



# **The Scorched Earth of Darfur**

**Patterns in death and destruction  
reported by the people of Darfur**

January 2001 – September 2005

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&  
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Citation: Petersen, A.H. & Tullin, L. (2006). *The Scorched Earth of Darfur: Patterns in death and destruction reported by the people of Darfur. January 2001-September 2005*. Copenhagen: Bloodhound. 22pp. + Appendices.



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## I. Executive Summary

Witness testimonies and reports of attacks on villages in Darfur, Sudan, were gathered from a variety of media, human rights and United Nations sources. The search produced a sample of 178 detailed accounts covering attacks on 372 villages during the period January 2001 to September 2005. An analysis of these demonstrated that:

- The majority (69%) of attacks took place in the period from beginning April 2003 to late March 2004.
- Just 3% of the attacks were committed by rebel forces (SLA & JEM); less than half of these attacks mention civilian victims.
- All remaining attacks (97%) were conducted by *Janjaweed* militia groups, Sudanese government ground forces and/or aircraft, or a combination of the above.
- The majority of all reported attacks (58%) were conducted by the *Janjaweed* and the Sudanese army in cooperation, either as air strikes followed by *Janjaweed* attacks on the ground, or a combined attack by the Sudanese army soldiers together with the *Janjaweed*. Government of Sudan forces were responsible for a further 5% of attacks, while the *Janjaweed* militia were responsible for a further 34% of the attacks.

Grid reference coordinates were found for 105 of the villages. A plot of these demonstrates that this sub-sample, comprising some 3% of all villages in Darfur, is evenly distributed over the central and western part of Darfur, and can therefore be deemed to be fairly representative of all attacks.

- Specific death tolls were reported for 101 villages, giving an average of 43 – 57 people killed per village during the attacks by the *Janjaweed* and government forces, depending on the method of calculation. Killings are mentioned in at least 76% of the villages attacked throughout the period.
- A wide estimate of 57,000 – 128,000 people, with a mean of 87,200, were killed during attacks on villages throughout Darfur by *Janjaweed* and government forces from April 2003 to September 2005. This figure excludes those who died after the attacks from other non-natural causes such as hunger, disease or subsequent violence resulting from the conflict.

The above results were considered against an analysis of media and UN news service coverage of the humanitarian crisis in Darfur, which demonstrated that:

- The sudden drop in attacks/killings in September 2003 coincided with a peace agreement between the rebels and the government. It also coincided with an uptake in coverage of the situation in Darfur by the UN IRIN news service. Attacks and killings increased again in October 2003.
- Another sudden drop in the killings at the end of March 2004 coincided with the public comparison by a senior UN official between Darfur and the genocide in Rwanda ten years earlier, which sparked a major uptake in media interest in the conflict. The number of attacks and killings fell dramatically thereafter.



## II. Comment

The results of this study point to the following conclusions:

- The highly disproportionate balance between reported attacks on villages by rebel forces (3%) compared to reported attacks on villages by Sudanese government and *Janjaweed* forces (97%) demonstrates that the latter employed an overwhelming use of force that was disproportional to the military necessity to win the conflict. Some of the killings caused during these attacks should therefore be regarded as war crimes.
- The high proportion of attacks on villages by government and *Janjaweed* forces which recorded casualties (76% of all attacks), together with the high number of casualties per village (average of 43 -57), demonstrates that these attacks aimed to do more than just drive the populations out of their villages. The deliberate killing of civilians appears to have been part of the attack strategy. These killings could therefore be regarded as crimes against humanity.
- The broad and even geographical distribution of the attacks covering an area of about 185,000 km<sup>2</sup> suggests a systematic campaign rather than localised outbreaks of violence.
- The coincidence between the two sudden drops in killings/attacks with the an uptake in UN news service coverage of the crisis in September 2003, as well as with an uptake in international media coverage end March/April 2004 suggests that there is a strong central control over Sudanese government soldiers and *Janjaweed* militia groups.
- The large number of direct casualties (57,000 – 128,000 deliberate killings plus subsequent deaths caused as a result of the attacks), together with indications that the attacks were systematic, that there were racial and ethnic motivation behind the attacks, and that there is a central command over the attacks, could together qualify the killings as genocide<sup>1</sup>.

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<sup>1</sup> The intent and act of killing an ethnic/racial/religious group in whole *or in part* is included within the definition of genocide, according to the 1948 Convention on the Prevention and Punishment of the Crime of Genocide. Although there is no indication of the intent to kill all the people of Darfur, there does seem to be an intent to kill a portion, or part, of these people.



### III. Background

Minor clashes between various groups in the Sudanese state of Darfur have taken place from time immemorial, but increased from the late 1980s and continued throughout the 1990s<sup>2</sup>, due to both inter-tribal conflicts and armed insurrection by rebel groups. From April 2003, these clashes have significantly escalated, with *Janjaweed* militia groups and later also Sudanese government forces attacking thousands of villages, killing and raping their inhabitants, slaughtering their livestock, destroying homes and forcing the survivors to flee in search of safety. By September 2005, over 2 million people had fled the rural areas of Darfur to camps and the larger towns, and another 200,000 had sought refuge in neighbouring Chad.

Until March 2004, all access to the area was denied to journalists and human rights groups, with only limited access allowed subsequent to that. This makes it impossible to conduct a detailed on-site verification of the scale and nature of these attacks.

However, some of the victims of the attacks have managed to tell their stories to journalists, UN fact finding missions, AU monitoring groups and human rights organisations. These testimonies have therefore been used as the basis for an investigation into the patterns in the killings during the attacks on the villages in Darfur.



Kokoba, Darfur, 2004. Photo: Brian Steidle © Courtesy of United States Holocaust Memorial Museum

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<sup>2</sup> Prunier, G. (2005). *Darfur. The ambiguous genocide*. 212 pp. London: Hurst & Co. p. vii.



## **IV. Methodology**

### **A. Data collection**

Records and witness testimonies of attacks on villages in Darfur for the period up to the end of September 2005 were gathered through an extensive search of newspaper and web-based media and other internet and electronic library sources (especially the Lexis-Nexis database). All known and available reports by NGOs, human rights organisations, the UN and the AU were also examined for further testimonies, to ensure that the study included as many sources of information as possible, and to maximise the overall sample size.

Unfortunately, many of the reported testimonies were found to contain too little information to be of any use for the study, for example those that only state the location of the witness when he or she was interviewed, without mentioning the name of the village where the attack took place. Such reports therefore had to be discarded. To accept a witness account we needed: a) the name of the village or villages which had been attacked - we also accepted the name of a locality, b) the date or month of the attack, and c) the identity of the perpetrators of the attack.

Where available, we also noted the number of victims from each attack. In doing so, we recognised that the survivors of the attacks often flee together, and/or regroup in the same place, and therefore have the opportunity to find out from one another who was killed during the attack, and to thereby establish a death toll for their village.

Special care was taken to ensure that none of the witness accounts were registered twice, while allowing for different sources using different spellings for the same village name, usually because a given spelling is a journalist's direct transliteration of a spoken Arabic name.

All sides in the conflict in Darfur were covered in the study – including the Janjaweed militia, the Government of Sudan forces, and the various rebel factions (e.g. SLA/JEM).

The information contained in the testimonies was then catalogued into tables, which are included in the appendix.

### **B. Data quality**

A study of this type, which seeks to categorise eyewitness testimonies of attacks on villages taken from multiple different sources where information is not gathered in a standardised way, requires the creation of rules about which data to include/reject, as well as clear definitions to distinguish the different classes into which the data will be sorted.

This study has been conducted with the aim of attaining the highest possible degree of scientific objectivity. We have taken great care to avoid influencing the sample to achieve pre-determined conclusions, whether in the information gathering process, or in the categorisation process. We are fully aware that our choice of which data sources to include, and which to reject, as well as the way that categories are defined, can have a big impact on the conclusions that can be derived from our data. We have therefore at every level of this study weighed up



consequences of our decisions, to ensure that our neutrality and objectivity remain above question.

Our sample consists only of accounts of attacks on villages based on direct eyewitness reports to journalists, and reports from the UN and African Union monitoring groups in Darfur, which are the only sources from which we did not necessarily need a direct reference from an eyewitness to accept as a reliable source, since these reports are usually based on thorough and objective investigations of the incidents reported, which necessarily imply the incorporation and balancing of multiple witness accounts<sup>3</sup>.

### **C. Excluded Data**

We have not included sources which can in any way be linked to the groups fighting in Darfur. No Sudanese websites or media sources have been accepted; neither statements nor reports from spokespersons for the rebel groups or for the Government of Sudan, as their political allegiance to one side or the other could be brought into question. Likewise information from NGOs linked to the overseas diaspora of people from Darfur, for example the Massalit, Fur and Zaghawa, was not included as their reports could also be perceived to be subjective.

### **D. Creating categories**

All forms of air raids were automatically categorised as having been carried out by the Sudanese army, as they are the only military power in the conflict that has combat aircraft.

Terms such as "armed horsemen" (+/- camels)" and "Arab militia" are categorised as *Janjaweed* attacks.

Cases which mentioned "attacks on villages" were interpreted to mean attacks on 2 villages (for example no. 125), and cases where "attacks on several villages" are mentioned, were interpreted to mean attacks on 3 villages (example no. 72). The actual number of villages attacked in these cases could have been higher, but we opted to be as cautious as possible in our estimates.

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### **E. Locating villages**

We compared the given name of a village against a list of 2800 village names and locations in Darfur produced by the United Nations Office for the Coordination of Humanitarian Affairs (OCHA), available on <http://www.humanitarianinfo.org/darfur/infocentre/pcodes/index.asp>.

Unambiguous direct or verbally close matches were noted, enabling a new list to be generated of the standardised OCHA names for the villages mentioned by the

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<sup>3</sup> Doubts about the objectivity of the information from the AMIS (AU mission in Darfur, Sudan) should consider the facts about the information from AMIS used in this report. We have recorded 6 attacks on villages which are based, or partly based, on information from AMIS. The information is found in 3 sources; UN report of the Sec.-Gen. 4<sup>th</sup> March 2005 (1 attack), UN Monthly report of the Sec.-Gen. 12<sup>th</sup> April 2005 (4 attacks), and a African Union report from 27<sup>th</sup> April 2005 (1 attack). 3 out of these 6 attacks were perpetrated by rebel forces. Compared to this report's overall finding that rebel forces perpetrated just 3% of all attacks on villages, it would clearly be very hard to regard information from AMIS as being subjective in favour of the rebel forces.



witness accounts. From the same OCHA information site, we were then able to record a grid reference (P\_code) for the same villages, and to then plot the villages on a map.

## F. Calculating mortality

To calculate the average number of people killed per village attacked by the *Janjaweed* and the Sudanese army, together or separately, we have chosen to include only the attacks where a clear figure is given for the number of killed per individual attacked village. Total figures for attacks covering several villages in an area were not therefore used, as these did not give separate figures per individual village.

Although each individual inhabitant of a village will have seen a different number of people being killed (and most observers presumably did not see any direct killings), we recognise that the survivors often fled together with other survivors from the same village. Once they had reached safety, it would be only natural for the survivors to compare stories and try to find out who had been killed. In this way each village community would be able to calculate the death-toll figure for their village. The lapse of time between the attacks and the interviews with the survivors will therefore ensure that the figures given are accurate, as these will have been cross-checked with other members of the community<sup>4</sup>.

Repeated attacks on the same village are treated as one village, with accumulated death figures. Our mortality estimations are done per village, rather than per attack incident.

Rebel attacks are included in the summary which shows all attacks, but are naturally not included in the calculations which attempt to describe the attacks by the *Janjaweed* and the Sudanese army.

Only civilian deaths are included. Cases where dead rebels are mentioned are not included in the calculations.

Exact numbers of dead, or specific reference to dead people, were required for a death figure to be registered (for example 'my father', 'my aunt', or the relevant person's name). Ambiguous expressions such as "people killed", "many people killed, or "all men were killed" were not included in the calculations as they are deemed to be too inexact to be of use. Our data shows a wide spread in the number of people killed during the various attacks, and "many", "all men" or "all young men" could therefore describe a large difference in the number of victims.

Apart from the 101 named villages for which specific numbers of dead are mentioned as a result of attacks by the Sudanese army or *Janjaweed*, our sample included 43 witness descriptions/reports that do not mention an exact death figure. 8 out of these 43 cases nonetheless mention deaths resulting from the attacks concerned, with the following expressions: "people killed" - used 4 times,

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<sup>4</sup> It may not have been possible for the survivors of large villages which suffered many casualties to reach a figure for the number of their dead, and in such cases the survivors would tend to only recount that 'many' were killed. These cases are excluded from the analysis, and would therefore cause an underestimation of the overall mortality figure. This under-estimation might be balanced by the tendency for reporters to recount more 'dramatic' witness accounts that recall greater numbers of people killed.



"many killed" – used twice, "killed every man and boy" – used once, and "killed the men and many of the male children" – used once. Further, the witness descriptions mention many cases of "rapes" and "abductions" - mainly of women/girls.

In 8 of the 101 villages where the specific number of dead are mentioned, the mention of a death is a very personal description of a death in the closest family. The witness clearly does not attempt to estimate the total death numbers in the village, which could therefore be much higher.

### *Borderline Cases*

The high death figures from the 'prison camps' in Kailek and Mukjar are treated separately in the calculation of the average killed per attacked village. We conduct two estimations, both with these attacks, and without, since these are not attacks on villages *per se*, although they represent further killings of the village population of Darfur, albeit in a camp situation.

Including these killings in mortality estimates can be justified by the high number of deaths in the prison camps balancing various other factors that otherwise keeps down the average for the number of murdered per attacked village, i.e.

1) the above mentioned cases which only mention "people killed", "many people killed" or "all men were killed" which are not included in the calculation. (There are 8 of these cases in our sample). The larger the number of people killed in an attack, the less likely it is that an exact figure should be available to the survivors. In such cases, there would be a natural tendency to just report 'many' deaths.

2) the above mentioned 8 other cases where eye witnesses just mention the death of their close family and not the total number of dead in the village resulting from the attack.

Excluding these killings from the mortality estimates can be justified on the grounds that the records of targeted executions at the prison camp in Mukjar (no. 105) and the terrorizing, torture, murder and forced starvation of the people in the Kailek prison camp (no. 88 and 89), are military attacks in a strict sense. The Kailek case is best described as a long term imprisonment and terrorising of the people in the town, while the case of Mukjar involves targeted killings against 122 people.

The direct attacks on Kailek (nos. 86 & 106) are however included, as the first was an attack on the village before it became a prison camp and the second was a definite attack on the prison camp.

Nr. 123: The timing of the attack on Shatee in early 2004 is rather unsure: *Mrs Mousa walked for three days to reach Kalma after the Janjaweed militia attacked her village, Shatee, west of the Mara mountains, **two months ago**. "They came at dawn, at 4am. They came on horses, donkeys, camels and Land Cruisers. They burnt the houses and killed the men and many of the male children. I don't know if my husband is alive or dead."* Guardian, 8<sup>th</sup> June 2004.

The only listed attack during April 2004 in our sample, on the village of Shatee, has therefore an unsure timing, as the witness talks about the attack being made '2 months ago', and could therefore also have taken place in March 2004. It is important to underline that there was possibly a significant number of killings



during this attack, which naturally could influence the conclusions we make on the sudden drop in death figures in April 2004. The expression *"killed the men and many of the male children"* is to a high degree dependent on the size of the village and in reality can cover a wide range in death figures.

In addition to this, the following observation on the method of dating attacks in Darfur should be noted, as this might cause some dating errors : *"Dates of events reported by refugees frequently utilized the Islamic calendar; these were then converted to dates on the Gregorian calendar."* (US Department of State 2004:8 "Documenting Atrocities in Darfur").



## V. Compiled data

Data from the witness statements are presented in three separate tables, all of which are chronologically arranged by date or month of attack.

Table 1 presents: a) the number of people killed and/or wounded in each attack, b) the source of the information, c) a short description, in most cases copied from the original source, of the type of the attack, mentioning who the perpetrators were, d) where the villagers fled to after the attack, e) whether the same villages was attacked on another (later) occasion, f) whether any mention is made of the villagers acting in self-defence during the attack, and g) whether any racial remarks were made during the attack.

Table 2 presents a summarised overview of the attacks, focusing on the identity of the perpetrators and the crimes committed during the attack.

Table 3 presents the standardised OCHA spelling of the villages where unambiguous direct or close matches were possible. This table also presents the grid-reference of the villages, or otherwise the grid reference of a nearby village or town if this was mentioned.



Labado village, Darfur, 2004. Photo: Brian Steidle © Courtesy of United States Holocaust Memorial Museum



## VI. Data Analysis and Conclusions

The search under the criteria listed in the methodology produced 178 witness statements/accounts and reports, which cited attacks on 372 villages in Darfur from January 2001 to September 2005.

An analysis of this information highlighted the following key findings:

- Attacks on villages in Darfur predate the SLA raid on El Fasher on the 25<sup>th</sup> April 2003, by at least two years, for example with a record of a *Janjaweed* attack on Shoba, North Darfur on the 2<sup>nd</sup> April 2001.

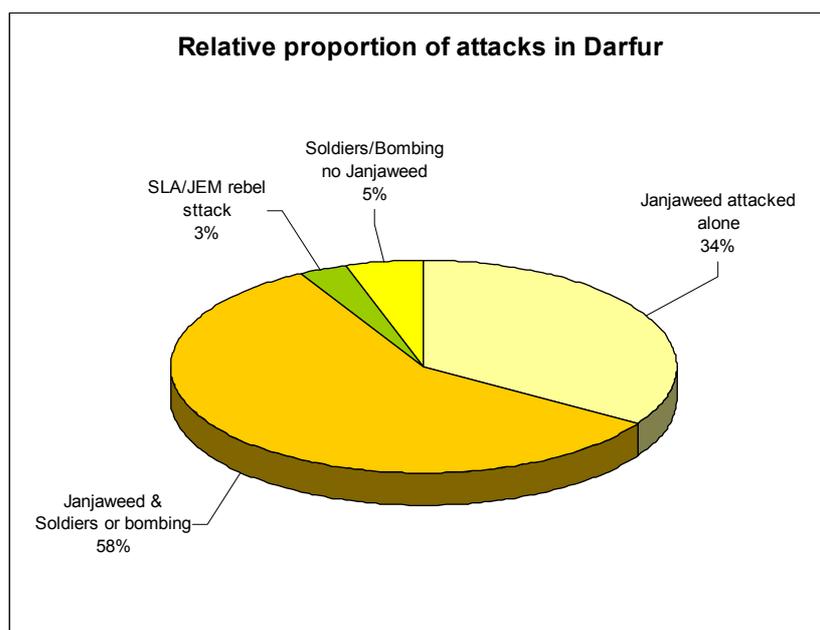


Figure 1. Relative proportion of attacks on villages in Darfur committed by the different armed groups operating in the area.

### A. Perpetrators of attacks

- 13 of the attacks (3%) were committed by rebel forces (SLA & JEM); in less than half of these attacks civilian victims are mentioned<sup>5</sup>.
- All remaining attacks (97%) were conducted by *Janjaweed* militia groups, Sudanese government forces and/or aircraft, or a combination of the above.
- Of these, most (58%) were conducted by *Janjaweed* and the Sudanese army in cooperation, either as air strikes followed by *Janjaweed* attacks on the ground, or a combined attack by the Sudanese army soldiers on the ground together with *Janjaweed*.
- Attacks only/solely by *Janjaweed*/Arab militia account for (34%) of the attacks.
- Attacks only/solely by government forces/aircraft account for (5%) of the attacks.

The relative distribution of these attacks is illustrated in Figure 1.

<sup>5</sup> It is possible that rebels also attacked some of the nomadic encampments from which the *Janjaweed* come, but no eyewitness reports were found which recorded this.



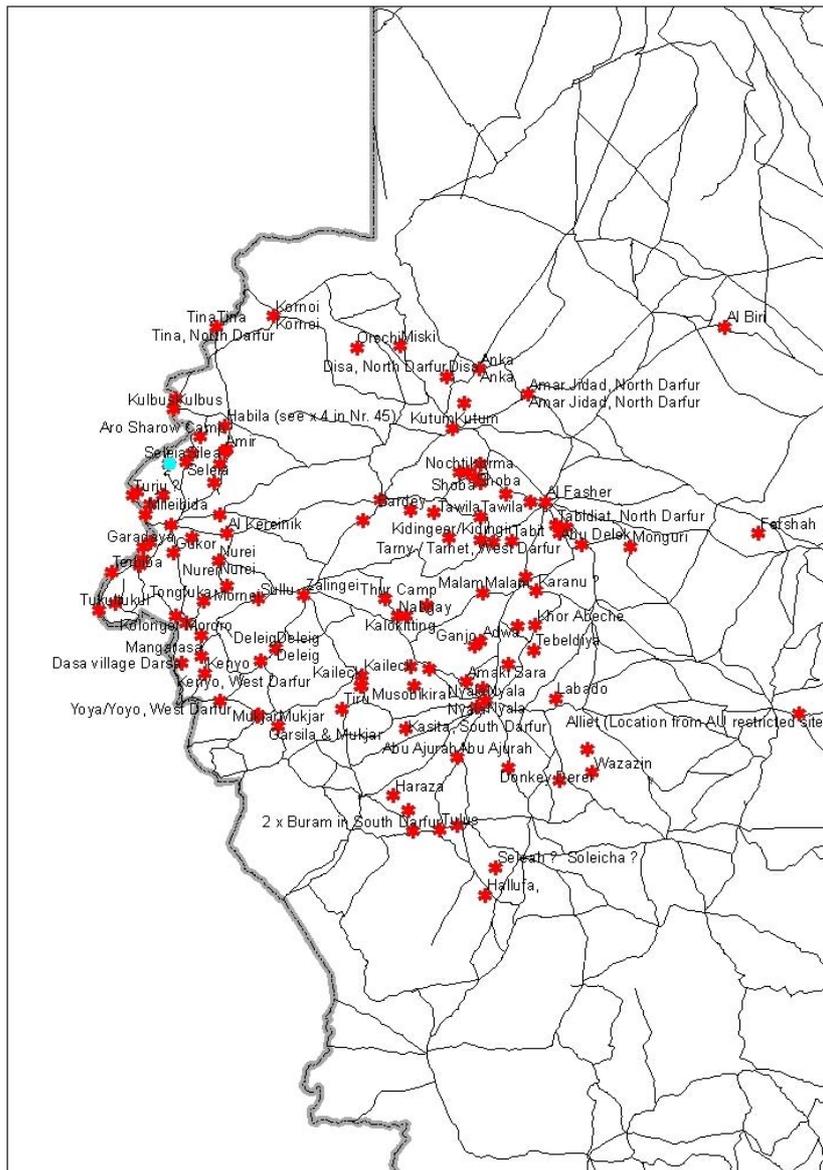


Figure 2. Locations of attacked villages in

## B. Geographical location of attacks

The recorded attacks on villages were compared with the OCHA list of village names in Darfur. Where matches were found, the grid reference location of the village was taken from the OCHA list and plotted (figure 2). This demonstrated an even geographical distribution of the villages where the witness sources came from, with the exception of a gap in the area around Saraf Omar and Kebkabiya. Many attacks took place here during the mid to late 1990s, causing much of the population to flee to Kutum and northern Chad, which may explain why there were fewer attacks in 2001-2005. The geographical distribution of the attacks also closely matches the Humanitarian Information Unit's map of attacks in Darfur during 2005<sup>6</sup>.

<sup>6</sup> <http://www.ndu.edu/itea/storage/685/HIU%20Highlights%2011.pdf>



The even distribution of the reported attacks on villages was therefore consider our list of attacks based on eyewitness reports to be a geographically representative sample of all attacks on villages in Darfur.

The main cluster of attacks covers an area of approximately 185,000 km<sup>2</sup>.

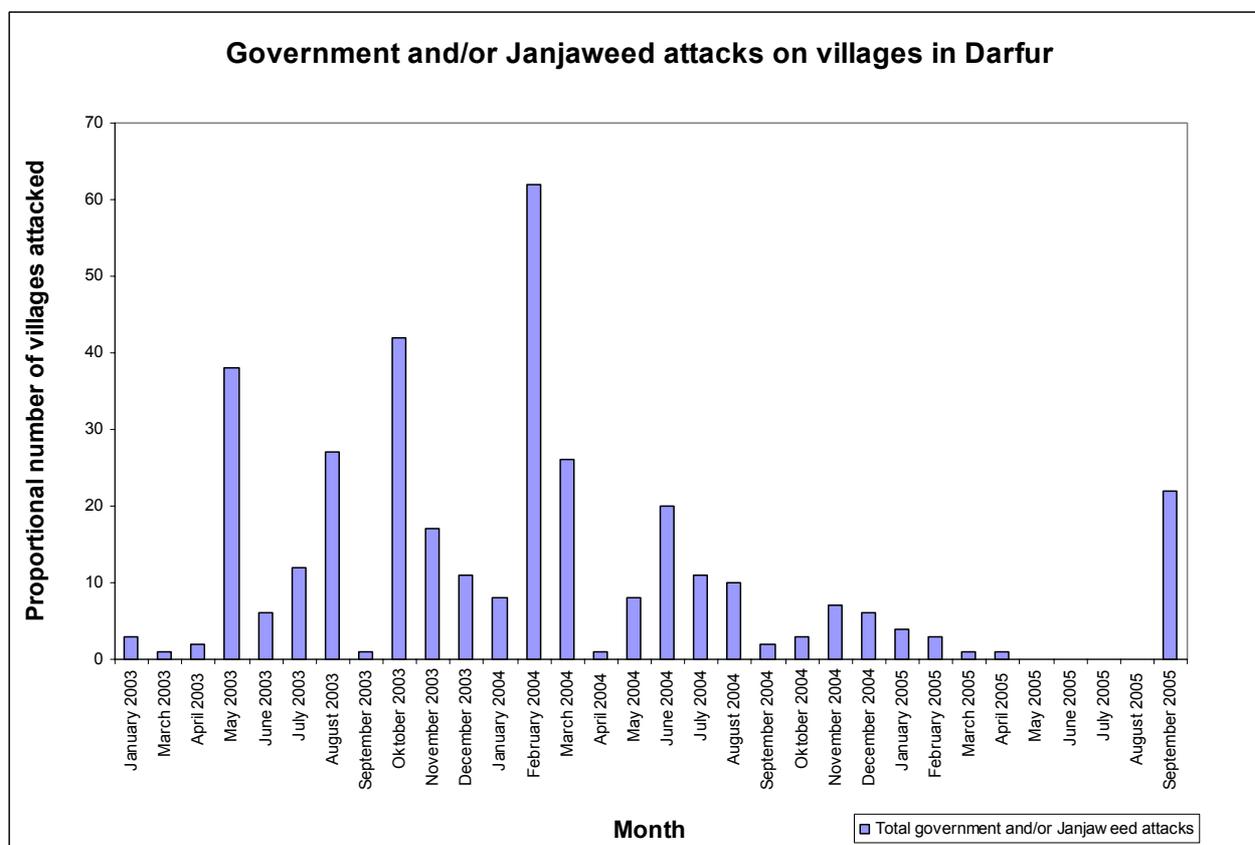


Figure 3. Relative distribution of Government/*Janjaweed* attacks on villages in Darfur over time

### C. Chronological patterns in attacks

Figure 3 shows a demonstrates that the number of attacks on villages in Darfur by Government/ *Janjaweed* forces suddenly increased after April 2003, no doubt as a consequence of the SLA rebel raid on El Fasher airbase on the 25th April 2003.

- The majority 255/370 (69%) of these attacks took place from April 2003 to March 2004.
- Sudden drops in the number of villages attacked are noted for September 2003 and April 2004, with only one recorded attack during those two months.
- Attacks on villages pick up again in September 2005 after many months with few or no recorded attacks.



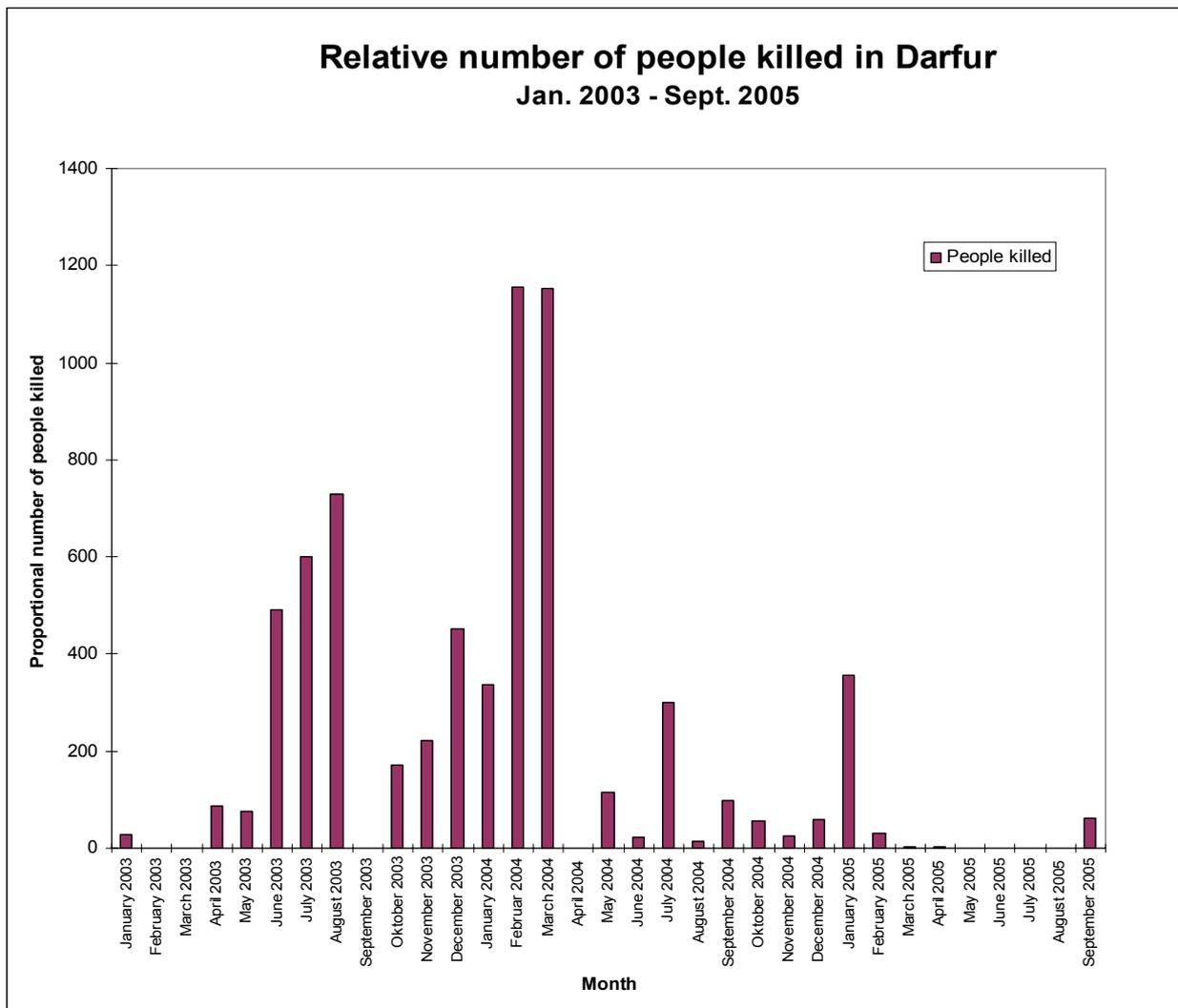


Figure 4. Chronological distribution of violent mortality caused by Government/*Janjaweed* attacks on villages in Darfur

#### D. Chronological patterns in mortality

Figure 4 demonstrates the pattern in killings of villagers by Government/*Janjaweed* forces. A comparison of figures 3 and 4 shows that the chronological distribution of killings seems to reflect the distribution in time of the number of attacks of villages. The major difference occurs after March 2004, when there are relatively few killings compared to attacks, with the exception of two separate incidents in July 2004 and January 2005 (both related to Government bombings of rebel held villages). This indicates that orders may have been given after March 2004 not to kill as many villagers in Darfur.

- No killings are recorded for either September 2003 or April 2004, even though large numbers of atrocities are recorded immediately before and after<sup>7</sup>.

<sup>7</sup> It is interesting to note that the chronological patterns in mortality did not appear to correlate with either the rainy season, the hunger gap or the harvesting season.



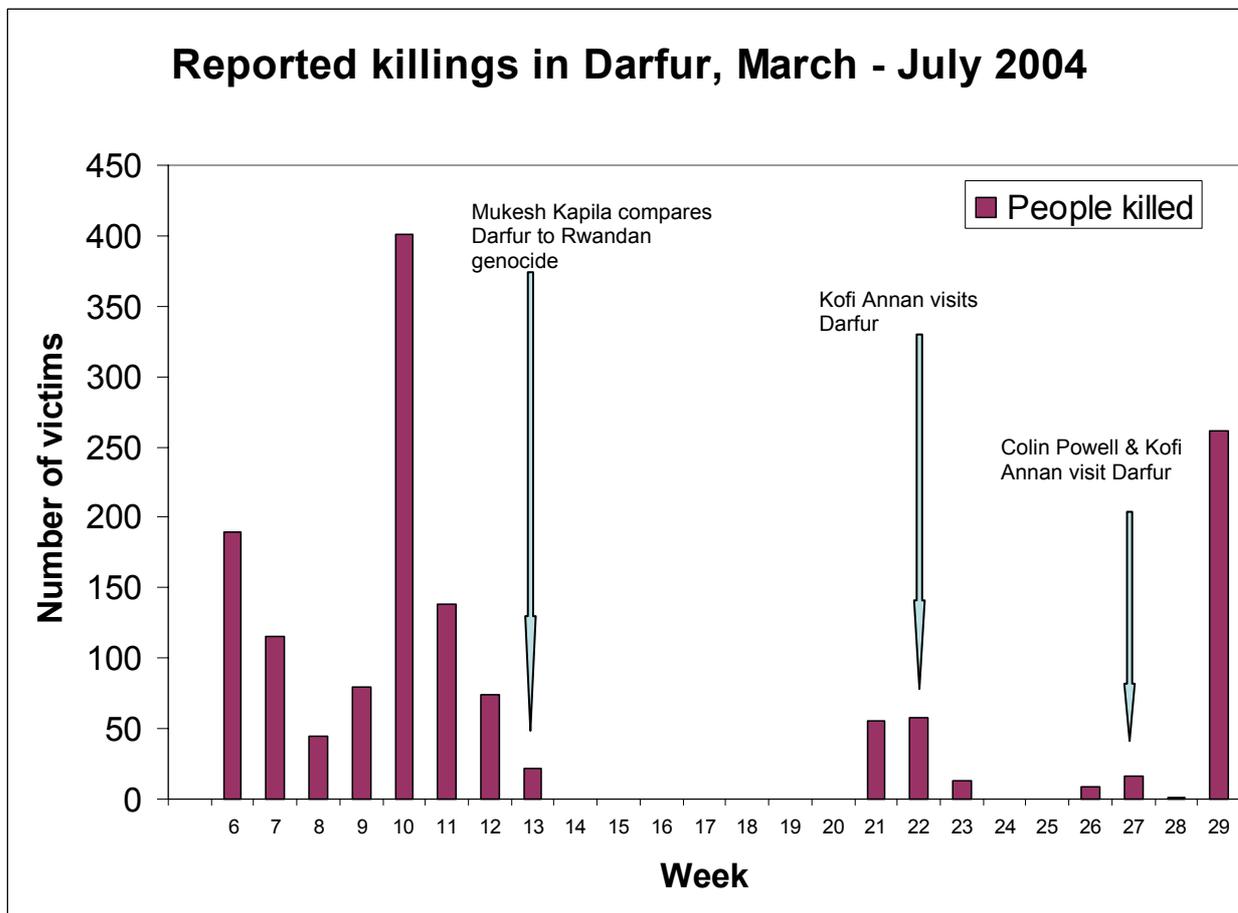


Figure 5. Detail of the chronological distribution of violent mortality caused by Government/*Janjaweed* attacks on villages in Darfur for March to July 2004.

Figure 5 demonstrates that the killings of villagers in Darfur by Government/*Janjaweed* forces appears to have stopped for 7 weeks after the declaration on the 22<sup>nd</sup> March 2004 by Mukesh Kapila, the UN Humanitarian coordinator for Sudan, that “the only difference between Rwanda and Darfur is now the numbers involved”<sup>8</sup>. A few days later he announced that he did not “see any reason why the international community should not consider some sort of international court or mechanism to bring to trial the individuals who are masterminding or committing war crimes in Darfur.”<sup>9</sup> These statements, made on the eve of the 10<sup>th</sup> anniversary of the start of the genocide in Rwanda, are widely recognised to have had a major impact on getting the world’s attention towards Darfur.

A “Humanitarian Ceasefire Agreement” between government and rebel forces on the 8th April 2004 also contributed to the drop in killings. This agreement was undoubtedly brought about by international pressure arising from Mukesh Kapila’s statements.

Attacks and killings resume after Colin Powell and Kofi Annan visited Darfur on the 29th & 30th June 2004<sup>10</sup>. Their failure to propose any concrete action to end the

<sup>8</sup> Prunier 2005, *Darfur. The ambiguous genocide* p.127 London: Hurst & Co. Mukesh Kapila mentioned that there were 10,000 casualties at that time, which this report demonstrates was a considerable under-estimate.

<sup>9</sup> Reuters, 26<sup>th</sup> March 2004.

<sup>10</sup> <http://usinfo.state.gov/gi/Archive/2004/Jun/30-84574.html>



crisis signalled an easing of the threat of international retribution towards the perpetrators of the killings.

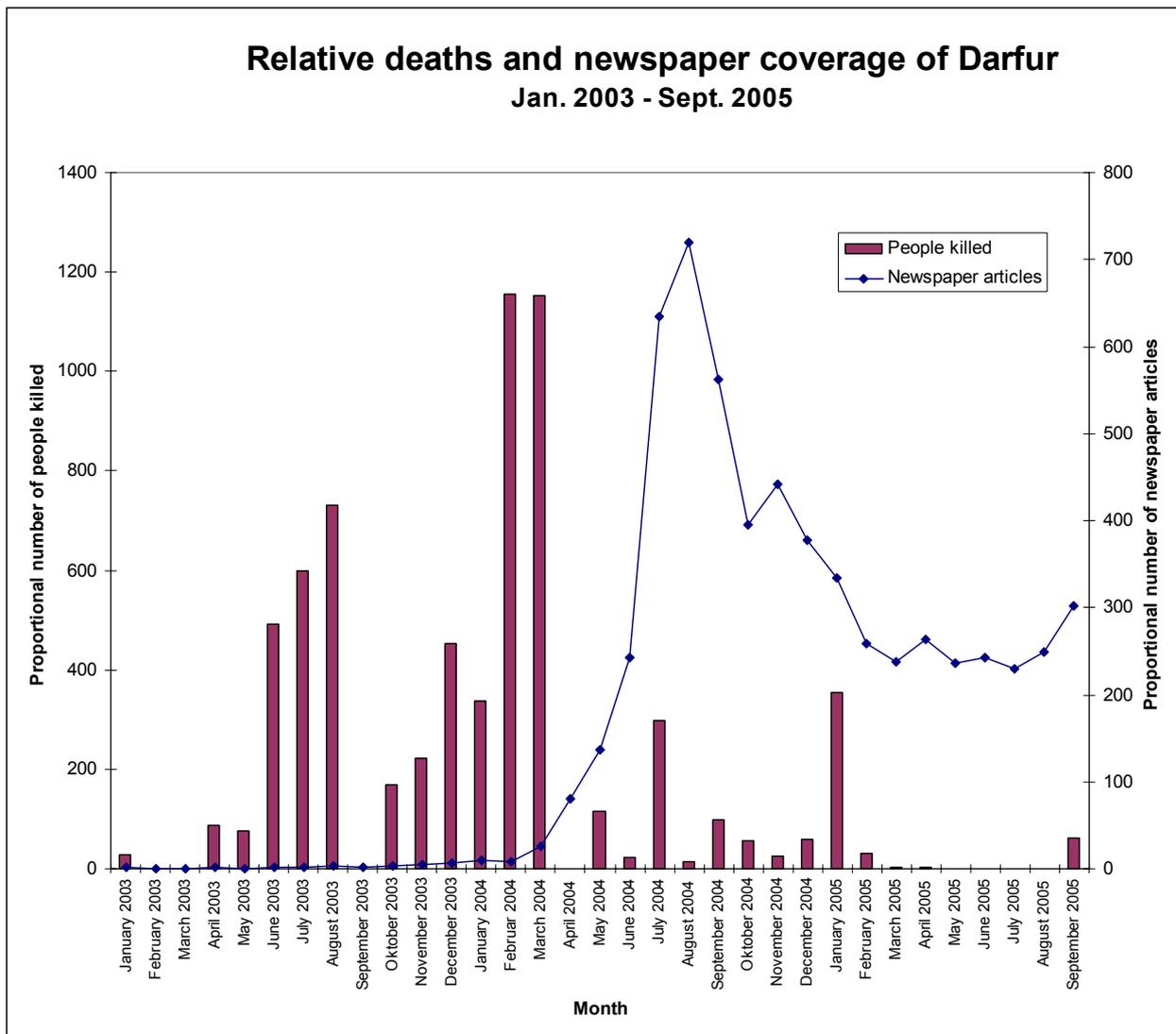


Figure 6. Chronological distribution of violent mortality caused by Government/*Janjaweed* attacks on villages in Darfur, compared with the number of reports in major world newspapers on the situation in Darfur.

### E. Comparison with media and UN news coverage

A search of the word 'Darfur' was conducted for all major English language world newspapers on the Lexis-Nexis database, to obtain a profile of the international media coverage of the Darfur crisis. These figures were plotted against the chronological distribution pattern in violent mortality caused by Government/*Janjaweed* attacks on villages (Figure 6). This demonstrated that :

- International media coverage of the crisis in Darfur was almost non-existent until October 2003, after which only limited coverage was given until February 2004. From March 2004, coverage shot up, reaching a peak in August 2004. In spite of some conjectures that Darfur dropped out of the media picture after the December 2004 tsunami, international media coverage of Darfur has nonetheless remained steady and relatively high since August 2004.



- Mukesh Kapila's statement on the 22<sup>nd</sup> March 2004 (see above) seems to be correctly linked to the uptake in media interest in Darfur, which has in turn created a sense of international outrage towards the atrocities. This may have stemmed the scale of atrocities after March 2004, where the threat of legal proceedings might have caused senior government officials in Sudan to issue orders to limit further killings. This development could also be the main reason behind the "Humanitarian Peace Agreement" ceasefire between the Government of Sudan and the rebel groups (SLA & JEM) on the 8<sup>th</sup> April 2004.

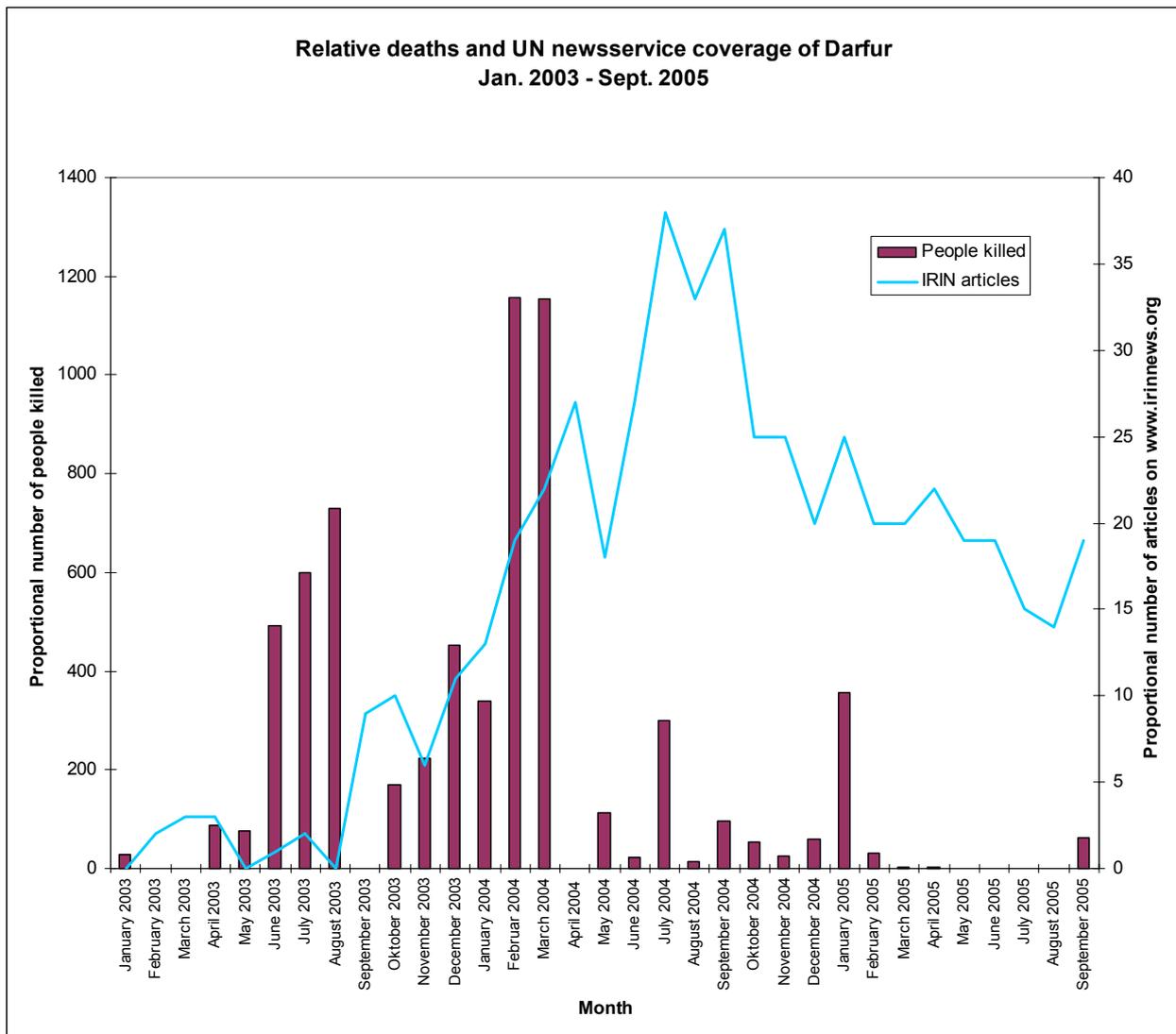


Figure 7. Chronological distribution of violent mortality caused by Government/*Janjaweed* attacks on villages in Darfur, compared with the number of mentions of Darfur in the UN IRIN news service [www.irinnews.org](http://www.irinnews.org).

UN news coverage of the humanitarian crisis in Darfur was measured by counting the number of mentions of the combination of words 'Darfur', and 'refugees', 'IDPs' or 'displaced' on the IRIN news service (Darfur + refugees/IDPS/displaced). This was plotted against against the chronological distribution pattern in violent mortality caused by Government/*Janjaweed* attacks on villages (Figure 7), which demonstrated a much earlier uptake in news coverage than in the major world newspapers, starting in September 2003 and coinciding with the first drop in killings.



It is therefore possible that a central order to halt the killings in Darfur was issued in September 2003 by the Government of Sudan, as news of the killings first started to circulate in UN, NGO and government channels. When no major reaction happened, the Government of Sudan may then have allowed the killings to resume until another order was given to stop the killings in response to Mukesh Kapila's statement on the 22<sup>nd</sup> March 2004. This created a massive increase in international media coverage of Darfur, and led to repeated calls that the perpetrators of the crimes be brought to trial.

The comparison between the patterns in killings in Darfur and both UN news and media coverage suggest that there is sufficiently strong central control over both the government forces and the *Janjaweed* as to be able to order a sudden and almost immediate halt to the killings. As government forces were involved in the majority of the killings, those orders must have come from the Government of Sudan itself.

## **F. Mortality calculations**

Since March 2003, 101 villages in our sample had been attacked by *Janjaweed* and/or government forces, for which a specific death toll was reported for the village. The total of at least 5733 people reported killed in these attacks gives an average of 57 people killed per attacked village.

This figure was used to attempt an estimate of the number of people directly killed in Darfur as a result of the attacks on the villages. An Amnesty report from July 2004 demonstrated through satellite scans that 44% of villages in one part of Darfur had been burned in the year prior 1st May 2004<sup>11</sup>. In our sample, 70 out of 101 attacked villages with recorded casualties were attacked before the 1st May 2004, or 69% of all the attacked villages in this sample. Taking into account subsequent attacks gives a figure of 58% of all villages in Darfur have been burned up to September 2005, i.e. 1624 villages out of the total of 2800 listed by OCHA.

Multiplying the average of 57 deaths per village attack, with the 2800 villages and the 58% burned villages gives an indication of the number of people killed in the attacks on the villages.

$2800 \times 0.58 \times 57 = 92,500$  direct deaths as a result of murders during attacks on villages in Darfur by government and *Janjaweed* forces.

Apart from the 101 named villages with specific death tolls, resulting from attacks by the Sudanese army or *Janjaweed*, there are 43 witness descriptions (or UN reports) with no death figures in our sample. Of these, deaths are mentioned as a result of the attack in 8 of the 43 cases.

Therefore we have a total of 109 villages where killings are mentioned in connection with an attack on the village, and 35 villages where killings are not mentioned. This means that in at least  $109/144 = 76\%$  of cases are killings mentioned in connection with an attacked village.

We use these figures to calculate an average minimum number of killed per village. As mentioned previously, our sample gives a total death toll of 5733 for

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<sup>11</sup> <http://web.amnesty.org/library/Index/ENGAFR540722004>



101 villages, or an average of 57 deaths per village which *assumes that deaths take place in all attacks*. To find a minimum figure, we need to take into account attacks which did not lead to any deaths. This means taking account of the 43 witness accounts without specific death tolls.

To do this we assumed that the 8 accounts that mentioned deaths without a figure suffered the same average number of deaths as the 101 accounts that did report a death toll. We then assumed zero casualties for the remaining 35 accounts that did not mention deaths. The following calculation then gives a minimum average number of deaths per village:  $5733 + (8 \times 57) / (109 + 35) = 43$ .

The total number of deaths in Darfur as a result of attacks by Janjaweed or the Sudanese Army will therefore, as a minimum, be  $2800 \times 0.58 \times 43 = 70,000$ .

Out of a total of 160 villages mentioned by name, it was not possible to match the village name against the OCHA list in 44 cases. This means that in  $44/160 = 27.5\%$  of the cases the village name was not found in the 2800 name OCHA register of village names in Darfur. Another possible source of error in the previous calculations might be the OCHA data itself, which might under-represent reality if many more villages (or perhaps small hamlets) exist in Darfur. If our study could only match 72.5% of village names, then an inverse proportional multiplication of OCHA's total might be closer to the real number of villages. With the following calculation, we can then reach a more probable number of villages in Darfur:  $2800 \times (1/ 72.5\%) = 3862$ .

This figure can then be used to update our previous calculations for mortality figures in Darfur:

$$\text{Maximum mortality} = 3862 \times 58\% \times 57 = 128,000$$

$$\text{Minimum mortality} = 3862 \times 58\% \times 43 = 96,000$$

We can also redo the calculation where the killings in the large "prison camps" are not included.  $(5733-1122)/100^{12} = 46$ . This would mean that the average number of deaths per village would be 46 if the figures for the 2 'prison camps' in Kailek and Mukjar are not included.

Redoing the calculation where the figures for the killings in the large "prison camps" are excluded, and where witness accounts or reports that do not mention any deaths are assumed to mean no deaths took place gives a minimum number of deaths per village =  $(5733-1122) + (8 \times 46) / (109 + 35) = 35$ .

From these figures, as mentioned above, a minimum and maximum figure can be calculated for the total number of killed per village attacked by the *Janjaweed* and Sudanese army.

$$\text{Maximum mortality excl. prison camps given 2800 villages} = 2800 \times 58\% \times 46 = 74,700$$

$$\text{Maximum mortality excl. prison camps given 3862 villages} = 3862 \times 58\% \times 46 = 103,000$$

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<sup>12</sup> 101 number of villages with Mukjar deducted



Minimum mortality excl. prison camps given 2800 villages =  $2800 \times 58\% \times 35 = 56,840$

Minimum mortality excl. prison camps given 3862 villages =  $3862 \times 58\% \times 35 = 78,400$

Thus our overall range of estimates for violent mortality incurred during attacks on villages in Darfur by Government/*Janjaweed* forces is 56,840 to 128,000.

However, given the evidence that the number of villages in Darfur is higher than OCHA's figure of 2800, and assuming that killings did not take place in all attacks, we consider a more realistic mortality range for deaths caused by Government/*Janjaweed* attacks to be from 78,400 to 96,000 in the period March 2003 to September 2005. The average of these two figures is 87,200.

## G. Verification of estimates

We cross-checked our figures by conducting alternative calculations that used other data and assumptions. These 'back of the envelope' calculations were merely made to check whether our own figures are within the right order of magnitude. They include :

### (1) Percentage of destroyed villages

Our study identified that some 58% of all villages in Darfur have been destroyed and therefore made uninhabitable. The original inhabitants of these villages have therefore been forced to seek shelter elsewhere. We then assumed that this population comprises the total displaced and refugee population in Darfur and eastern Chad as well as those who have died subsequent to the attacks. This number of people should comprise roughly the same proportion of the total non-urban population as the percentage of villages destroyed in the attacks.

To calculate this we used the following figures :

Total population of Darfur = 6.4 million<sup>13</sup>

% urbanised = 17.9%<sup>14</sup>

→ Calculation for the total non-urban (= village) population in Darfur =  $(1-0.179) \times 6.4$  million = 5.25 million<sup>15</sup>

Number of displaced in Darfur, April 2005 = 1,965,858<sup>16</sup>

Number of refugees from Darfur in Chad, September 2005 = 200,000<sup>17</sup>

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<sup>13</sup> UNFPA and Government estimates of 1999. Another estimate is for 6 million people in 2005. See Guha-Sapir, D. & Degomme, O. (May 2005). *Darfur: Counting the Deaths. Mortality Estimates from Multiple Survey Data*. Brussels: CRED. P. 13.

<sup>14</sup> Cobham, A. (1985). Working Paper Number 121. *Causes of conflict in Sudan: Testing the Black Book. QEH Working Paper Series – QEHWPS121*. p. 17. Data constructed using data from World Bank, 2003, 'Sudan: Stabilization and Reconstruction', *Country Economic Memorandum 24620-SU*, Washington, DC: World Bank.

<sup>15</sup> This figure should be reduced by up to 200,000, to take into account the old caseload Dinka refugee population from the late 1980s who have recently returned to South Sudan. No accurate data is as yet available on this figure.

<sup>16</sup> Guha-Sapir, D. & Degomme, O. (May 2005). *Darfur: Counting the Deaths. Mortality Estimates from Multiple Survey Data*. Brussels: CRED. P. 13.



Number of persons killed directly or indirectly as a result of conflict, April 2005 = 259,384<sup>18</sup>

→ Calculation for the total non-urban population driven out of their villages = (1,965,858 + 200,000 + 259,384) = **2,425,242**

→ Calculation for the percentage of non-urban population driven out of their villages = (2,425,242 / 5,250,000) = 46.2%, which is fairly close to our figure of 58%.

## (2) Total number of destroyed villages

Our study estimated that some 1624 villages in Darfur had been destroyed. By taking the total displaced and refugee population in Darfur and eastern Chad as well as those who have died subsequent to the attacks, and dividing this figure with the average number of inhabitants in a village in Darfur, gives an alternative estimate for the number of destroyed villages.

To calculate this we used the following figures :

Number of displaced in Darfur, April 2005 = 1,965,858<sup>19</sup>

Number of refugees from Darfur in Chad, September 2005 = 200,000<sup>20</sup>

Number of persons killed directly or indirectly as a result of conflict, April 2005 = 396,593<sup>21</sup>

Average village size in Kordofan = 500 in 1995<sup>22</sup>. Allowing for an increase over 10 years of 3% gives a compounded increase of 34%. Assuming villages in Darfur are on average the same size as villages in Kordofan, we get an average village size of 672 persons.

→ Calculation for the total non-urban population driven out of their villages = (1,965,858 + 200,000 + 396,593) = **2,562,451**

→ Calculation for the number of villages that these people came from = (2,562,451 / 672) = 3813, which is over double the number of destroyed villages calculated from our study. This error is possibly due to the wide assumption in the average village size in Darfur, based on a figure from Kordofan in 1995. The rather different patterns in agriculture etc. might cause big differences in village size.

This figure could also be an overestimate because of our earlier observation that OCHA's total figure might be incorrect. Using our corrected estimate for the

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<sup>17</sup> Guha-Sapir, D. & Degomme, O. (May 2005). Darfur: Counting the Deaths. Mortality Estimates from Multiple Survey Data. Brussels: CRED. P. 13.

<sup>18</sup> See Coebergh, J. (2005). Sudan: genocide has killed more than the tsunami. *Parliamentary Brief*. 9 (7). pp. 5-6. [available at [www.thepolitician.org](http://www.thepolitician.org)]. Coebergh makes 3 mortality estimates based on data from (1) The Coalition for International Justice and WHO, giving a figure of 306,130 excess deaths between February 2003 and December 2004, (2) The Lancet and WHO studies, giving a figure of 218,449 deaths, and (c) extrapolating UN estimates and combining with WHO data giving a figure of 253,573 deaths between February 2003 and December 2004. Averaging these 3 figures gives 259,384, which excludes further deaths until the end of September 2005. The estimates derived in Guha-Sapir, D. & Degomme, O. (2005). *Darfur: Counting the Deaths. Mortality Estimates from Multiple Survey Data*. Brussels: CRED. 43pp, are much lower (63,000 – 146,000), but these under-estimate excess deaths during the initial outbreak of violence during May-September 2003, as shown in Figure 20 of that report on p. 37.

<sup>19</sup> Guha-Sapir, D. & Degomme, O. (May 2005). Darfur: Counting the Deaths. Mortality Estimates from Multiple Survey Data. Brussels: CRED. P. 13.

<sup>20</sup> Guha-Sapir, D. & Degomme, O. (May 2005). Darfur: Counting the Deaths. Mortality Estimates from Multiple Survey Data. Brussels: CRED. P. 13.

<sup>21</sup> Coalition for International Justice (April 2005). "New Analysis Claims Darfur Deaths Near 400,000: Experts estimate 500 people a day are dying."

<sup>22</sup> Stern M. (1984) Landsat data for population estimates - approaches to inter-censal counts in the rural Sudan. *Adv. Space Res.* Vol. 4, No 11, pp 69-73.



number of villages in Darfur (3862) gives 2,239 destroyed villages, which narrows the gap slightly.

### (3) Total number of people killed in violent attacks

Our study calculated that some 128,000 people were killed as a result of the violent attacks on their villages in Darfur. Using epidemiological studies of displaced groups in Darfur, we can apply the given figure of violent deaths to the whole displaced population to work out how many might have been killed as a result of violence.

To calculate this we used the following figures :

Number of displaced in Darfur, April 2005 = 1,965,858<sup>23</sup>

Number of Darfurian refugees in Chad, September 2005 = 200,000<sup>24</sup>

Number of persons killed directly or indirectly as a result of conflict, April 2005 = 396,593<sup>25</sup>

Extrapolated mortality due to violence during displacement among displaced populations in Darfur = 3.45%<sup>26</sup>

→ Calculation for the total non-urban population driven out of their villages = (1,965,858 + 200,000 + 396,593) = **2,562,451**

→ Calculation for the number of people killed as a result of violence during displacement = (2,562,451 × 0.0345) = **88,405** which is close to midway in our range of 57,000-128,000 deaths . This suggests an underestimation, in part due to the mortality surveys used only including mortality back to October 2003, i.e. excluding mortality incurred during the attacks from April 2003 to September 2003 when many people were killed.

## H. Recommendations for improving data quality

During the collection of data, many other witness accounts and reports of attacks on villages in Darfur were found, but which were too poorly reported to be of any use for this study. Had it been possible to include this data, this study would have been founded on a larger and therefore more representative sample of all the attacks on villages in Darfur. We therefore recommend that journalists, human rights groups, NGOs etc. in similar situations in future be more precise in their information gathering and reporting. In particular, we would recommend that as far as possible the following details are always included :

- Precise nature of attack, including whether the witness was the only victim, or whether there were other victims

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<sup>23</sup> Guha-Sapir, D. & Degomme, O. (May 2005). Darfur: Counting the Deaths. Mortality Estimates from Multiple Survey Data. Brussels: CRED. P. 13.

<sup>24</sup> Guha-Sapir, D. & Degomme, O. (May 2005). Darfur: Counting the Deaths. Mortality Estimates from Multiple Survey Data. Brussels: CRED. P. 13.

<sup>25</sup> Coalition for International Justice (April 2005). "New Analysis Claims Darfur Deaths Near 400,000: Experts estimate 500 people a day are dying."

<sup>26</sup> Estimate obtained from Depoortere, E. *et al.* (2004). Violence and Mortality in West Darfur, Sudan (2003-2004): epidemiological evidence from four surveys. *The Lancet* 364 (1315-20). Mortality figures from Zalingei and Murnei camps only are used, as the data from these two camps covers the time when most of the displaced arrived at the camps. Here absolute numbers of deaths due to violent mortality (289), divided by the sum of the population sampled (7140) plus overall deaths, disappearances and absences (1233) gives 289/8373 = 3.45%.



- Date of attack, at least to the nearest month
- Identity of the perpetrators, as far as possible
- Location of the attack

An anonymous 'hotline' could be set up where such data could be reported anonymously, e.g. to the UN office of war crimes at the International Criminal Court or to an independent NGO.





Um Zaifa, Darfur, 2005. Photo: Brian Steidle © Courtesy of United States Holocaust Memorial Museum

