surveys, reports, or other literature inform the survey?
	Were potential users consulted to identify their requirements and expectations?
	Was the scope of survey data items defined and justified?
	Did a management plan preserve the survey data and documentation of survey records?
	Did the design identify the frequency and timing of data collection?
	Did the design identify survey data collection methods?
	Did the questionnaire design minimize respondent burden and maximize data quality?
	Was the questionnaire pretested and were all components of the final survey system field tested?
	Did the design plan for the highest practical rates of response before data collection?
Sample design and selection	Were components of the survey tested using focus groups, cognitive testing, and usability testing prior to a field test of the survey?
	Was the proposed target population clearly identified?
	Were the sample frame and design appropriate?
	Were sample design coverage issues described and handled appropriately?
	Were sample size calculations appropriate?
Were potential nonsampling errors estimated?	

Appendix III: Principles for Evaluating Surveys

Survey element	Principle
Implementation	Were sample administration and disposition monitoring appropriate?
	Were appropriate steps taken to communicate confidentiality to respondents and to preserve the confidentiality of their data?
	Were the respondents provided with appropriate informational materials?
	Were response maximization efforts, including the period of data collection and interviewer training, appropriate?
	Were steps to ensure the quality of the data appropriate?
	Did appropriate checks and edits on the data collection system mitigate errors?
	Were actions taken during data editing or other changes to the data documented?
	Were survey response rates calculated using standard formulas?
	Was nonresponse analysis conducted appropriately?
	Did the survey system documentation include all information necessary to analyze the data appropriately?
Analysis and estimation	Was the survey system documentation sufficient to evaluate the overall survey?
	Were accepted theory and methods used when deriving estimates?
	Were error estimates calculated and disseminated?
	Were statistical conclusions based on acceptable statistical practice?

Source: GAO analysis of OMB guidelines.

Appendix IV: GAO Contact and Staff Acknowledgments

GAO Contact

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Staff Acknowledgments

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