Appendix

I. INVESTIGATIONS INTO A VIDEO FOOTAGE WHICH ALLEGEDLY DOCUMENTS MEMBERS OF THE SRI LANKAN ARMY COMMITTING EXTRAJUDICIAL EXECUTIONS.

Commentary by the Special Rapporteur:

On 30 November 2010, the UK television station Channel 4 provided video material of around five minutes in duration to the United Nations Special Rapporteur on extrajudicial, summary or arbitrary executions, Mr. Christof Heyns. The video allegedly depicts Sri Lankan soldiers summarily executing Tamil prisoners during the civil war in Sri Lanka.

The Special Rapporteur, delivered a communication to the Government on 15 December 2010, informing them that he would be investigating the video. On 26 April 2011, the Special Rapporteur informed the Government that he had concluded the technical assessment to establish the authenticity of the video footage and transmitted electronic as well as hard copy versions of the reports of the investigation to the Government (one annexure was inadvertently left out but provided in electronically on 29 April). When the Government submitted its Response on 11 May, it was stated that there were problems with reading parts of the hard copy of the material, but the complete report was made available by 29 April.

The overall conclusion reached by the experts is that the video is authentic and the events reflected in the video footage occurred as depicted. The Special Rapporteur has concluded that the video footage indicates the commission of serious crimes, which should together with any other available evidence be examined systematically and professionally by domestic investigators appointed by the Sri Lankan Government, as well as by an independent, international investigational body, with a clear mandate to establish who should be held accountable for the killings.

The Special Rapporteur has also reproduced below the (a) A technical note in relation to the authenticity of the second extended “Channel 4” video footage regarding Sri Lanka (b) Report of Mr. Daniel Spitz, a forensic pathologist; (c) Report of Mr. Jeff Spivack, a forensic video analyst; (d)

Report of Mr. Peter Diaczuk, a firearms expert; and (e) Report of Mr. Grant Fredericks, a forensic video analyst. The Special Rapporteur has also reproduced communications between the Special Rapporteur and the Government of Sri Lanka.

Reports of the Technical Assessment conducted by the Special Rapporteur on extrajudicial, summary or arbitrary executions.

A. Technical Note by the Special Rapporteur on extrajudicial, summary or arbitrary executions, Mr. Christof Heyns, in relation to the authenticity of the second, extended Channel 4 videotape regarding Sri Lanka

A. Background

1. On 30 November 2010, the UK television station Channel 4 made available video material of around five minutes in duration (in this note called the ‘extended video’) to the United Nations Special Rapporteur on extrajudicial, summary or arbitrary executions, Mr.

Christof Heyns. It described this video, extracts of which had been aired by Channel 4 around the same time as a longer version of an earlier video of approximately one minute (in this note called the 'first video'), which was aired by Channel 4 on 25 August 2009 and was said to depict Sri Lankan soldiers summarily executing Tamil prisoners during the civil war in that country.

2. The first video has been the subject of extensive communication between the Government of Sri Lanka ('the Government') and the former Special Rapporteur Mr. Philip Alston, in the form of an exchange of letters and press releases, as well as a 'Consolidated Response' to the Channel 4 video by the Government and a subsequent 'Technical Note' by Mr. Alston.

3. In reacting to the screening of this video by means of a letter of allegation to the Government of Sri Lanka, Mr. Alston's contention was that the video necessitated an impartial investigation into the question whether war crimes had been committed. The Secretary-General of the United Nations as well as other diplomats also expressed their concern about the contents of the video. The Government, however, denied the authenticity of the video.

4. In order to support this contention, the Government presented a 'Consolidated Response' to the media and the diplomatic community. It cited four reports of investigations into the authenticity of the video which the Minister of Disaster Management and Human Rights said it had obtained from its experts. While those cited seem to be regarded by the Government as experts in the field of video and audio technology, the Government also relied on their opinions on matters of forensic pathology and ballistics. According to the Minister these reports proved that the video was 'false and fabricated'. The claim was made that the Government's investigations proved that the recording was not made on a cell phone, as stated by Channel 4, but on a high quality digital camcorder or similar equipment, and then edited to reflect the atrocities and to make it appear to have been made on a cell phone, in order to discredit the Government.

5. Mr. Alston commented that he had not seen the original version of three of the four reports and asked to see them. Mr. Alston also questioned the impartiality of those who conducted the investigation, pointing out that two of the four were members of the armed forces (one was a Major, the other a Brigadier), the body which actions have been called into question, and the other two were apparently also citizens of Sri Lanka who had previously acted as advisers to the Government.

6. Mr. Alston then commissioned a study of his own by three independent experts with no links to the country or government under consideration. In addition to a video and audio expert, he engaged the services of a forensic pathologist as well as a ballistics expert, who worked independently of one another. They contested the scientific nature of the comments attributed by the Government to its own investigators. On the basis of these reports Mr. Alston concluded that 'while there are some unexplained elements in the video, there are strong indications of its authenticity.' He made the full reports available to the Government.

7. In its subsequent reactions, the Government has relied on these 'unexplained elements', clearly acknowledged by the Rapporteur, to contest his claims that the video was authentic and to justify rejection of his continued calls for an independent investigation.

8. In particular, the following issues were identified as unexplained: The date inscribed on the video was after the hostilities had ceased; there is an 'A' in the last 17 frames of the video, which suggests that some editing had been done; one victim's leg remains upright after he has apparently died; and another's dead body moves without an apparent reason.

9. It appears from the record of communication between the Government and the Special Rapporteur that the Government's contention regarding the first video is confined to the question whether the video is authentic or 'doctored' or 'a fake'. Issues such as whether the members of the military depicted in the video wear Sri Lankan uniforms (except for one soldier who wears a white T-shirt) and whether they speak Sinhala (this is in fact recognized in the excerpts of the report provided by Maj Bandara) or for that matter whether the setting of the video is in Sri Lanka, are apparently not contested. It is also not contested that the actions depicted in the video, if they reflect real events, constitute serious international crimes and violations of international human rights law. While the independence of those whom the Government say have written reports for it has been questioned by the Special Rapporteur, the independence and expertise of the experts engaged by the Special Rapporteur has not been placed in doubt.

10. The single point of contention that has emerged from the intensive communication over several months between the Special Rapporteur and the Government is therefore the authenticity of the first video, in the sense that the Government contends that it had been 'doctored'.

B. The new, extended video

11. On the extended video additional executions are shown, as well as bodies that lie on a track of ground. The faces of some of the soldiers are visible. Also clearly visible is that others are filming the scene with cell phones. One of the voices on the extended video says: 'Do not use the phone, we will be reprimanded.'

12. The extended video offers the opportunity to see the first video (which forms one segment of the extended video) in a broader context, and in particular to test the results of the earlier investigations, to see whether anything stated by the independent experts has been disproved by this new video, and whether answers to the unexplained issues may be provided by the new material.

13. I as Special Rapporteur, who took over the mandate from Mr. Alston in August 2010, informed the Government on 15 December 2010 that I would be investigating the extended video. Upon request from the Government I informed of the names of the experts who have been commissioned to conduct the investigation, and the Government was supplied with a copy of the video as received from Channel 4, to enable it to do its own investigation.

14. In view of the fact that the expertise and independence of the experts who investigated the first video was not questioned by the Government, and the fact that they were already familiar with part of the material, the services of the same experts were again obtained, to comment within their fields of expertise on the authenticity or falsity of the video. As in the past they agreed to do this free of charge, as a form of public service.

15. In addition, some further evidence was obtained and considered by the current me that would be useful in better understanding the context of the video. This included a translation of what is being said in the video, from the original Sinhala. A large number of additional pictures and other material were received from NGOs who have concerns surrounding these events. However, as will be explained below, the latter were not investigated in any detail by me.

16. Enquiries were also made by me about the origins of the video from Channel 4. However, given that the video was more than likely filmed by an insider, and then made available to the media (whether this was done for compensation or not is not known), it is not a surprise that the journalists in question maintain that they have obtained the videos on

the conditions of confidentiality from their sources. While such information would no doubt be very useful in any subsequent criminal trials, not least because it would provide one with an eye-witness of the events who could identify those involved (also those not seen on the video) it is not regarded as indispensable for current purposes, which is simply to ascertain the authenticity of the video itself.

17. The authenticity of a video such as the one under consideration can be established through a comprehensive forensic investigation, covering the different aspects of the video, which should include at least the audio and video quality. Forensic pathologists and ballistics experts can also contribute in important respects to such an investigation. In order to be credible such investigations have to be conducted by independent people of recognized expertise. Independence in this context, according to well-established jurisprudence means there should not even be a perception of bias. Close connections to the Government or State under consideration – such as nationality and/or employment – are bound to create a perception of bias and a perceived conflict of interest.

18. The new reports of the three experts on the extended video provided to me are attached. The picture that emerges is that the events that are reflected in the video in fact occurred as depicted. These videos – both the first and the extended version - show real people who are being summarily executed.

19. The first report on the extended video, contained in Annexure 'A', is by audio and video expert Mr. Jeff Spivack. His qualifications and experience are detailed in his report, as was the case with his previous report.

20. According to his report the extended video in fact consists of five segments, not in chronological sequence. This appears to be the result of the rudimentary editing that is possible on a cell phone. In this case the meta-data indicates the use of Philips software, which can be used on a variety of cell phones. However, cell phone editing capacity could not have been used to produce the images of executions captured on the video. 'At most, integrated mobile phone editing software could delete evidence that occurred before or after the remaining video, or reorder video sequences.' Cell-phone editing '… could not possibly create even a crude simulation of the subject matter present in these recordings, much less a realistic simulation.' (p 13)

21. He concludes that '… the results of testing procedures and content analysis are persuasive that the events depicted on the available video/audio recordings are authentic.' (p 13)

22. The second report, contained in Annexure 'B', is by Mr. Daniel Spitz. His biography and expertise are also described in his report. His conclusion upon having studied the extended video is as follows: 'Subsequent to my review of these materials, it is my opinion that the execution shootings shown in the videos represent real executions of multiple individuals secondary to close range gunshot wounds using high powered assault rifles.' (p 1)

23. The third report, contained in Annexure 'C', is by Mr. Peter Diaczuk, a firearms evidence expert, who comments on the three clips in the extended video where firearms are being discharged. His experience and training is indicated in his report. His conclusion is as follows: 'The three video sequences reviewed accurately depict firearms being discharged, and the recoil observed is consistent with the firing of live ammunition.'(p 4)

24. Of special importance is the fact that the extended video material has now enabled the experts to address the issues identified as 'unanswered' during the first round, and relied upon by the Government as proof that the video was not authentic.

25. The date of 15 (alternatively 18) July 2009 is encoded in the video, while hostilities had ceased in May 2009. One explanation is that the date provided on such a video is determined by the device's date setting, which can be changed by the person using the device. However, according to Mr. Spivack, if the rudimentary editing that is possible on a cell phone is done, and if five segments are put together as we now know was the case here, the date reflected for the video as a whole will be the date of such editing. (p 7)

26. The appearance of an 'A' in the last 17 frames of the first video was also a matter of concern. According to Mr. Spivack the rudimentary editing possible on a cell phone can produce such an effect. (p 13)

27. It was previously unclear why one of the apparent victims on the ground next to a victim being shot shows movement of his left lower extremity. However, Mr. Spitz reports that from the extended video it is clear that the bullet passed through the one person to hit the body of the other (p2).

28. The way in which the leg of one of the victims was maintained in an upright position was likewise not readily explicable when only the first video was available. Dr Spitz now explains that a review of the current video 'better shows the position of the leg and why it maintained an upright position'. The reason is that '… the ankle is supported by resting against the outer aspect of his right leg.' (p3)

29. The integrity of the process followed by these experts in respect of the first video finds confirmation in the fact that they marked certain aspects of that video as unresolved, when they did not have sufficient evidence to express themselves on those points. This uncertainty has now been resolved on the basis of the newly available evidence, which could not have been foreseen at the time when the first reports were being written. The above sequence of events show that they were describing the facts as they presented themselves, and were not out to prove any point.

30. The above serves as a coherent and credible foundation for the conclusion that the extended video is authentic, and thus warrants calling for the accountability of those responsible for these atrocities. It should be stressed however that the claim is not being made here that any specific individuals are guilty or that State responsibility has been established – the point is rather that there is a well-founded case for the government to answer.

31. Reference was made in the Technical Note of Mr. Alston to an article in *The Times* newspaper where an expert, whom it had commissioned, Grant Fredericks, also regarded the first video as authentic.

32. The Government told the Office of the High Commissioner for Human Rights in Geneva, when it was provided with the names of the experts who were going to investigate the extended video, that it would be more persuasive if a report by someone who was not part of the team of Mr. Alston during his investigation were made available. Because the independence of these experts was not challenged by the Government when their first reports were considered, it is hard to see the foundation for this point. However, to err on the side of caution, the current writer has asked Mr. Fredericks as well to do an independent investigation into the extended video. His report is attached as Annexure 'D'.

33. Mr. Fredericks – whose credentials are set out in his report – is of the opinion that Phillips software was used, probably on a Nokia cell phone to make the extended video. (p28) He concludes as follows: 'Giving consideration to my research and to the observations listed in this report, I have found no evidence to suggest that [the extended video] contains fabricated images or audio elements. The execution scenes contain no 'virtualization' (computer generated effects). I have therefore formed the opinion that [the extended video] is authentic in that it accurately portrays what it purports to show.' (p 29).

34. As was noted at the outset, the current Special Rapporteur was provided with numerous pictures and other material said to depict the last phases of the civil war in Sri Lanka. Sources at Channel 4 have also indicated that a much longer version of the extended video exists and could become available. The material that has already been provided includes pictures and videos of a Tamil journalist named Isaipiriya who bears a striking resemblance to one of the persons whose dead body is captured in the extended video. The material also includes pictures of the dead body of Charles Anthony (son of the late LTTE leader Prabhakaran) who was killed during the final phases of the war, in a group of pictures containing one that corresponds with images captured in the last section of the extended video. Channel 4 has also provided the Special Rapporteur with a video that captures the removal of the naked bodies of women by soldiers, said to be government troops. On this video – as is the case with the extended video – the faces of those in uniform can clearly be seen, and soldiers using cell phones as cameras are also visible.

35. These and other links with the extended video have so far not been investigated in any detail by the Special Rapporteur, in view of the limited nature of his capacity for fact-finding and forensic investigations. In view of the serious nature of the material covered by the growing body of potential evidence, it should be investigated by a body with the necessary capacity to do a comprehensive, thorough study. The material mentioned above will be made available to the Government upon request, and to such an international body, in order to assist any credible enquiry.

36. There is no indication at present that either the Attorney-General, or internal structures within Sri Lanka, such as the Lessons Learned and Reconciliation Commission, have given serious consideration to this video, or its implications, in their work.

C. Conclusion

37. The present note confines itself to the question of the authenticity of the extended video, based on the results of the independent, multi-disciplinary forensic studies that have been commissioned. The conclusion that emerges from these reports is that the video is authentic.

38. The outstanding issues identified during the investigation of the first video have now been resolved. This includes the apparent inconsistent date on the first video. However, even if that had not been done, the question could be asked how material that issue was in the first place. If someone had manufactured a false video of the events during the final stages of the war, with the malicious intent of portraying the Government's conduct during the war in a negative light, the last thing one would expect such a person to do is to provide the video with a date that falls months after the completion of the war. Likewise, it appears highly unlikely that a person who wants to create the impression that a cell phone was used would be so careless as to leave an 'A' on the frames if that can only be done on a high quality video camera. However, irrespective of how much weight could legitimately have been accorded to these issues, it is submitted that they have now been resolved.

39. On the basis of the available evidence the process of determining accountability for the crimes that have been committed should proceed with sufficient speed to avoid a situation where witnesses, accused or evidence disappear.

40. The extended video should be considered in the context of the growing body of evidentiary material which appears to relate to the events during the civil war in a comprehensive manner, covering possible atrocities by all concerned, by an institution with

the necessary capacity and level of technical skill to cover such an extensive enterprise in a professional and comprehensive manner, on the basis of a clear mandate to perform this function.

41. What is reflected in the extended video are crimes of the highest order – definitive war crimes. Judging by the use of cell phones by soldiers in the video, there may well be other records of the same events available. There appear to be links that can be made to other evidentiary material, which is already available or may still be brought to light, giving a clearer picture of what happened during the last phase of the war. Investigating the identity of those whose faces are captured so clearly on these videos cannot be difficult for the Government, which may contact the commanders of the troops who participated in the last phases of the war. Similarly, an international investigation with appropriate powers of inquiry and witness protection mechanisms will also be well placed to address these issues.

42. As has been pointed out in correspondence with the Government, it is the primary duty of the State to investigate this compelling evidence of horrendous crimes – crimes which the international community cannot allow to go unpunished. This is stated in clear terms in paragraphs 9 and 10 of the United Nations Principles on the Effective Prevention and Investigation of Extra-legal, Arbitrary and Summary Executions, adopted on 24 May 1989, with provides under the heading 'Investigations' as follows:

9. There shall be thorough, prompt and impartial investigation of all suspected cases of extra-legal, arbitrary and summary executions, including cases where complaints by relatives or other reliable reports suggest unnatural death in the above circumstances. Governments shall maintain investigative offices and procedures to undertake such inquiries. The purpose of the investigation shall be to determine the cause, manner and time of death, the person responsible, and any pattern or practice which may have brought about that death. It shall include an adequate autopsy, collection and analysis of all physical and documentary evidence and statements from witnesses. The investigation shall distinguish between natural death, accidental death, suicide and homicide.

10. The investigative authority shall have the power to obtain all the information necessary to the inquiry. Those persons conducting the investigation shall have at their disposal all the necessary budgetary and technical resources for effective investigation. They shall also have the authority to oblige officials allegedly involved in any such executions to appear and testify. The same shall apply to any witness. To this end, they shall be entitled to issue summonses to witnesses, including the officials allegedly involved and to demand the production of evidence.

43. This obligation on the State to investigate cannot be discharged by simply denying that anything untoward has happened. It can also not be discharged by assembling a group of people tied in one way or another to the government under question who are asked to comment on the videos, and expecting the international community to accept their expertise in all matters ranging from forensic analysis of videos to pathology to ballistics, without even seeing the full text of their reports or establishing their expertise in these fields. Denials based on such evidence are not credible.

44. The mandate of the domestic mechanism that the Government of Sri Lanka has created does not require a fact-finding investigation into violations of international law and international humanitarian law, and its *modus operandi* so far does not indicate that it is doing this. In addition to whatever steps can be taken to rectify the domestic process, an international investigation by an independent team with full investigative powers and capabilities should be initiated. It should make recommendations on any possible prosecutions or other measures to be taken.

45. In conclusion, what has been said above should be re-emphasized, to avoid any misunderstandings: This note does not purport to find the Government or any of its agents

guilty of any offence. This can only be done by a court of law. Instead, the claim is made here that the extended video provides credible evidence that serious crimes have been committed within the context of the Sri Lankan civil war, which should together with any other available evidence be examined systematically and professionally by domestic investigators, as well as by an independent, international investigational body, with a clear mandate in this regard, in order to establish who should be held accountable for these cold-blooded killings.

B. REPORT OF MR. JEFF S. SPIVACK - A FORENSIC VIDEO ANALYST

Forensic Video Analysis Supplemental Report

Re: Authenticity of Digital Video/Audio Recording of Purported Sri Lanka Executions

Introduction:

On or about December 11, 2010, Professor Christof Heyns, United Nations Special Rapporteur on extrajudicial, summary or arbitrary executions, requested, in his official capacity, that this author, hereinafter alternately referred to as "the analyst", conduct a supplemental analysis of an additional digital video/audio recording purportedly depicting executions of Tamils by Sri Lankan armed forces personnel. A portion of this extended recording, first broadcast by Channel 4 television in the United Kingdom on August 25, 2009, appears to depict Sri Lankan military members shooting two unidentified bound and blindfolded individuals in the head at close range with AK-47 variants or similar assault rifles, as well as the presence of several other unidentified deceased or dying individuals. The new recording contains the originally released material, as well as additional video that purports to depict two more shootings, extensive video of a collection of bodies at the site, and video from what appears to be a second location with four additional bodies visible. After the original Channel 4 broadcast, the Sri Lanka government issued a document reporting the results of forensic examinations undertaken by a panel of experts commissioned by the government regarding the authenticity of the video, concluding that the video and events contained therein were "fake" or fabricated. Since the release of a report by Professor Heyns' predecessor, Professor Phillip Alston, Sri Lanka government officials continue to categorically deny the authenticity of all recordings of this incident.

The scope of this analysis is generally limited to an examination of the properties of a recording provided by Professor Heyns, consisting of a digital file identified as "SL1.3GP". As with the first analysis, this analyst will defer to the expertise of the forensic pathologist retained concurrently by Professor Heyns with respect to apparent gunshot wounds, biomechanical reactions to these apparent gunshot wounds, and related medico legal conclusions, and to the firearms expert regarding terminal ballistics and weapon dynamics, respectively.

About the author:

Jeff Spivack is a Forensic Multimedia Analyst currently in private practice, formerly serving in that capacity with the Las Vegas Metropolitan Police Department. In addition to providing forensic video and audio analysis services, Mr. Spivack provides consulting and training services upon request to law enforcement and prosecutorial agencies, and serves as a senior forensic video software certification instructor for Cognitech, Inc., and is a senior instructor of video forensics for Forensic Data Recovery, Inc. in Canada. Mr. Spivack is a member of the American College of Forensic Examiners Institute, is designated by that organization as a Certified Forensic Consultant, and has been qualified as an expert witness

on the subject of forensic video analysis in courts throughout the United States in both civil and criminal proceedings.

Background:

According to the Scientific Working Group on Imaging Technologies (SWGIT) *"Best Practices for Image Authentication"* Version 1.0 2007.06.04[12], establishing the authenticity of a disputed multimedia (video and audio) recording to a high degree of scientific certainty is highly problematic, particularly when provenance of the recording cannot be verified, as is the case with the subject of this analysis. However, it is sometimes possible to *exclude* the authenticity of a recording submitted for analysis based on factors including, but not necessarily limited to: metadata inconsistent with purported properties of the recording, evidence of image manipulation, evidence of image creation, evidence of staging, evidence of discontinuity, and/or evidence of image processing. As the authors of this SWGIT publication note, "Image Authentication must not be confused with the requirement to authenticate evidence as a precondition to admissibility in court. Likewise, authenticity differs significantly from integrity. Integrity ensures that the information presented is complete and unaltered from the time of acquisition until its final disposition. For example, the use of a hash function can verify that a copy of a digital image file is identical to the file from which it was copied, but it cannot demonstrate the veracity of the scene depicted in the image".

An exhaustive review of current research on methods for detecting image and video tampering using passive methods reveals sometimes high rates of both false rejection and false acceptance based solely on computerized analysis of such individual criteria as double quantization, planar surface orientation, 2D lighting and shadow analysis, and byproducts of visual splicing, a/k/a "cut and paste" operations. As W. Wang, J. Dong, and T. Tan note in *"A Survey of Passive Image Tampering Detection"*[13], "There are several techniques based on checking whether some parts of an image undergo some operations that may occur in image tampering. But it will cause some problems. For example, if an authentic image undergoes global scaling or blurring, but image content does not change, these techniques will also consider the authentic image as tampered". For the purposes of this supplemental analysis, it bears repeating that merely transcoding or converting a multimedia recording from one format to another to facilitate viewing does not in and of itself invalidate the recording's authenticity. Consistent with SWGIT best practices, this analysis will stress accepted methods of file structure and content analysis, while also considering novel approaches to passive tampering detection described in the literature.

Warning:

This report contains gruesome, disturbing images, which depict apparently deceased individuals, sometimes in graphic detail. The decision to include these images was made in

[12] http://www.theiai.org/guidelines/swgit/guidelines/section_14_v1-0.pdf
[13] http://www.nlpr.ia.ac.cn/2009papers/gjhy/gh46.pdf

consultation with the requesting party after careful consideration of the probative value versus the potentially sensational, emotionally distressing nature of the images. This document is intended only for mature audiences, and should not be distributed to children or sensitive adults.

Procedures:

1. MediaInfo Version 0.7.41 was used to obtain metadata contained in the recording provided, identified by file name as "SL1.3GP", to wit:

Complete name: P:\Sri Lanka Supplemental Analysis Files\SL1.3GP

Format: MPEG-4

Format profile: 3GPP Media Release 4

Codec ID: 3GP4

File size: 7.35 MiB

Duration: 5mn 25s

Overall bit rate: 189 Kbps

Encoded date: UTC 2009-07-15 13:17:23

Tagged date: UTC 2009-07-15 13:17:23

Video ID: 2

Format: H.263

Format profile: BaseLine@4.5

Codec ID: s263

Duration: 5mn 25s

Bit rate mode: Variable

Bit rate: 174 Kbps

Width: 176 pixels

Height: 144 pixels

Display aspect ratio: 4:3

Frame rate mode: Variable

Frame rate: 7.416 fps

Minimum frame rate: 1.876 fps

Maximum frame rate: 7.813 fps

Compression mode: Lossy

Bits/(Pixel*Frame): 0.927

Stream size: 6.75 MiB (92%)

Writing library: Philips

Encoded date: UTC 2009-07-15 13:17:23

Tagged date: UTC 2009-07-15 13:17:23

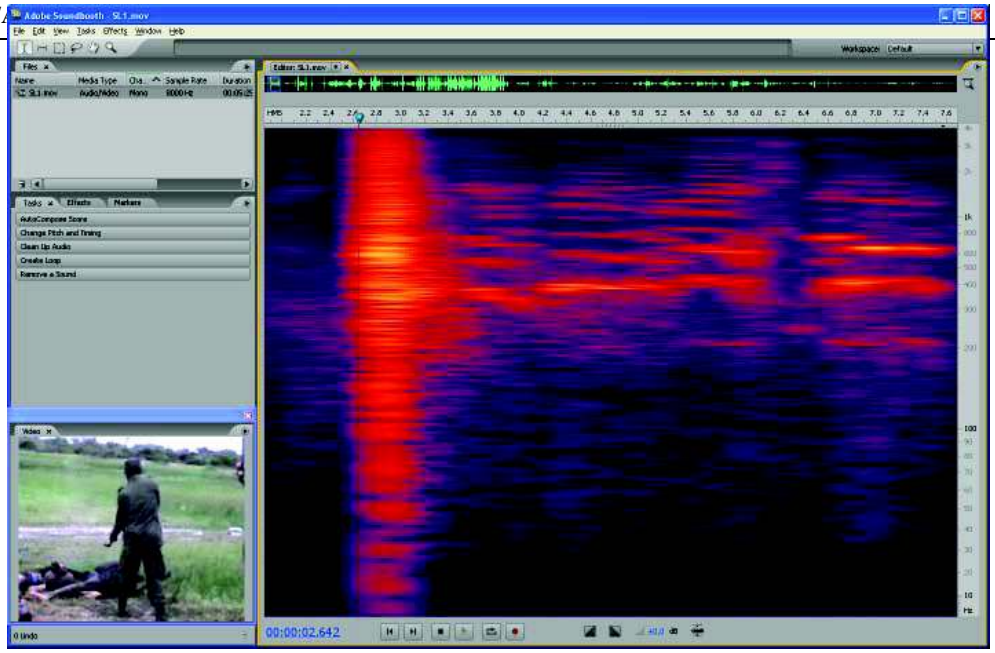
Audio

ID:	1
Format:	AMR
Format/Info:	Adaptive Multi-Rate
Format profile:	Narrow band
Codec ID:	samr
Duration:	5mn 25s
Bit rate mode:	Variable
Bit rate:	12.8 Kbps
Channel(s):	1 channel
Sampling rate:	8 000 Hz
Bit depth:	13 bits
Stream size:	508 KiB (7%)
Writing library:	Philips
Encoded date:	UTC 2009-07-15 13:17:23
Tagged date:	UTC 2009-07-15 13:17:23

2. Elecard StreamEye v.1.1 software was used to conduct a detailed analysis of the multimedia file's stream statistics, Group of Pictures (GoP) I-frame and P-frame locations, frame macroblock data, and motion vectors.

3. To facilitate further analysis and processing with Cognitech VideoInvestigator and Adobe Soundbooth, QuickTime Professional was used to save a duplicate of the file, changing the file wrapper from .3GP to .MOV. This change of file wrapper/file extension does not alter the media contained in the wrapper in any way. Similarly, the stabilized relevant segments were exported to uncompressed .AVI format with VirtualDub for analysis by Dr. Spitz and Mr. Diaczuk, the forensic pathologist and firearms expert, respectively.

4. Cognitech VideoInvestigator software was used to process the two additional instances of visible weapon discharge, as well as closeup views of apparent gunshot wound victims by using a correlation apparent velocity estimation filter and the corresponding video stabilization filter, enlarging the regions of interest, and rescaling/cropping to 640 X 480 during the stabilization output process. Because the Cognitech software does not process audio, VirtualDub version 1.9.11 was used to add the corresponding frames' audio track previously exported to .WAV format. Stabilized/enlarged versions of these segments were provided directly to the forensic pathologist and firearms/ballistics expert along with the file in its original .3GP format. VideoInvestigator was also used to conduct an arithmetic operation (Absolute A-B) to compare 542 frames that are common to both SL1.3GP and the file submitted during the original analysis, VideoDJ.3GP. During a segment of the newly released video in which bodies (at what appears to be a second location) were recorded from a changing perspective, apparent velocity estimation was calculated and the resulting data applied to a mosaic reconstruction utility to create a single panoramic still image from the video segment. This technique was also used to produce reduced noise image reconstruction views of apparently deceased individuals in prior segments, and those resulting reconstructions were further processed with a Wiener deconvolution filter using a

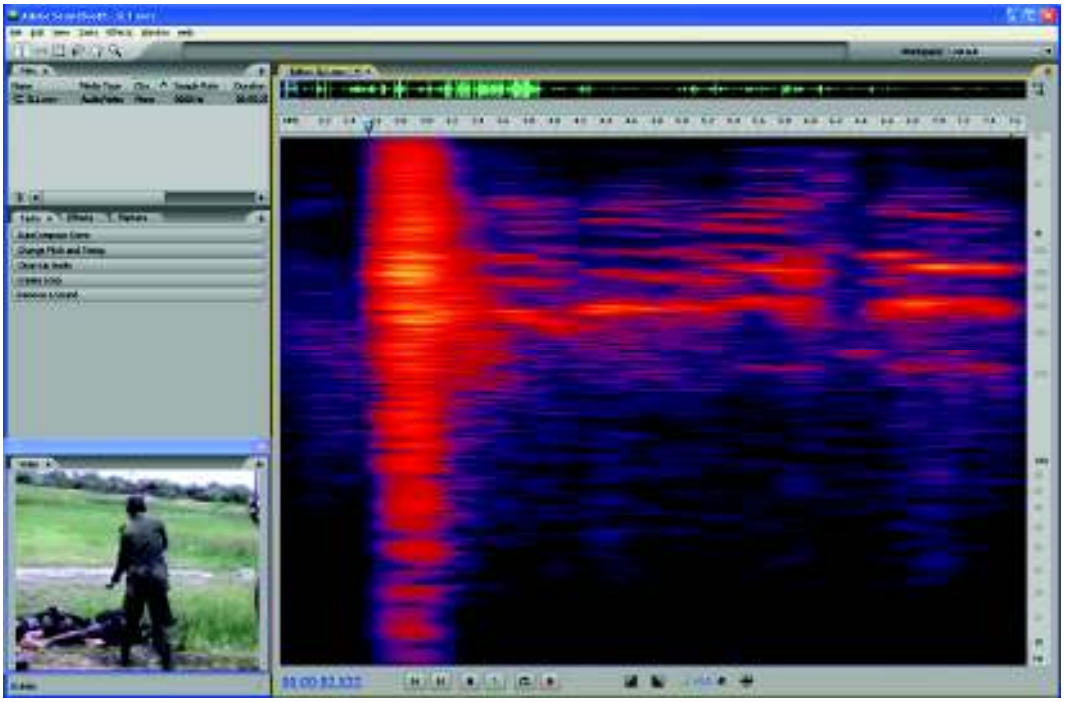


focus blur kernel to counteract the dominant point spread function, thus creating sharper, more detailed images. As a normal consequence of procedures in which apparent velocity estimation was calculated to create a single mosaic image from multiple sequential frames, visual artifacts from the image boundaries are visible, as are variations in histogram values that present as differences in lighting and contrast in different regions of the images. Finally, a region of interest containing potentially suspicious features (primarily presumptive blood pooling) in Frame 812 was selected and processed with a Fourier transform to determine random distribution vs. periodicity. All image processing procedures are non-destructive in that the original file submitted for analysis was not altered; instead, new files containing stabilization and/or other enhancements were produced.

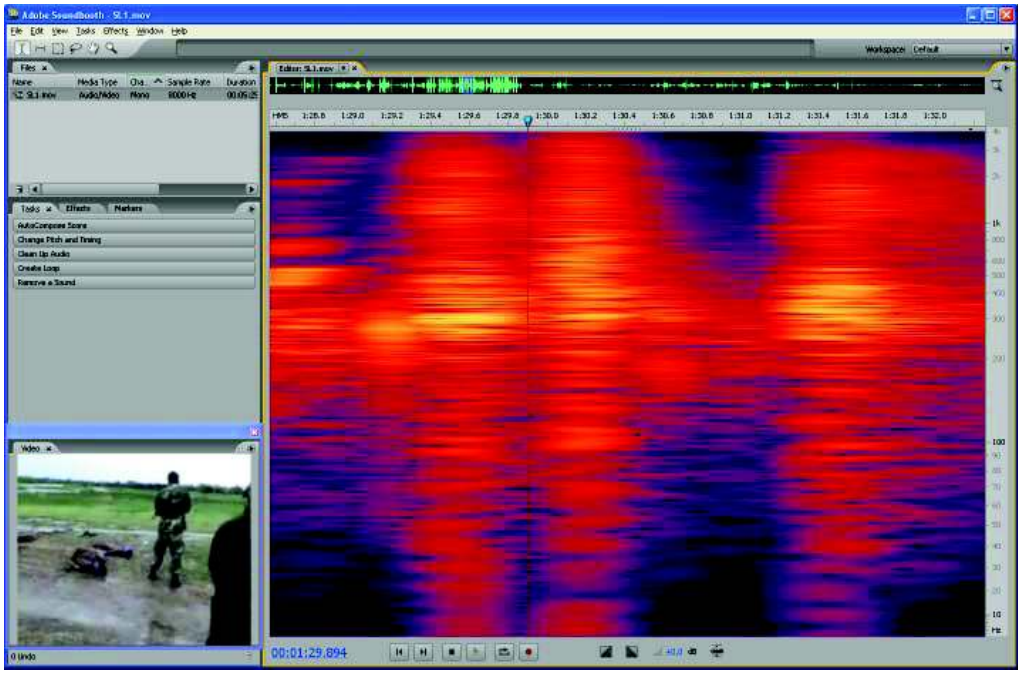
5. Adobe Soundbooth CS3 software was used to open the .MOV file extension duplicate of the recording to determine the extent of video/audio synchronization difference between the first frame in which visual evidence of weapon discharge is present and the corresponding audio for each discharge by simultaneously displaying the video window and audio spectrograph display. For the purpose of this analysis, visual evidence of weapon discharge is defined as visible recoil, what appears to be expanding gasses from the weapon at frame 19, and simultaneous movement of the bodies at the instant of both weapon discharges.

6. Frame by frame analysis of the 2411 video frames for content was conducted using Cognitech Video Investigator and Elecard StreamEye to detect any possible breaks in continuity, invalid frame characteristics, anachronisms, or visual anomalies that could indicate image tampering.

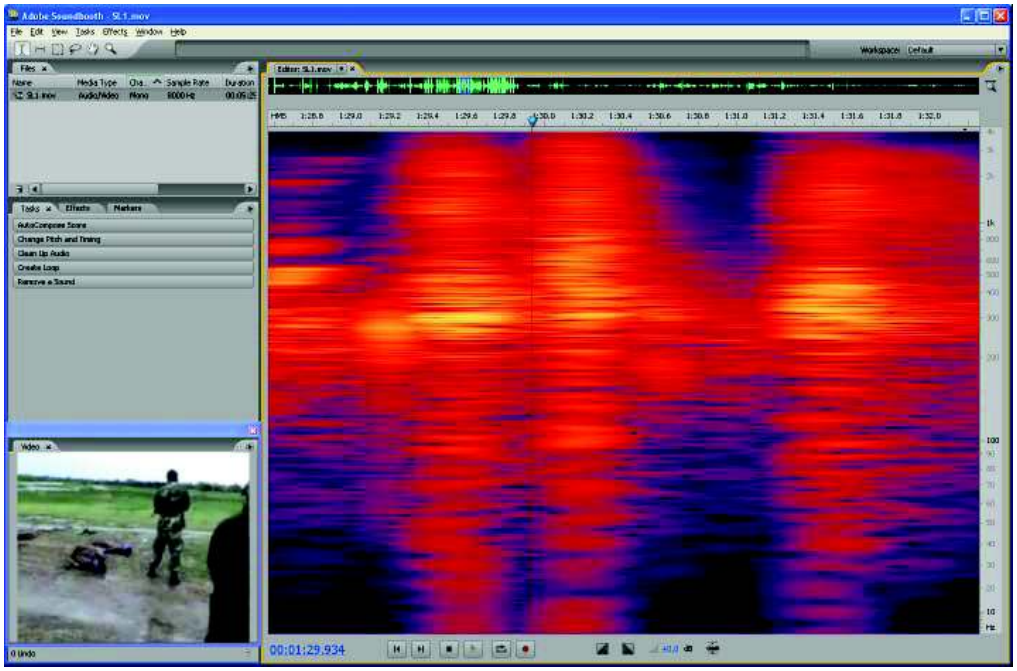
Timeline Indicator of Visible Weapon Discharge at Frame 19 at 00:02.642



Timeline of Corresponding Audio Event at 00:02.532



Timeline Indicator of Visible Weapon Discharge at Frame 663 at 01:29.894



Timeline of Corresponding Audio Event at 01:29.934

Findings:

SL1.3GP contains five distinct segments. The second segment corresponds to the first 542 frames of the VideoDJ.3GP recording. An Absolute A-B arithmetic operation was used to compare the pixel values of each corresponding frame from both files; the test result indicates that the visual content of the corresponding 542 frames is identical. According to the metadata retrieved from the file submitted for analysis, encoded dates and tagged dates for both video and audio components indicate the recording was made on July 15, 2009 at 13:17:23 UTC (Universal Time Coordinated), also known as GMT (Greenwich Mean Time) or Zulu Time. This time, if correct, would be 18:47:23 local time in Sri Lanka based on the standard offset of GMT + 5.5 hours (Daylight Saving Time is not observed in Sri Lanka). The encoded date is well after the alleged date of the incident and, if accurate, would tend to discredit the recording's authenticity without a logical explanation for the discrepancy, as with the first file analyzed, VideoDJ.3GP. In addition, SL1.3GP was encoded three days before VideoDJ.3GP. Again, the encoded date is not conclusive evidence of the actual recording date and time, because it is derived from the mobile device's date and time setting, which can be manually set by the user with many mobile phones. In light of new evidence, specifically the additional content of the newly released recording which is composed of a compilation of multiple segments, it is now readily apparent that both the video originally broadcast on Channel 4 and the newly released extended version are the product of a basic editing software. NXP Software, a subsidiary of Philips formerly known as Philips Software markets a group of basic video editing utilities (LifeVibes VideoStudio, MediaConverter, VideoArtist Lite, and VideoArtist) to mobile phone manufacturers designed to be installed on and operated from a wide variety of Symbian Operating System mobile phones. According to NXP Software, their VideoStudio

software has been installed on over 100 million phones.[14] Note that these software utilities operate on the mobile phone itself, not on an external computer, so files generated as a result of the basic editing functions possible with this software (such as trimming and reordering clips, and adding simple backgrounds or titles) would still contain metadata consistent with a mobile phone.

SL1.3GP video and audio formats, codecs, bit rates, and video width, height, aspect ratio, GoP (Group of Pictures) pattern and ratio of I-frames to P-frames, and format profile/motion vector properties (Level 10 Baseline +/- 4.5 macroblocks outside the video frame boundaries) are entirely consistent with multimedia files produced by a wide variety of mobile phones with video recording capability. The video and audio writing library data both returned as "Philips", which provides presumptive evidence that the source of the recording was a Philips mobile phone or camera, or a mobile phone equipped with Philips (or a subsidiary such as NXP) software for Symbian Operating System mobile phones. One possible hypothesis for the reference in metadata to Philips is that whatever video camera used to record the video simply contained an imaging sensor manufactured by Philips. While Philips does manufacture Charge Coupled Device (CCD) and Complementary Metal Oxide Semiconductor (CMOS) imaging sensors for many cameras and camcorders, this would not explain the metadata indicating the use of Philips software in the *audio* stream.

Based on spectrographic analysis and comparison with the corresponding visual evidence of weapon discharges, the following determinations and conclusions were made: In the weapon discharge visible in Frame 19, audio is present 0.110 seconds before the first video frame containing visual evidence of the discharge. In the weapon discharge visible in Frame 663, audio is present 0.004 seconds after the first video frame containing visual evidence of the discharge. Comparison of audio spectrographs from the two weapon discharges reveals a significant variation between the two, indicating that these are two separate and distinct audio events. This disparity between the two audio events would preclude the possibility that a single gunshot sound effect was added in an editing process. It is important to note that the temporal rate of the file submitted for analysis (7. 416 frames [progressive scan] per second) is insufficient to determine the precise instant of weapon discharge based on visual evidence. For this reason, video/audio synchronization is approximate at best, and does not provide a reliable reference for determining if the audio track has been edited.

Content analysis revealed that there are five different segments within SL1.3GP. Within each of these segments, there were no breaks in continuity (particularly during weapon discharge events), no additional video layers, and no evidence of image manipulation. The segments are arranged out of chronological order, based on the increasing number of bodies present in the segments, and the final segment appears to have been recorded at another location based on differences in natural/geographical features, and the fact that four bodies were visible in the video, as contrasted with the fourteen distinguishable bodies visible by the end of the first four video segments. All segments of video contain visual evidence of the CMOS (Complimentary Metal Oxide Semiconductor) "rolling shutter effect" in the form of geometric distortions (primarily skewing or projection) that are generated in response to camera movement. Note the skewing visible on the left edge of the mobile phone in Frame 37 vs. Frame 1. CMOS imaging sensors are commonly found in mobile phone cameras, while Standard Definition video camcorders typically use CCD (Charge Coupled Device) imaging sensors, which do not produce these distortions. See *"Analysis and Compensation of Rolling Shutter Effect for CMOS Image Sensors"*[15] (L.W. Chang, *et*

[14] http://www.software.nxp.com/?pageid=112

[15] http://140.117.166.1/eehome/ISCOM2005/SubmitPaper/UploadPapers/ISCON05_00159.pdf

al) for a detailed discussion of the CMOS "rolling shutter effect" and compensation methods.

Segment 1 – Frame 1

Segment 1 – Frame 37

Segment 1 (Frame 1 – 70): At frame 19, an unidentified male wearing "olive drab", a/k/a "OD" fatigues discharges what appears to be an AK-47 variant or similar assault rifle and an unidentified subject who appears to be in the line of fire simultaneously reacts. The shooter's face is visible as he walks toward another unidentified male in uniform holding up what appears to be a camera phone.

Segment 2 (Frame 71 – 612): As previously noted, an image content [A-B] pixel value comparison reveals that this segment is identical to frame 1 – 542 of VideoDJ.3GP. The graphic/logo present for the final 17 frames of VideoDJ.3GP is absent from this segment. The contents of this segment were described exhaustively in the first report on this subject, and will not be restated for this supplemental analysis.

Segment 3 (Frame 613 – 998): At frame 663, an unidentified male wearing camouflage fatigues discharges what appears to be an AK-47 variant or similar assault rifle as an unidentified subject lying supine on the ground simultaneously reacts. At frame 767, the focal length of the camera changes resulting in a magnification X2. Analysis of the GoP pattern reveals that frame 767 is a P-frame, suggesting that this is not a scene transition/edit point, which would have produced an I-frame. Frames 804 to 816 were processed with an apparent velocity estimation and mosaic reconstruction filter to produce a still image of the individual previously described by a member of the Sri Lanka government's panel of experts, Maj. Bandara as wearing "a clean white shirt". Upon closer examination of the image taken at closer range in the newly released video, the white shirt has visible red stains.

Frame 804 – 816 Apparent Velocity Estimation Calculated Mosaic Reconstruction

Frame 812 with Fourier transform of region of interest outlined (inset at top left)

The outlined region region of interest in Frame 812 was analyzed using a Fourier transform, which contains a random distribution suggestive of a natural, unaltered image rather than a high degree of periodicity associated with re-sampling found in deliberate forgeries. For a detailed discussion, see *"Statistical Tools for Digital Image Forensics"*[16] by Alin C. Popescu.

[16] http://www.cs.dartmouth.edu/farid/publications/apthesis05.pdf

Segment 3 – Frame 860

Segment 3 – Frame 904

Unidentified Participant

Segment 3 – Frame 911 Unidentified Shooter Partial Profile

Based on the progressive body count, the first three segments appear in reverse chronological order; the correct order would be Segment 3, Segment 2, Segment 1.

Segment 4 (Frame 999 – 1868): The camera records bodies lying in various positions on the ground, including one individual whose skull appears to have a large defect, revealing what appears to be an exposed flap of scalp and the interior of the cranium, with a large pool of red liquid underneath the head. Two sections of video were processed with an apparent velocity estimation filter, stabilized, and the stabilized frames averaged to obtain still images with video noise reduction. The consistency of features in all sequential images during both sequences demonstrates a uniformity of detail from frame to frame as the perspective changes that would not be generated artificially on video using widely available video special effects software such as Adobe After Effects.

Segment 4 Frame 1081 – 1103

Segment 4 Frame 1340 – 1356

A lone blindfolded female lying on top of a large pool of red liquid is also visible, with her panties pulled partially down; an unidentified male in uniform pulls a covering off her upper torso, revealing her bra lowered below her breasts with her hands behind her back. At frame 1009, the focal length of the camera changes resulting in a magnification X2. Analysis of the GoP pattern reveals that like the previously noted frame 767 in Segment 3, frame 1009 is a P-frame, again suggesting that this is not a scene transition/edit point, which would have produced an I-frame. From frame 1076 to 1080, and again from frame 1191 to 1205, an unidentified male in OD fatigues is visible pointing a camera phone at bodies. During this segment of video, a reflection of one of the participants is visible in a large puddle adjacent to the female body. This reflection conforms to the contours of the puddle.

Frame 1398

Frame 1398 Rotated 180 Degrees

Segment 5 (Frame 1869 – 2411): Based on the number and appearance of bodies present and differences in natural landmarks, this appears to have been recorded at another location. This segment begins by scanning from different perspectives a partially covered female, featuring closeup views of her breasts and genitalia, followed by three males. One of the male bodies is clothed with dark briefs and a white tank top t-shirt, the second is lying prone in a shallow ditch with his hands behind his back, and the third is nude with his hands behind his back, lying on the ground between the ditch and the female. This segment

concludes by panning back to the female. Frames 2141 to 2305 were processed with an apparent velocity estimation algorithm and the calculated apparent velocity was then used with a mosaic reconstruction utility to produce a panoramic still image of the included frames.

Frame 2141 – 2305 Mosaic Reconstruction Panoramic View

Conclusions:

In any forensic investigation, the discovery of new evidence provides an opportunity to reevaluate conclusions drawn from a previously examined, less complete set of evidence. Such is the case with this analysis. The video/audio file submitted for this supplemental analysis, SL1.3GP provides significantly more material for analysis. Unlike the first video file submitted for analysis (VideoDJ.3GP), this recording contains considerably more detail, including potentially identifiable images of some of the participants and apparent victims. The existence of five separate and distinct recorded segments within the file, one of which contains 542 frames of video identical to the previously released recording (VideoDJ.3GP) provides conclusive evidence that these files are the product of editing. The presence of metadata indicating processing with Philips software, along with confirmation that a Philips subsidiary, NXP Software has widely distributed software capable of editing video within the mobile device, without the need for an external computer, provides a highly plausible, logical explanation for two previously unresolved discrepancies with the originally submitted recording, VideoDJ.3GP.

First, the encoded date discrepancy: a video camera mobile phone with the NXP LifeVibes VideoStudio software installed would be capable of storing individual video recordings indefinitely. Any video edited with this software/feature would then be encoded with the date and time that the new, edited file was created, and would derive that date and time from the mobile phone's settings. Because these files would be generated by software integral to the mobile phone, they would logically be consistent with the technical attributes of a mobile phone original .3GP file.

Second, the white uppercase "A" against a red background present for the final 17 frames of VideoDJ.3GP: according to published information from NXP Software, VideoStudio provides the ability to add titles and graphics. It is quite plausible that the producer of VideoDJ.3GP added this text/logo at the end of the video segment, though only those responsible can explain its significance.

The fact that editing in any form has been applied to the recordings submitted for authentication will quite understandably generate skepticism or even suspicion. However, it is important to understand the distinction between the type of rudimentary editing possible on a mobile phone (that all available evidence indicates was used in this case) and the capabilities of a powerful computer based non-linear editing system with sophisticated filters and effects. At most, integrated mobile phone editing software could delete evidence that occurred before or after the remaining video, or reorder video sequences; this is of course potentially destructive and misleading. However, editing software this limited could not possibly create even a crude simulation of the subject matter present in these recordings, much less a realistic simulation. While there is no way to know what may have been deleted before or after the video segments, the remaining intact recorded video is accurate based on all available evidence.

This analyst again repeatedly requested access to the device purportedly used to make the recordings for the purpose of comparing photo response non-uniformity and image sensor noise profiles present in the recordings submitted for analysis with exemplar recordings generated by the device. To date, the device has not been made available, nor has information regarding the specific make and model of the device. The identity and status of the person(s) who created the video files is unknown to this author. In the absence of the actual device, authenticity of the recordings cannot be determined to an absolute certainty. Notwithstanding the inability for any analyst to make an absolute definitive determination under these circumstances, the results of testing procedures and content analysis are persuasive that the events depicted on the available video/audio recordings are authentic.

Acknowledgments:

This author is extremely grateful to Lenny Rudin, PhD, forensic imaging scientist at Cognitech, Inc. for generously conducting a peer review with respect to theory and algorithms of video motion analysis and related image processing used in this analysis, and to Alex Dziemieszko, a LEVA Certified Forensic Video Technician, for providing a peer review of the methodology and conclusions contained in this report.

In the interest of full disclosure and disclaimer, Dr. Rudin's and Mr. Dziemieszko's participation were voluntary, using their own personal time and resources, and no official endorsement by Cognitec, Inc., LEVA, or any other organization should be inferred.

C. REPORT OF MR. DANIEL SPITZ - A FORENSIC PATHOLOGIST

February 21, 2011

Dear Mr. Heyns,

Pursuant to your request, I have reviewed additional videos depicting alleged executions in Sri Lanka by Sri Lankan soldiers.

Subsequent to my review of these materials, it is my opinion that the execution shootings shown in the videos represent real executions of multiple individuals secondary to close range gunshot wounds using high powered assault rifles.

The video begins with the close range shooting of a man who is naked, blindfolded and bound with his hands behind his back. At the time of the shooting the man is motionless and is lying on the ground, predominantly along his right side. As the rifle is fired, gases are noted to emerge from the muzzle of the gun. The man appears to be shot in the left thigh and at the time of the shooting shows reactive/reflexive movement immediately after he sustains the wound. It is unclear what, if any wounds he had already sustained at the time he is shot in the leg.

In the area adjacent to this victim are several other individuals all of whom appear blindfolded and/or bound. Immediately prior to this shooting, you can see another apparent victim fall into view at the far left side of the video. While it may be that this represents another execution shooting victim (gunfire is heard in the background audio), the limited view of this individual does not allow this definitive determination.

The video continues with a naked, bound and blindfolded man being aggressively put on the ground in a seated position. He is kicked in the back by a soldier who uses the heel of his boot. Seconds later, he is shot in the back of the head at close range with an assault rifle. As the gun is fired, you can see the discharge of gases and smoke from the muzzle of the gun. As the victim is shot, he immediately collapses to his right and blood begins to pool on the ground under and around his head. Several seconds later, the victim's body rotates back to the left secondary to the effects of gravity.

At the time of this shooting, another apparent victim who is on the ground directly in front of the victim being shot in the head shows movement of his left lower extremity. The movement consists of rotation of the left lower extremity from an abducted position to a point where his knee is nearly vertical. Immediately thereafter, the knee rotates laterally back to its original position.

It was previously unclear as to what accounted for the movement of this individual's left leg, however, it appears that when the victim is shot in the back of the head that the bullet exits the front of this head or face and continues forward to involve the other person. The trajectory of the bullet is such that the individual's left leg would be directly along the wound path and thus be subjected to being struck after the bullet perforated the other victim. Although the individual appears motionless immediately prior to the shooting, it is unclear as to what injuries he may have already sustained prior to the projectile striking his left leg.

At several times during the video, the camera pans to the left and back to the right to show many apparently deceased victims, most of whom have blood evidence around their bodies. The other apparent victims are mostly naked, blindfolded and have their hands bound. Several of the victims are naked females with their genitalia exposed. One such female victim has her face exposed with her eyes and mouth partially open. The right and left eyes

have abnormal pupil locations with the right eye having a more lateral gaze than the left. Additionally, the right eye appears to be open to a slightly greater degree than the left. While these findings are not proof of death, they are common findings in deceased persons. The blood emanating from her nose and mouth is also a common finding in severe head trauma deaths. Blood evidence consistent with being caused by gunshot wounds to the head are noted on and around many of the bodies.

Specifically, there is a clothed victim who has a gross deformity to his face, consistent with being caused by being shot in the head with an assault rifle. The blood evidence under and around his head and upper torso is what you would expect after sustaining a gunshot wound of the head.

Continued video footage shows a second naked, bound and blindfolded man being put on the ground and shot in the back of the head at close range with an assault rifle. As the victim is shot, he immediately collapses backwards, but appears to tense his body with contraction of his torso and lower extremity musculature. A large gush of blood pours from the back of his head and onto the ground behind his body. Over the next several seconds, his muscles relax and his back and head then come in complete contact with the ground. Blood continues to saturate the area under and around his head. This reaction is quite typical of an individual who sustains a gunshot wound to the head. The initial response to such trauma is often intense contraction of the skeletal muscles followed by relaxation over the next several seconds.

The video shows a fourth shooting of a naked individual who is lying supine with a blindfold around his face. The video is taken at a further distance than the other three shootings. The individual appears to be shot in the head and shows subtle body movement at the time of the shooting. Due to the video being taken at a distance, blood evidence that occurred following the shooting cannot be evaluated. It is unclear as to what injuries this person may have had prior to the shooting shown in the video.

The camera again pans across a field to show numerous apparent victims who are mostly naked, blindfolded and bound. The camera focuses in on one victim who is lying supine with a blindfold loosely situated around his neck. His face and forehead show an obvious wound characterized by multiple scalp lacerations and extensive skull fractures which result in wide exposure of the cranial cavity. The wound is characteristic of being caused by a close range gunshot wound using a high powered assault rifle. The blood evidence around the body is entirely consistent with the wound that is seen.

Following my initial review of the video it was unclear as to why one of the apparent victims had his left lower extremity in an upright position with his knee flexed at near 90 degrees and his left foot flat on the ground. As previously indicated, under normal circumstances and without something maintaining his leg upright, I would not expect his leg to remain in this position if he were deceased. Review of the current video better shows the position of the leg and explains why it maintained in an upright position. Apparently when this individual collapsed, his legs crossed and thus his left foot is situated on the ground to the right side of his right leg. In this position, his left ankle is supported by resting against the outer aspect of his right leg. Thus his left lower extremity remains in a position that can be explained without any purposeful action or muscle tone.

In summary, the footage shown in this video appears authentic, especially with respect to the individuals who are shown being shot in the head and other areas of the body at close range by assailants using high powered assault rifles. The visible wounds, blood evidence and body movements are entirely consistent with what would be expected with gunshot wounds from assault rifles. Furthermore, the head wounds on two of the victims who are not actually shown being shot are characteristic of gunshot wounds caused by high powered assault rifles.

The two questions that existed following review of the initial video have been answered and explained by review of the current video. At this point, there are no inconsistencies and nothing to suggest that the current video is anything other than authentic.

Should you have additional questions, please do not hesitate to contact me.

D. REPORT OF MR. PETER DIACZUK - A FIREARMS EXPERT

Video analysis - Sri Lanka incident. Additional video

Report date: 18 February 2011

In response to a request on Dec 9th 2010 from Professor Christof Heyns, United Nations Special Rapporteur on Extrajudicial Executions, to prepare a firearms and ballistics report on the videotape that is alleged to show the execution of Tamil prisoners by members of the Sri Lankan armed forces, I have prepared the following document. The views and opinions expressed herein are my own and do not necessarily reflect those of the College.

The video in question was initially received by traditional mail from Mr Jeff Spivack on 26-January-2011 burned onto a DVD, along with stills and short segments that have been stabilized to facilitate critical review. The DVD bears the title "SL1.3GP"

My expertise within the broad field of forensic science includes more specifically the scientific examination of firearm evidence and crime scene reconstruction. In addition to my education and training in forensic science, I have worked as a Range Officer and am a Certified Firearms Instructor. I am neither a medical examiner nor a video / digital imaging analyst and thus, for interpretations and conclusions as to those aspects of the submitted video recording, I defer to the experts in those respective disciplines.

Using experiments conducted as background information for a prior report to the United Nations Special Rapporteur on Extrajudicial Executions, which involve the same class of firearm as depicted in this case, I have reviewed those experiments again to aid in my interpretation and conclusions for this assignment.

Overall conclusions: from personal experience and the videos that I took of an AK-47[17] [1] class rifle being fired from both hip and shoulder, I am convinced that the minimal recoil seen in the video submitted to me was accurate for an adult male holding and firing a Kalashnikov class firearm.

A total of five video segments were received, the first three containing views of firearms being discharged; the fourth and fifth segments containing views panning the overall area with no on-camera discharges.

Analysis of the three specific video clips for authenticity, in chronological order as received (note that the frame numbers referenced below are from each individual video segment, not the frame numbers of the video as a whole):

[17] The AK-47 (Avtomat Kalashnikova 1947) rifle was designed by Russian soldier / military firearm designer Mikhail Kalashnikov and adopted in 1947. Since its adoption by the Soviet military, it has undergone several modifications and variations. Estimates of up to 100 million manufactured to date exist, along with its appearance in dozens of countries around the world (Kahaner, 2007, "AK-47"). See appendix for photograph of an AK-47.

First video sequence showing uniformed soldier with mustache in mono-color fatigues and cap. Frame 8 – possible hesitation as soldier appears to thrust his rifle a few inches (several centimeters) toward the ground where an individual is lying, but no evidence of discharge. Later, in frame 19, his firearm discharges, just as he again thrusts the rifle toward the individual for a distance of a few inches. Perhaps this is done in anticipation of the recoil as a result of discharge. (In the shooting community, this is referred to as "flinch"). Smoke ejects from the muzzle in accordance with discharging a cartridge. Frames 20 and 21- smoke dissipates as it moves away and to the right of the shooter. In frames 28, 29 and 30, and again in frames 54, 55 and 56, the rifle is presented to the camera and has the characteristics of the Kalashnikov class of assault rifle. This implies that the ammunition would be 7.62 x 39 mm or 5.45 x 39 mm. This segment ends at frame 69.

Second video sequence showing uniformed soldier. This video clip appears the same as the video that was submitted for assessment of authenticity in 2009. My observations and opinions of this segment have not changed since my last viewing, and thus I have inserted my original writing verbatim. The firearm used appears to be a Kalashnikov class. This implies that the ammunition would be 7.62 x 39 mm or 5.45 x 39 mm. At the moment of discharge of the firearm, at frame #41, it moves rearward, as do the shooter's arms, as seen clearly by both of the elbows suddenly jerking rearward and then forward again in the next frame, #42. When the firearm moves rearward as a result of the recoil from discharge, it appears to move in-line with how it was held, and then forward again in the same linear fashion. This is consistent with how a shooter experiences recoil and recovers after firing the shot [182]. Accompanying the discharge is the plume of high-pressure gases that is expelled from the muzzle, visible to the left and lower left of frame #41. Both the recoil [193] described above and the high-pressure gasses (commonly referred to as *muzzle blast*) generated at discharge are indicative of firing live ammunition. Although the use of blank ammunition[20 4] will produce gasses and slight recoil, neither is as forceful as the use of live (containing a bullet) ammunition.

The victim's head lurches forward (away from the muzzle) at that same moment, in frame #41. This lurching forward is so sudden that the excess cloth used to tie the blindfold is seen to move from what was merely gravity-positioned, to an airborne position. Coinciding with the firearm discharge and forward head movement of the person seated in the

[18] (Whelen, 1946, "Small Arms Design and Ballistics", vol. 2 ch. 3).

[19] The recoil calculation includes the weight of the bullet as a significant factor contributing to the rearward movement of the firearm at discharge (also included is the weight of the powder charge, but the powder weight is considerably less than the bullet weight and thus contributes less to the final figure). Furthermore, the presence of the bullet being pushed through the barrel creates internal pressures not attainable with a blank cartridge.

[20] Blank ammunition should not be regarded as "safe" or "harmless" to use at human targets, especially at close range and where unprotected by clothing. There are several types of "blank" cartridges, depending upon how the powder is kept in the case. Some cases are crimped closed by squeezing the brass together at the top (W.D de Hek, 1995, "Military Cartridges Part 1") while others use different types of plugs, such as wax, cotton, paper, cardboard, plastic etc. In the latter, the plugs become projectiles capable of causing injury as well. Each will allow a different amount of pressure to develop inside the barrel; the more pressure, the greater potential for injury. Injury and even death have been documented from the close range discharge of blanks from military rifles (Di Maio, 1985, "Gunshot Wounds").

foreground is the sudden body movement by the person lying directly in front of him. The energy and ability of the bullet [215] from the Kalashnikov class of firearms to pass through considerable obstacles is well known. Although not fully within my area of expertise, it is quite reasonable that a bullet could pass completely through one person and hit another. I can state from experience that bullets fired from an AK-47 firearm, using 7.62 x 39 mm full metal jacket ammunition, have gone through 6 inches of wood consistently.

The low resolution does not allow me to observe a bullet impact on the victim(s). The direction of ejection of the spent cartridge case is not visible because of the relative positions of the camera to the shooter, which effectively blocks the field of view of that direction.

Third video sequence with soldier in camouflage uniform. In frame 40 the soldier's rifle is pointed in the direction of a blindfolded individual lying on the ground, and then repositioned slightly as evidenced by the muzzle moving upward in frames 41, 42 and 43, then again pointed toward the same blindfolded individual. At frame 50 the rifle appears to discharge once, based on the rearward movement of the rifle in the soldier's hands from recoil. This soldier, and hence his rifle, is too far from the camera to discern any muzzle blast and the soldier's body is blocking the view of the area where a spent case would be ejected. The only part of this soldier's firearm that is visible is the front sight assembly and the muzzle area of the barrel. Both are consistent with the front sight assembly and muzzle area of the Kalashnikov class of firearms.

Summary:

The three video sequences reviewed accurately depict firearms being discharged, and the recoil observed is consistent with the firing of live ammunition.

I have not rendered opinions of either the wound pathology or the military uniforms, as neither are within my expertise.

The conclusions reached are based upon the information available at this time, and are subject to modification if additional information is presented.

Appendix:

[21] 7.62 millimeter, 122-grain full metal jacket bullet traveling at a muzzle velocity of 2330 feet per second, 1470 foot-pounds muzzle energy (Barnes, 2000, "Cartridges of the World"). See appendix for photograph of 7.62 x 39 mm ammunition.

Photograph one- AK-47 with magazines. This model has the fixed wooden stock, whereas those in the video sequences have folding metal stocks.

Photograph two- ammunition for the Ak-47 rifle, 7.62 x 39 mm.

E. REPORT OF MR. GRANT FREDERICKS, A FORENSIC VIDEO* ANALYST

Analyst's Background

I attained an undergraduate degree in television broadcast communications in 1982 and have been continuously involved in the video and imaging industry for the last twenty-eight years.

I am a Forensic Video Analyst with extensive experience in the recovery, scientific examination and evaluation of recorded video and audio information involving criminal and civil investigations in the United States, Canada and in the United Kingdom. I have been continuously active in this science since 1984.

As a Forensic Video Analyst, I have processed thousands of videotapes and computer discs containing digital multimedia evidence for both criminal and civil cases. I have been providing expert testimony as a Forensic Video Analyst since the early 1990's. In the past ten (10) years I have provided expert testimony in the field of Forensic Video Analysis more than eighty (80) times in US and Canadian courts at all levels. I have testified as an expert in Forensic Video Analysis in Washington State, Oregon, Idaho, California, Nevada, Colorado, Arizona, Iowa, Illinois, Missouri, Massachusetts, Pennsylvania, Michigan, Maine, New York, Texas, Florida, British Columbia, Alberta, Manitoba, and in the Yukon Territories.

Since 1999, I have been the Principal Instructor for a series of Forensic Video Analysis courses offered by the Law Enforcement & Emergency Services Video Association (LEVA), a non-profit organization that has trained more than 1800 law enforcement video analysts from throughout the world.

I am the Team Leader for LEVA's Forensic Video Analysis Certification Program.

I am also a contract instructor of Forensic Video Analysis and Digital Multimedia Evidence Processing for the FBI National Academy in Quantico, VA.

I am the Digital Video Advisor to the International Association of Chiefs of Police for its In-Car Video Project and for its Regional Forensic Video Processing Lab Project, which is funded by the US Department of Justice.

I am currently an adjunct instructor for the University of Indianapolis, and each year I teach approximately six (6) one week long courses for the University in various disciplines involved in the science of Forensic Video Analysis, including the use of advanced imaging technology. Students are serving video analysts primarily from police agencies in the US, Canada, the UK, Australia and Asia. Each of the courses focuses on digital video and analog video engineering principles and on the application of proper scientific methodologies for processing digital multimedia evidence, including scientific techniques used to accurately convert time-lapsed video into real-time video for synchronization of separately recorded video sources.

One of the courses that I teach at the University of Indianapolis is entitled Photographic/Video Comparisons, which focuses on the identification of vehicles, clothing and weapons captured to digital and analog video recording sources. I have taught this

* The format of the report has been modified to comply with United Nations editorial rules.

course in Canada, at the British Columbia Institute of Technology and in Indianapolis for each of the last nine years. This course is accredited by the University of Indianapolis and by the Law Enforcement & Emergency Services Video Association, which recognizes the course in its Forensic Video Analysis Certification Program. I have also taught this course in the United Kingdom.

A significant element of the Photographic/Video Comparison course material, and of the other courses I teach, involves the science of Reverse Projection. Reverse Projection is the scientific process of obtaining accurate measurements and making accurate observations from photographic and video images. Reverse Projection has been used among imaging scientists, investigators and in United States courts regularly for more than forty years as a tool to reproduce crime and accident scenes in order to conduct measurements and to make other accurate observations.

Each of the courses that I teach focuses on reflection of light, pixel tracking, digital compression technology, color measurement/analysis and on digital and analog artifact (error) identification for the sole purpose of ensuring the accurate interpretation of video evidence. Since each of the signal and digital components could impact the meaning of the images, the majority of testimony that I provide includes a narrative explanation of the events captured to the video recording system.

I am a former Police Officer with the City of Vancouver Police Department in Canada where I was the head of the department's Forensic Video Unit.

Work Request

On February 3, 2011, I was contacted via e-mail by Professor Christof Heyns, United Nations Rapportuer on Extrajudicial, Summary or Arbitrary Executions, in regard to digital video recordings that are alleged to show Sri Lankan soldiers executing a number of people by gun fire. I had first viewed this video on October 24, 2009, after being contacted by London Times reporter Mr. Rhys Blakely, of The Times Mumbai Bureau. In 2009, Mr. Blakely requested that I examine the video to determine if the video was authentic or if it had been manufactured, falsified or edited. The first video is call ***massacrevideo.3gp*** and is one minute and seventeen seconds long.

On February 28, 2011, Professor Heyns requested that I examine a second video and provide a report regarding the authenticity of both videos. The second video is called ***SL1.3GP*** and is five minutes and twenty-five seconds long.

On March 4, 2011, I received a letter via e-mail from Professor Heyns with a specific written request to assist "with his investigation into the content and authenticity" of the video.

Items for Examination

Item #1 – named ***massacrevideo.3gp*** is a 1.6MB .3gp video and audio file, received from Mr. Rhys Blakely on October 24, 2009.

Item #2 – named ***SL1.3GP*** is a 7.5MB .3pg video and audio file, received from Mr. Orest Nowasad, Chief Civil and Political Rights Section, Special Procedures Branch, Office of the High Commissioner for Human Rights

Tools Used

- AccessData FTK Imager
- Avid Media Composer 5.03
- QuickTime Pro
- Photoshop CS4
- Avihex253
- SMPlayer 0.6.0
- GSpot v2.70a
- VirtualDub
- VLC 1.1.5

Summary of Findings

Item #1 is an exact copy of a portion of Item #2. Item #2 contains five segmented recordings, where each segment is an unedited and accurate depiction of what occurred in front of the camera. The segments do not appear in chronological order, indicating that they were compiled into a single video file at a later date and their chronological order was mixed.

Examination

A technical examination of Item #1 and of Item #2 was conducted in an attempt to determine how each video was produced. Both videos contain the same text header information at the beginning of the HEX string:

Item #1: ***....ftyp3gp4....3gp4.***

Item #2: ***....ftyp3gp4....3gp4.***

Both videos contain the same text footer information at the end of the HEX string:

..vmhd.....skipPHILIPS SW - VSS 2.2.0

..vmhd.....skipPHILIPS SW - VSS 2.2.0

The header information is consistent with text associated with cell phone recordings. An examination of the CODEC used to record and play back both videos shows that the CODEC is an H.263 compliant video (3GPP). Both videos were tested with QuickTime, GSpot and VLC and were found to be using the H.263 CODEC.

Additionally, the pixel matrix of both videos is 176 x 144 (176 pixels on each of 144 lines of video). Each image in both videos is produced using 25,344 pixels.

The audio CODEC for both videos is AMR Narrow band (samr). The audio sample rate for both videos is 8000Hz, with 32 bits per sample.

The average frame rate for Item #1 is 7.247035 frames per second.
The average frame rate for Item #2 is 7.415818 frames per second.

The H.263 video in both items employs Index frames as reference frames and Predictive frames in order to take advantage of compression techniques where motion, and other

features in sequential images can be duplicated or estimated without producing substantially new data in each image. The frames combine to produce a complete and interdependent Group of Pictures (GOP). In both videos, the completed GOPs start with one Index frame and are followed by ninety-nine Predictive frames.

Item #1 is 01:14.646 (one minute, fourteen and a half seconds) long. It contains five complete GOPs of 100 frames. The final GOP contains forty-one images. The last GOP is shorter because the recording stops prior to the end of the 100 frame GOP sequence.

Item #2 is 05:24.082 (five minutes and twenty-four seconds) long. It contains twenty-one complete GOPs and five shorter clips that end before the end of their GOPs because their lengths are shorter than 100 images.

A study of the activities within the scenes of each segment shows that the segments in Item #2 appear out of chronological order on Item #2, as detailed later in this report.

As stated earlier, the pixel matrix of both items is 176 x 144 pixels. The encoding of the images employs an 8 x 8 block MPEG structure with twenty blocks counted left to right in the image and eighteen blocks counted from top to bottom. As motion is detected in the Predictive frame segments, motion vectors can be tracked and displayed on each image. Tracking motion vectors helps to establish continuity from image to image in a scene.

The GOP structure and the motion vectors of both videos were compared and were found to be technically identical in the manner in which they were produced and are displayed. Item #1, in its entirety with all motion vectors, blocks, pixel count and all artifacts intact, is repeated exactly within Item #2. Therefore, this examination focuses on the contents of Item #2.

Item #2 contains 2411 images.

The image to the left is the first image (frame 0) in the video. It has been enlarged by 200% in this report, revealing the compression artifacts.

The video starts with the sound of the conclusion of a gunshot. The gun was fired a fraction of a second before the camera was turned on. In the next image, a male is seen falling to the ground at the left side of the image.

In the first few images, a male dressed in a soldier's uniform is holding a cell phone in his right hand. The camera side of the cell phone is facing another soldier whose weapon was directed at a male who is falling to the ground just to the left and outside of the camera's view in this image (Victim #3).

This image shows two bodies on the ground (Victim #1 and Victim #2). Neither body is moving.

The soldier points his firearm toward the body closest to his feet (Victim #2). His gun is fired. The camera records a loud gunshot noise and the video shows motion blur at the barrel of the weapon. The motion blur indicates the weapon moved quickly at the moment of the shot. The motion blur and movement is consistent with the motion at the end of a weapon when a shot is fired.

The soldier points his firearm toward the body closest to his feet (Victim #2). His gun is fired. The camera records a loud gunshot noise and the video shows motion blur at the barrel of the weapon. The motion blur indicates the weapon moved quickly at the moment of the shot. The motion blur and movement is consistent with the motion at the end of a weapon when a shot is fired.

The shot is fired at frame 18.

Victim #2's head and body move at the same time as the shot is fired. Debris from the area of the man's head moves upward and to the left.

A cloth blindfold, wrapped around the head of Victim #2, moves upward with the debris. The movement of the cloth is caused by the motion of the debris, indicating the force of the projectile leaving the weapon.

Motion vector detection is used to demonstrate the motion of the victim's head and the motion of the cloth.

The white arrows and white dots are graphic displays of the motion. The arrows indicate that the camera motion is slightly right to left in direction.

The victim's head is in a downward motion.

Victim #4 and #3 are visible on the ground

The male who fired the shot is depicted to the left and below in image 63.

The first video sequence is 70 images long and lasts just nine seconds (the first image is 'Image 0).

The men on the ground in the background are Victim #1 and Victim #2.

The victims on the ground are identified as **Group A** in this report. Victim #1 is crouched forward on his knees. Victim #2 is rolled onto his right side. Victim #3 and Victim #4 are on their backs.

All men are blindfolded and their hands are bound behind their backs.

This is image #69 and is the last image in the first sequence.

Image 70 is the beginning of the second sequence. The events in this sequence occurred prior to the events shown in sequence one. The sequences are not in their chronological order in Item #2.

This sequence is identical in every respect to the video depicted in Item #1.

A man in uniform places a blindfolded man (Victim #3) on the ground.

A soldier with a gun is standing in the foreground. This is a different soldier than the one depicted with the gun in Sequence One.

Image 89, shows the first soldier bringing the heel of his foot down with force onto Victim #3's back as the gunman steps forward.

The body of another man (Victim #5) is seen at the feet of Victim #3.

The male, whose hands are bound behind his back, turns to his left toward the male approaching with the gun.

Victim #3 falls to his right as the gunman walks away.

Image 110, shows a recoil of the weapon as the sound of a shot is heard.

The top of Victim #3's head changes shape as gases from the weapon or debris are visible moving away from his head.

The weapon is pointed at the man's head. Victim #5, who is motionless on the ground, is also in the line of fire of the weapon. When the shot is fired, Victim #5's body moves. The video does not show if Victim #5 was struck by a projectile.

The shooter is depicted at the right of Image 117 has he walks away from Victim #3, who is falling to his right.

The camera shows that Victim #3 slowly rolls to his back. The camera pans to the left, revealing two other males on the ground.

All males are naked, bound with their hands behind their back and are blindfolded.

Victim #6 shows a bleeding wound to the upper right area of his back.

The camera continues to pan to the left. Image 227 shows Victim #6 on the ground on the right side of the image. Victim #5's left leg is also partially visible.

Two other men are seen on the ground to the left. Victim #8, dressed in a white shirt appears to have a significant head wound with what appears to be blood on the ground under his head. Victim #7 is close to Victim #8's feet.

The camera continues to pan to the left revealing additional bodies on the ground. Image 247 shows four naked bodies; at least three are men. A blood-like substance appears to be at the head of two of the men.

The camera pans back to the right to the position where Victim #3 is on the ground. Image 339 shows the same soldier who applied the stomping motion to Victim #3 in image 89, leading a naked, blindfolded and bound man to a position on the ground next to Victim #3. The soldier is using a long article connected to the man's hands, to direct him into position. This male is identified in this report as Victim #4.

The soldier steps backward and aims his weapon at the head of the male.

The sound of a shot is heard; the gun recoils and the left side of the man's head changes shape. A white and red substance pours from the man's head as he falls backward to the ground.

Victim #4

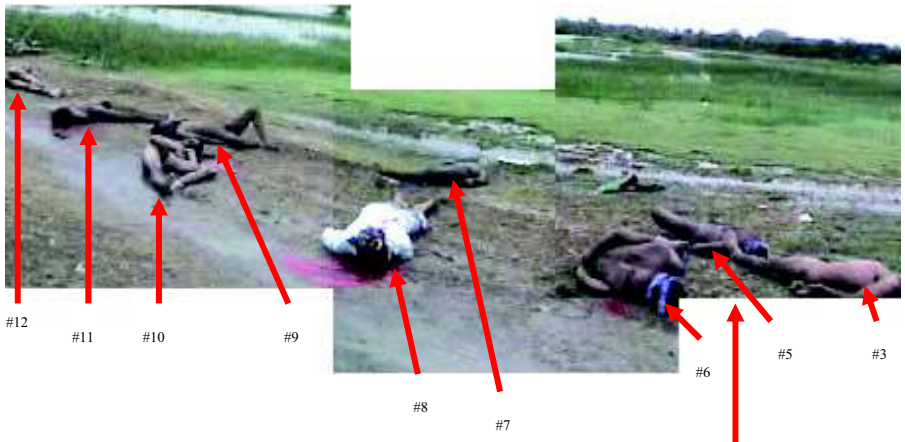
Injury to head

Image 570, shows the resting position of Victim #4 next to Victim #3 and Victim #6 .

Blood continues to pour from Victim #4's head wound.

During this sequence, a significant number of shots are heard being fired a short distance from the camera.

An aligned montage of three images from Sequence 2, shows victim's #3 through #12 on what appears to be a dirt road. These victims, with the addition of Victim #4, are identified as **Group B** in this report.



Victim #4 is shot while seated between Victim #6 and Victim #3 after this montage was recorded.

Segment 3 starts at image 612.

This segment was recorded prior to the events depicted in Segment 1 and Segment 2. This video shows the same area where **Group B** bodies are seen, but Victim #3 and Victim #4 are not in this sequence and the blood from Victim #4 is not on the ground. This sequence was recorded prior to the victims depicted in Group A being shot.

This sequence is out of order in Item #2.

Image 662 shows the soldier who shoots Victim #4 sometime later, as he points his weapon at Victim #5.

Victim #5 is moving his head. The sound of a shot is heard. The gun recoils and Victim #5's body moves. The soldier then walks out of the camera's view to the right.

The camera pans to the left to reveal some of the bodies of **Group B** on the ground.

Image 765 shows a wider image. Image 766 below, shows a closer image of the same scene.

An examination of these back to back images shows that both are Predictive images that flow one to the other. An Index frame is not used at this location in the GOP, indicating that the camera was not stopped. Additionally, the motion vector analysis shows that Image 766 is a direct 'descendent' of Image 765 within the same GOP.

Also, the exact center of Image 765 is also the center of Image 766, indicating that the camera operator did not moved at that the zoom was instant.

It is clear that the camera used to record this segment has an ability to jump to a 2X zoom. The zoom appears to be an optical zoom, since digital zoom artifacts are not present.

The camera continues to pan around the area where **Group B** is depicted.

Image 862 shows a uniformed soldier holding a cell phone in a manner consistent with video recording.

Segment 4 starts at image 998.

This sequence also shows the area of the **Group A** and **Group B** bodies.

Another victim is visible on the ground at the bottom left of the image.

The additional body is Victim #13.

Image 1008 shows a zoomed in image of the victims.

For reference purposes, the body positions are identified.

As the camera pans to the left, image 1054 shows the right shoulder of a soldier's uniform. The uniform has an insignia that appears to designate a military rank.

This soldier is carrying a weapon under his right arm.

The camera operator moves behind the soldier with the rank designation on his uniform and Image 1079 reveals the soldier's left hand. He is holding a cell phone and is pointing it at a male, identified as Victim #13. This victim appears to be young and has a significant head wound.

This victim is located close to Victim #2.

Victim #14 is depicted to the left of Victim #13.

The person operating the cell phone has a short sleeved shirt. The person operating the cell phone in Image 862 has a long sleeved shirt. Either the two men were using the same cell phone camera or multiple recordings were produced.

The camera continues to pan up and to the left, revealing the body of a female. This is Image 1131.

This is Victim #14. Her left foot is approximately two feet from the head of Victim #4.

This video was recorded after Segment 3 was recorded.

The camera continues to record uninterrupted as it pans to the right, recording images of the victims. The camera pans back to the left.

Forty seconds after Image 1131 is recorded on the previous page, Image 1424 to the left is recorded. A soldier is moving the woman's clothing to the side, revealing her naked body.

The victim's underwear is pulled down to her thighs.

The soldier then pulls her upper garment aside revealing the woman's breasts. The woman's bra was already down at her stomach prior to the garment being moved aside by the soldier.

The woman's hands are behind her back and she is blindfolded. A large amount of blood appears to be on the ground under her head.

A number of male voices are heard during this recording. Some laughter is heard.

The woman is Victim #15 in the video sequences.

The next segment contains images of additional bodies, although none appear to be the same bodies as those listed earlier in this report.

Segment 5 starts with Image 1868 and shows the body of a partially naked woman. The woman's hands are behind her back. Her underwear is pulled down to her right thigh. The camera pans around the body, focusing on her genital area.

The camera continues to record as it pans to the right.

Approximately three feet from Victim #15 is a male (Victim #16), who's head is leaning toward a shallow, freshly dug hole in the dirt.

This is image 2148.

This male is partially clothed with his hands are bound behind his back.

The camera continues to pan to the right, revealing the other side of the hole. Victim #16 is visible face down in the hole. He is located approximately four feet from Victim #15.

Victim #16 is blindfolded and his hands are bound behind his back.

The camera continues to pan downward. Approximately six feet from Victim #16 is the body of a naked male. This is Victim #17. He is also blindfolded and his hands are bound behind his back.

The last image on the video is Image 2410.

No other victim's are depicted.

Opinion

A visual comparison of the blocks, macroblocks, pixel dimensions and audio of Item #1 and of Segment #2 of Item #2 shows that they are identical. The digital information of both files was also examined in detail. A comparison of a large HEX string of Item #1 to the HEX string of Segment #2 of Item #2 reveals a significant block that is virtually identical. Specifically, a block of 3,074,252 ANSI text characters, representing all of the video and audio information in Item #2, was matched to a block of 3,074,252 ANSI text characters in Item #2. A comparison of the characters shows that all but 270 characters ($1/11{,}386^{th}$ of the block) are identical. The small variance is not caused by an altering of the file, rather it is likely due to the process of repacking the contents of Item #1 into Item #2. I have therefore formed the opinion that Item #1 is an exact transcoded version of Segment #2 in Item #2.

An examination of the shooting scenes and the placement of the victim's bodies, reveals that the segments contained on Item #2 are presented out of chronological order within the Item #2 file. The first four segments were actually recorded in the following chronological order:

- Segment 3,
- Segment 2,
- Segment 1,
- Segment 4

Despite the presentation order of the segments, the segments all represent the same overall event.

Segment 5 is dissimilar to the other segments in that the ground appears less saturated and none of the victims are visible in the other four segments. Also, none of the killings are actually contained in the recording. It is likely that this segment was recorded to the same device, but at a different time than were segments 1 through 4.

As a result of finding that the video segments are presented out of order in Item #1, I have formed the opinion that Item #1 has been edited/compiled together. However, each

segment is intact and no editing is present between the beginning and end of each individual segment. The images within each segment are contiguous and unedited.

As noted in the file header and footer information of the digital files (page 7 of this report), the footer shows the following string:

..vmhd.....skipPHILIPS SW - VSS 2.2.0

VSS stands for Visual Source Safe 2.2.0. This is a software versioning control used by software development companies, such as Philips.

My research in this area shows that 'Philips Software', now 'NXP Software', developed an editing product called ***'Philips Lifevibes Camcorder Pro -- software version 2.02'***. The software was written exclusively for the Nokia 6600 - 6620 cell phones. It allows a Nokia cell phone user to record long segments of video to the cell phone itself, via an internal flash card inserted into the phone. Normally, an off-the-shelf Nokia cell phone of that vintage has a limitation on the length of video that can be recorded. The software allows the Nokia cell phone to prolong a recording event. The string, listed above, is found at the end of a HEX string for each Nokia cell phone recording using this software.

The Nokia 6620 cell phone was developed as a 'Smart Phone' for the North American market. However, the Nokia 6600 Smart Phone was created in 2004 and was sold heavily in the Indian phone markets. The 6600 has video and audio capability which is limited to the recording of 10 second video and audio clips at 640 x 480 pixel dimensions. The phone takes still images at 176 x 144 pixels, which is the same size as the pixel dimensions of the questioned video. As mentioned above, the Philips software was designed to extend the media recording capabilities of this specific phone and to produce 176 x 144 pixel video clips. Further research indicates that this phone was sold as the cheapest smart phone available in Sri Lanka.

My research shows that a branch of Philips (an Indian software developer) produced a device that empowered a Nokia cell phone to produce extended video clips with exactly the format, codec, pixel dimension, and audio stream that is present in the questioned recording.

When recording video to a cell phone, the start and stop function of the recording forces the unique packaging of each clip into its own segment, each with a header and footer, so that the file can be played independently. The Philips Lifevibes Camcorder Pro software allows clips to be edited/compiled together and in any order. The clips can be played on the phone or output to a storage device to be edited. The clips are not 'transcoded' during editing. Transcoding is the process of changing the format from its original form to another. The clips are left intact and are not altered when compiled or edited. Commonly, with MPEG video, editing at a Predictive frame is not possible with this level of software. Edits can only start at reference frames (Index frame). This is why each segment in Item #2 starts with an Index frame.

As noted in this report, at least one other, possible two other cell phones were recording video during the shootings. As a result of my observations and research into the source of the footer information contained in the HEX file of Item #2, I have formed the opinion that a cell phone was used to record the video and audio in Item #2 and that it was compiled with the Philips software likely to a Nokia cell phone.

Regarding the injuries to the victims: As articulated earlier in this report, a number of the victims are shot at close range with high powered weapons. Immediate to the sound of the shots being fired and the recoil of the weapons, the victims' bodies reacts violently, some

suffering visible disfiguration of the skull and instantaneous open wounds with blood and brain matter pouring from the wounds. Additionally, gases, as the projectile leaves the weapon, are visible on the video. It would not be possible to fabricate the nuances of these observations within the limitations of MPEG4 technology, with the limited lighting available, with the lack of production and support equipment and in such a remote environment. There are no special effects props visible in the images and no digital effect artifacts present in the video stream.

Additionally, the audio recording is produced contiguous to the video images. The voice of the person operating the camera is appropriately over-modulated, when compared to voices and activity occurring further from the camera. Gun shots are heard close to the camera and they appear natural, given the environment and they are consistent with the sounds of the guns that are used during the executions.

The natural sound of wind can be heard over the other noises, especially when the camera is turned to the right, from the perspective of the operator. In a number of images, the grasses seen on the ground are blowing from right to left. When the camera pans to the left, the wind noises are less frequent or cannot be heard because the microphone is not pointing toward the wind. Of note is that there are no wind sounds during Segment #5, which would suggest that this segment was recorded on a different day, or in a different area, than were Segments #1 through #4.

Giving consideration to my research and to the observations listed in this report, I have found no evidence to suggest that Item #2 contains fabricated images, or audio elements. The execution scenes contain no 'virtualization' (computer generated effects). I have therefore formed the opinion that Item #2 is authentic in that it accurately portrays what it purports to show.

Dated this 9th day of March, 2011 in Spokane, Washington, USA.

GRANT FREDERICKS

2. CORRESPONDENCE RELATING TO THE INVESTIGATION

Allegation letter send on 15 December 2010 by the Special Rapporteur on extrajudicial, summary or arbitrary executions.

In this connection, I would like to draw the attention of your Excellency's Government to information I have received regarding video footage which allegedly documents members of the Sri Lankan Army committing extrajudicial executions.

The footage shows the bodies of about nine men lying dead on the ground. It further depicts, what appear to be, members of the Sri Lankan Army shooting and killing at close range two bound and blind-folded men. The video footage also shows the naked bodies of several women and some of the soldiers are seen removing the clothes covering their bodies. The footage captures the faces of some of the perpetrators and shows someone in uniform recording the incident via a mobile phone.

The video footage appears to document the same incident which was the subject of communication between your Excellency's Government and my predecessor, Mr. Philip Alston. However, the new footage is longer than the previous footage and runs for about 5 minutes and 25 seconds. As indicated in previous communications, it is alleged that the killings took place during military operations in or around Kilinoch.

Your Excellency's Government had asked my predecessor to provide details of what should be investigated by indicating a date, or place, or both of the alleged incident. In September 2009, your Excellency's Government commissioned an investigation which disputed the authenticity of the video footage. My predecessor commissioned an investigation undertaken by three experts; together, these reports strongly suggested that the video is authentic and he called on your Excellency's Government to undertake an independent and impartial investigation into the alleged killings.

I take note of the investigations commissioned by your Excellency's Government which disputed the authenticity of the initial footage. However in light of the new video footage and without prejudging the accuracy of the information made available to me, I urge your Excellency's Government to conduct an independent, extensive and impartial investigation into the alleged extrajudicial executions documented in the new video footage.

The present scenario, with regard to which we have two conflicting results of investigations into the authenticity of the initial video footage, in my opinion, justifies that a new investigation be undertaken not only to determine the authenticity of the footage, but, if that is settled, also to identify the perpetrators whose faces are captured in the images and bring to justice those responsible. The investigation must accord with the guarantees established under international law and practice to ensure its independence and impartiality.

With regard to the willful execution of persons documented in the footage, I would like to refer to common article 3 to the 1949 Geneva Conventions which prohibits "violence to life and person, in particular murder of all kinds" of persons taking no active part in the hostilities or who have been placed *hors de combat*, including by detention. I would also like to refer to the obligations arising under human rights law. The International Covenant on Civil and Political Rights, to which Sri Lanka acceded on 11 June 1980, provides that every individual has the right to life and security of the person, that this right shall be protected by law, and that no person shall be arbitrarily deprived of his or her life (article 6).

Under international law, the State carries the burden to investigate all reported cases of alleged human rights violations. In discharging this obligation international law requires that there shall be a thorough, prompt and impartial investigation of all suspected cases of

extra-legal, arbitrary and summary executions. (Principle 9: Principles on the Effective Prevention and Investigation of Extra-legal, Arbitrary and Summary Executions). Further, the General Assembly resolution on the mandate of extrajudicial, summary or arbitrary executions reiterates the obligation of all States to conduct exhaustive and impartial investigations into all suspected cases of extrajudicial, summary or arbitrary executions, to identify and bring to justice those responsible, while ensuring the right of every person to a fair and public hearing by a competent, independent and impartial tribunal established by law. The Human Rights Committee has noted in its General Comment No. 31 that "a failure by a State Party to investigate allegations of violations could in and of itself give rise to a separate breach of the Covenant."

I would appreciate receiving information from your Excellency's Government on measures that will be adopted to establish an independent investigation into the allegations raised in this communication including criteria for selection of the experts, the mandate and terms of reference, and results of the outcome. Further, I would be grateful to receive information on measures taken to identify the perpetrators and bring to justice those responsible.

My predecessor, Mr. Philip Alston, had indicated to your Excellency's Government in a communication dated 28 August 2009, his wish to undertake a visit to Sri Lanka. I would like to renew the request that your Excellency's Government extends an invitation to me to undertake an official visit to Sri Lanka. I would be most grateful if you could indicate dates on which such a visit might be convenient.

I would like to inform your Excellency's Government that I have asked experts to study the new video and to comment on its authenticity. I will be happy to make their report available to you and would appreciate being given the benefit of access to the results of any similar studies taken on your side. I remain at your Excellency's Government disposal with regard to any related questions or requests that your Excellency's Government would wish to seek.

Note Verbale dated 7 February 2011

The Office of the High Commissioner for Human Rights presents its compliments to the Permanent Mission of the Democratic Socialist Republic of Sri Lanka to the United Nations Office and other international organizations in Geneva and has the honour to transmit an Universal Serial Bus (USB), which contains the contents of a video footage under investigation by Mr. Christof Heyns, Special Rapporteur on extrajudicial, summary or arbitrary executions.

Government reply dated 12 February 2011

The Permanent Mission of the Democratic Republic of Sri Lanka to the United Nations office and other international organisation in Geneva presents its compliments to the Office of the High Commissioner for Human Rights and with reference to the latter's commutation dated 7 February 2011 (received on 9 February 2011) transmitting an Universal Serial Bus (USB), which according to the said note "contains the contents of a video footage under investigation by Mr. Christof Heyns Special Rapporteur on extrajudicial, summary or arbitrary executions", has the honor to inform the following:

It is a universally accepted position that an independent, extensive and impartial investigation (as requested by the Special Rapporteur in his communication to the Government on 15 December 2010) can be carried-out only on the basis of the original video footage being received and its authenticity being established by the transmitter of the same, in this case Channel-4, UK. Therefore, the Government of Sri Lanka (GoSL) is of the view that any claim of the material being the authentic original video needs to be

substantiated by detailed information regarding the nexus of transmission. In view of the foregoing, the GoSL would be pleased to be advised on the status of the USB transmitted to the Permanent Mission as containing the authentic original video, and if so, details which establishes this position.

In the communication dated 15 December 2010, the Special Rapporteur has also requested the GoSL to provide details of its own investigation i.e. criteria for the selection f the experts, mandate, and terms of reference etc. While the GoSL would keep the Special Rapporteur informed of the outcome of any investigation dependent on the above, in the interest of transparency and openness, the Government would be pleased to be advised on the parameters of the investigation being carried out by the Special Rapporteur and the modalities hat have been adopted to that end, in the same context the request made to the GoSL by the seeking the aforementioned details.

Response of the Special Rapporteur dated 18 February 2011

I have the honour to address you in my capacity as Special Rapporteur on extrajudicial, summary or arbitrary executions, pursuant to General Assembly resolution 63/182 and Human Rights Council resolution 8/3.

I would like to inform your Excellency that as indicated in the communication addressed to your Excellency's Government of 15 December 2010, the investigation I am undertaking aims to determine inter alia the authenticity of the video footage. The contents of the video footage transmitted to your Excellency's Government are as received from Channel 4.

I would like to indicate to your Excellency's Government that in my opinion, a reading of international human rights law suggests that the burden of investigations into allegations of violations of right to life lies on the State and not for the entity or person who alleges to authenticate the alleged violation before an investigation can be undertaken. In this regard the Principles on the Effective Prevention and Investigation of Extra-legal, Arbitrary and Summary Executions provide that "There shall be thorough, prompt and impartial investigation of all suspected cases of extra-legal, arbitrary and summary executions, including cases where complaints by relatives or other reliable reports suggest unnatural death in the above circumstances" (Principle 9). The Human Rights Committee has also observed in the case of *Umetaliev and Tashtanbekova v Kyrgyzstan* that "the burden of proof cannot rest alone on the authors of the communication, especially considering that the authors and the State party do not always have equal access to evidence and that frequently the State party alone has access to relevant information. It is implicit in article 4, paragraph 2, of the Optional Protocol that the State party has the duty to investigate in good faith all allegations of violation of the Covenant made against it and its authorities, and to furnish to the Committee the information available to it". (Para. 9.5)

With regard to the parameters and modalities of my investigation I am pleased to inform your Excellency's Government that I am conducting a technical assessment to establish the authenticity of the video footage. The experts with whom I am working are Mr. Daniel Spitz, a forensic pathologist; Mr. Jeff Spivack; a forensic video analyst and Mr Peter Diaczuk, a firearms expert.

The finding of my assessment shall be provided to your Excellency prior to presentation to the Human Rights Council.

I wish to thank your Excellency's Government for its cooperation and I hope to continue the dialogue which is already established on the issues within my mandate.

Note Verbale dated 1 March 2011

The Office of the High Commissioner for Human Rights presents its compliments to the Permanent Mission of the Democratic Socialist Republic of Sri Lanka to the United Nations Office and other International Organizations in Geneva and has the honour to refer to the Note Verbale from your Excellency's Government of 12 February 2011, and letter from the Special Rapporteur on extrajudicial, summary or arbitrary executions of 18 February 2011, with regard to the investigation to establish the authenticity of the video footage which allegedly documents members of the Sri Lankan Army committing extrajudicial executions.

The Office of the High Commissioner for Human Rights would like to inform your Excellency's Government that the Special Rapporteur on extrajudicial, summary or arbitrary executions has commissioned, Mr. Grant Fredericks, a forensic video analyst to work with him.

Communication from the Special Rapporteur dated 26 April 2011

I have the honour to address you in my capacity as Special Rapporteur on extrajudicial, summary or arbitrary executions pursuant to General Assembly resolution 60/251 and to Human Rights Council resolution 8/3.

I would like to inform your Excellency's Government that as indicated in my communication of 15 December 2010, I have concluded the technical assessment to establish the authenticity of the video footage which allegedly documents members of the Sri Lankan Army committing extrajudicial executions.

I have attached to this communication the following annexures (a) A technical note in relation to the authenticity of the second extended "Channel 4" video footage regarding Sri Lanka (b) Report of Mr. Daniel Spitz, a forensic pathologist; (c) Report of Mr. Jeff Spivack, a forensic video analyst; (d) Report of Mr. Peter Diaczuk, a firearms expert; and (e) Report of Mr. Grant Fredericks, a forensic video analyst.

I would like to bring to the attention of your Excellency's Government that the overall conclusion reached by the experts is that the video is authentic and the events reflected in the video footage occurred as depicted. The view in the video footage is neither doctored nor staged; it shows real people being summarily executed.

On this basis my conclusion is that the video footage indicates the commission of serious crimes, which should together with any other available evidence be examined systematically and professionally by domestic investigators appointed by the Sri Lankan Government, as well as by an independent, international investigational body, with a clear mandate to establish who should be held accountable for the killings.

I would like to stress, as indicated in my communication of 18 February 2011, that the argument advanced by your Excellency's Government in previous correspondence that the entity or person who alleges a violation should authenticate it before an investigation is undertaken cannot be sustained under international law. In view of the evidence available, some of which can be used to ascertain the identity of the perpetrators, the onus is on your Excellency's Government to seek to clarify the violations alleged. This obligation is clearly provided under principles 9 and 10 of the of the United Nations Principles on the Effective Prevention and Investigation of Extra-legal, Arbitrary and Summary Executions, adopted on 24 May 1989, with provides under Principle 9 that "There shall be thorough, prompt and impartial investigation of all suspected cases of extra-legal, arbitrary and summary executions, including cases where complaints by relatives or other reliable reports suggest unnatural death in the above circumstances. Governments shall maintain investigative offices and procedures to undertake such inquiries. The purpose of the investigation shall be to determine the cause, manner and time of death, the person responsible, and any pattern or practice which may have brought about that death. It shall include an adequate

autopsy, collection and analysis of all physical and documentary evidence and statements from witnesses. The investigation shall distinguish between natural death, accidental death, suicide and homicide."

Principle 10 provides that "The investigative authority shall have the power to obtain all the information necessary to the inquiry. Those persons conducting the investigation shall have at their disposal all the necessary budgetary and technical resources for effective investigation. They shall also have the authority to oblige officials allegedly involved in any such executions to appear and testify. The same shall apply to any witness. To this end, they shall be entitled to issue summonses to witnesses, including the officials allegedly involved and to demand the production of evidence."

I am aware that your Excellency's Government has established the Lessons Learnt Reconciliation Commission. However, in addition to measures that have been adopted at the domestic level, I recommend that your Excellency's Government should establish an independent international investigative entity with full investigative powers and capabilities. The entity should make recommendations for possible prosecutions and other measures as well as have appropriate witness protection mechanisms. The investigation must accord with the guarantees established under international law and practice to ensure its independence and impartiality.

I must emphasize that the international obligations undertaken by your Excellency's Government will not be discharged until credible measures are adopted to investigate and prosecute those responsible, including in the chain of command.

I would appreciate receiving information from your Excellency's Government on measures that will be adopted to ensure accountability for the human rights violations that occurred during the war in Sri Lanka.

On 7 February 2011, the Office of the High Commissioner for Human Rights transmitted, on my behalf, a Universal Serial Bus containing the contents of the video footage which was the subject of my investigation. I would appreciate it if your Excellency's Government could inform me of the investigations, if any, it has undertaken with regard to the video footage.

I would like to inform your Excellency's Government that I will present the findings and conclusions of my technical assessment to the Human Rights Council at its 17th Session. I therefore request that your Excellency's Government provides me with a response by 6 May 2011.

I will continue to monitor developments related to this case and I remain at your Excellency's Government's disposal with regard to any related questions or requests that your Excellency's Government would wish to seek.

Government reply dated 29 April 2011

This has reference to your communication No. UA G/SO 214 (33-27) LKA 3/2011 dated 26 April 2011, addressed to H.E Mrs. Kshenuka Senewiratnem Ambassador Permanent Representative of the Permanent Mission of the Democratic Socialist Republic of Sri Lanka to the United Nations Office in Geneva with regard to the authenticity of the video footage, stating that the following documents were being forwarded

Technical note by the Special Rapporteur on summary, extrajudicial or arbitrary executions in relation to the authenticity of the second, extended Channel 4 video tape regarding Sri Lanka.

Report of Mr. Daniel Spitz, a forensic pathologist.

Report of Mr. Jeff Spivack, a forensic video analyst.

Report of Mr. Peter Diaczuk, a firearms expert.

Report of Mr. Grant Fredericks, a forensic video analyst.

However I wish to bring to your kind attention that the annex C, said to have been attached to the communication under reference i.e. "Report of Mr. Jeff Spivack, a forensic video analyst" was neither attached to the faxed communication received at this Mission at 1735 hrs on 26th April 2011 nor the emailed communication sent at 1931 hours on 26th April 2011.

The communication under reference requests the Mission to forward its comments on your communication and its annexes by 6 May 2011.

It would be appreciated if the "Report of Mr. Jeff Spivack, a forensic video analyst" could be forwarded to this Mission at the earliest.

In view of the fact that the communication received by this mission did not contain the said annex C, you would no doubt agree, that the Government of Sri Lanka should be duly accorded more time to forward its observations on your communications and its annexes.

Note Verbale dated 2 May 2011

The Office of the High Commissioner for Human Rights presents its compliments to the Permanent Mission of the Democratic Socialist Republic of Sri Lanka to the United Nations Office and other international organizations in Geneva and has the honour to inform your Excellency's Government that the Special Rapporteur Mr. Christof Heyns would appreciate to receive a response to his communication of 26 April 2011, by 11 May 2011.

Government reply dated 3 May 2011

This has reference to the Note Verbale from the Office of the High Commissioner for Human Rights dated 2 May 2011, informing that you would appreciate to receive a response from the Government Sri Lanka to your communication of 26 April 2011, by 11 May 2011.

While appreciating the OHCHR for forwarding Annex C, report of Mr. Jeff Spivack, a forensic video analyst, I wish to inform that the authorities in Colombo conveyed that the images as contained therein are not clearly visible and appear as dark blotches, as the copy forward to the Mission is a scanned PDF copy of a faxed document. It would be appreciated if your office could make available a copy of the said annex containing clear at the earliest.

You would no doubt agree that in this context it would impinge on the timeline given to the Government of Sri Lanka for the examination of its content.

Note Verbale dated 5 May 2011

The Office of the High Commissioner for Human Rights presents its compliments to the Permanent Mission of the Democratic Socialist Republic of Sri Lanka to the United Nations Office and other international organizations in Geneva and has the honour to transmit on behalf of the Special Rapporteur on summary, extrajudicial or arbitrary executions, Mr. Christof Heyns the enclosed Compact Disk containing the following (a) A technical note in

relation to the authenticity of the second extended "Channel 4" video footage regarding Sri Lanka (b) Report of Mr. Daniel Spitz, a forensic pathologist; (c) Report of Mr. Jeff Spivack, a forensic video analyst; (d) Report of Mr. Peter Diaczuk, a firearms expert; and (e) Report of Mr. Grant Fredericks, a forensic video analyst. The enclosed documents were transmitted to your Excellency's Government in communications of 26 April 2011 and 29 April 2011, by fax and email.

Government reply dated 10 May 2011

This has reference to my letter of 3 May and also the telephone message left with your office yesterday.

The Mission is yet to receive the soft copy of Annex C which contains the report of Mr. Jeff Spivack, as requested without which the Government of Sri Lanka is unable to meet the deadline of 11 May 2011, and therefore would need to be given an extension.

It would be appreciated if the soft copy of the images contained in Annex C is transmitted electronically at the earliest.

Government reply dated 11 May 2011

The Permanent Mission of the Democratic Republic of Sri Lanka to the United Nations Office and other International Organisation in Geneva presents its compliments to the Office of the High Commissioner for Human Rights and with reference to the latter's communication UA G/SO 214 (33-27) LKA 3/2011 of the Special Rapporteur on extrajudicial, summary or arbitrary executions dated 26 April 2011 has the honour to forward the interim observations of the Government of Sri Lanka in this regard.

The Permanent Mission wishes to highlight that the soft copies of the documents transmitted by the OHCHR originally requested by our letter of 3 May 2011 and subsequently of 10 May 2011 were received at this office today, after having received the annexed observations from Colombo, and therefore the contents of which have not been able to be considered in the Governments interim observations.

Government reply dated 11 May 2011

The Permanent Mission of the Democratic Republic of Sri Lanka to the United Nations Office and other International Organisation in Geneva presents its compliments to the Office of the High Commissioner for Human Rights (Special Procedures Branch) and has the honour to refer to paragraphs 34 and 35 of the communication dated 26 April of Mr. Christof Heyns, Special Rapporteur on extrajudicial, summary or arbitrary executions and to the telephone conversations with Mr. Orest Nowosad, Chief, Civil and Political Rights Section.

The Permanent Mission of Sri Lanka would appreciate receiving the additional material mentioned in the paragraphs under reference of the said communication as early as possible.

The Permanent Mission would also appreciate, if the deadline to forward observations could be extended, enabling the Government of Sri Lanka to include its observations on the document just received in a CD, since the mission would require time to transmit the CD to concerned authorities in Colombo and for them to prepare observations.

The Permanent Mission of the Democratic Republic of Sri Lanka avails itself of the opportunity to renew to the Office of the High Commissioner for Human Rights (Special Procedures Branch) the assurances of its highest consideration.

Government reply dated 11 May 2011

Response of the Government of Sri Lanka to the Technical Note by the Special Rapporteur on extrajudicial, summary or arbitrary executions Mr. Christof Heyns, in relation to the authenticity of the second extended Channel 4 video tape regarding Sri Lanka.

Whilst welcoming the Special Rapporteur's efforts to provide the GoSL, an opportunity to respond to his Technical Note and annexures, the procedure adopted failed to achieve its objective for the following reasons;

The incomplete nature of the Note- the reports annexed contained blurred and illegible images which were not of a quality that could be examined and therefore precluded the Government from making an objective assessment. The apparent lack of professional diligence in ensuring that legible copies were made available in a timely manner is suggestive of a want of good faith.

The original copies of the Special Rapporteurs technical note of 26 April 2011 and annexures reached the permanent mission of Sri Lanka in Geneva on the same day. At this juncture a short deadline of 06 May was stipulated for the Government of Sri Lanka to respond. However the annexures provided with the initial Note from the Special Rapporteur were faxed versions of original document. The illustrations in these documents were not legible and defied view. Thereupon a request was made from the Special Rapporteur to provide documents in their original electronic form. These versions of the documents were received on 29 April 2011. However, neither communications of 26 nor 29th April contained the report of the expert Mr. Spivack despite the Special Rapporteur's Note stating that it is attached. This omission was noted in Colombo and an immediate request was made for Mr. Spivacks report. His report was received by the Sri Lankan Mission on 30 April. This too was a scanned image of a faxed document. Further to a request from the Government an extension of the deadline until 11 may was agreed upon. The illustrations in the Spivack report are also illegible as the document is not an original. This means that the images on which many assertions were based would not be reviewed in time and a full analysis of the Technical Note along with its annexures has not been possible to date. Once such analyis is complete, the outcome will be shared with the Special Rapporteur.

A categorical assertion has been made by the Special Rapporteur that the "material also includes pictures of the dead body of Charles Anthony (son of the late LTTE leader Prabhkaran)" (in paragraph 34 of the Note). The video provided by the Special Rapporteur does not to the naked eye display a body that can be identified as that of Charles Anthony when the video is compared with the photographs of the deceased terrorist Charles Anthony. There appears to be an absence of a satisfactory material to support the Special Rapporteur's contention. It also gives rise to the question whether the Special Rapporteur has withheld relevant material, which ought to have been released to the Government at the earliest opportunity, in a spirits of constructive engagement and transparency. No less could be expected when engaging with a sovereign state. It is the Governments view that in an inquiry of this nature, complete disclosure of the material is an indispensable requirement. The Government has initiated steps to obtain the other materials adverted to by the Special Rapporteur which he offers to make available upon request (vide. Paragraph 35 of the Note).

Sri Lanka notes that the experts report submitted by Mr Grant Fredericks appears to have arrived at firm conclusions that both videos i.e. the video (2009) and extended video (2010) are authentic. He was initially requested by The Times of London Newspaper to evaluate the video (2009) around December 2009 and his conclusion was referred to by the previous

Special Rapporteur Mr. Philip Alston in his report of January 2010 although Mr Alston had not seen the full report. Despite not seeing the reports he cited Mr. Fredericks with approval since there was no apparent unanimity between Mr. Fredericks and the experts commissioned by Mr. Alston. Mr. Fredericks, on or around 15 December 2009, made public assertion in print and electronic media that the video of 2009 was authentic. It is inconceivable that he should alter his perception of the genuineness of the extended video which also includes the 2009 video given the position taken by him publicly.

Sri Lanka also notes that the self-same experts are relied upon by the successor to Mr. Alston including Mr. Fredericks, in evaluating the extended video (2010). This hardly amounts to an independent evaluation of the extended video but appears to be a general reaffirmation of the conclusions of 2009 with the addition of some explanations aimed at dispelling the legitimate doubts and questions raised by the Sri Lankan experts in their analysis of the shorter video in 2009.

It is surprising that the Special Rapporteur should continue to rely on the same four experts who had already committed themselves by asserting that the video was genuine. It is remarkable that the Special Rapporteur, with all the resources available to his office, could not identify any other experts of equal or greater standing or repute who could objectively comment on the extended video. If the governing interest of the Special Rapporteur is to undertake a truly impartial analysis', it would appear more feasible to commission experts other than the four who had already pronounced on the video of 2009. Suspicion of bias may well arise given the determination of the Special Rapporteur to re-commission the experts who had arrived at the most definite conclusions on the video (2009).

Despite the foregoing, it is note worthy that one expert –Mr. Spivack- appears to have substantially altered some of his observations. Moreover the statement that the experts worked "independently of one another" in analysing the video of 2009 is also questionable. The Government of Sri Lanka has discovered that Mr Spivack in a technical representative for a brand of specialised proprietary software which was used to enhance the video (2009) and which was shared with two other experts. Hence the assertion of independence may be impugned on the basis of the prior collaboration between the experts. The recipient experts-responsible for ballistics and forensic pathology – both based their conclusion on the conclusions on the enhanced video provided by Mr. Spivack. Furthermore he does not at any point acknowledge the usage of the specialised software which has had a profound impact on the analysis.

It is axiomatic that an expert should provide objective and unbiased opinions on matters within his expertise and should not assume the role of an advocate. This duty overrides any obligation to the person from whom he received instructions or by whom he is paid. This duty certainly includes an obligation to inform all parties of the expert's opinion changes and this is hardly noticeable in the reports.

A preliminary study of the available legible material has been carried out and the following observations are made:

Initially, the experts concluded that the video (2009) was an unedited original video recording on a Phillips brand mobile telephone available in Sri Lanka. This level of certainty does not appear justified as another expert concluded that the extended video (2010) was edited using Philips software but using a Nokia model 6600 series mobile telephone for recording. The first expert then changed his conclusion so as to be consistent with the later conclusion by Fredericks. However there does not appear to be any basis for the change other than the opinion of the second expert which taints Spivack's opinion.

The expert –Fredericks-has generally identified the devise used for recording the extended video to be a Nokia 6600 series model. He also states that "it is clear that that the camera used to record this segment (images 765 and 766) has an ability to jump to a 2X [200%]

zoom. The zoom appears to be an optical zoom, since digital zoom artifacts are not present". Having checked the standard specifications relating to this series of mobile telephone, it is apparent that the mentioned series do not have optical zoom capability.

In the extended video from frame nos. 3 to 8 the person identified as victim #3 makes a body movement for which there is no apparent reason. From frame nos. 17 to 30 when a gun is aimed and allegedly fired at victim #2, victim #3 who is away from the line of fire and is lying on the ground raises and lowers his head. The failure of the experts- Fredericks- to note this feature raised concern as to whether he has reviewed all visual evidence including that which does not support his conclusions. This selective analysis leaves room for questioning the degree of diligence exercised by the expert.

The expert Spivack states that CMOS technology based imaging sensors are commonly found in mobile phone cameras while standard definition video camcorders typically use CCD imaging sensors. There are many digital video camcorders from almost every reputed manufacturer that utilise CMOS technology based imaging sensors.

The Special Rapporteur has asserted in paragraph 36 of his Note that neither the Attorney-General nor the independent Lessons Learnt and Reconciliation Commission have given serious consideration to the video. The Commission referred to by the Special Rapporteur has, in fact, taken cognisance of the matter and has called for the assistance of an expert from the premier technological University in Sri Lanka on the basis that it has examined the video and possesses the technical means to ascertain the authenticity of the video. The Commission had requested the university to provide expertise on 12 April 2011 and is a further reflection of the unprofessional and hasty conclusions arrived at in the Note. The Commission is in the process of receiving the expert evidence and it is expected that it will evaluate the same in its eventual findings. The concerns of the Special Rapporteur in this connection have been addressed. As far back as September 2009, it is a matter of record that the Attorney-General has given this matter his serious consideration. For instance, on an initial broadcasting of the video by Channel 4 in August 2009 immediate steps were taken in September, by the Attorney General to complain to OFFCOM (U.K.) and demand an inquiry into the conduct of channel 4 which declined to provide an original copy of the video to the Government of Sri Lanka for purposes of investigation. Therefore to suggest that the Attorney General did not give this matter serious consideration is misplaced and strongly suggestive of an intention to convey an attitude of inaction on the part of the Government.

It has to be highlighted that the legal efficacy of any report or publication is hinged upon the fundamental requirement of impartiality and a complete lack of bias, having regard to the rules of natural justice.

It is respectfully submitted that the process adopted in regard to the publication of the videos and subsequent steps taken fall far short of this requirement and is tainted with the fundamental vice of bias and partiality. The fact that the contests of the video were not made available to the Sri Lankan Government by channel 4 lends support to the suspicion that the broadcast of the videos was for a collateral purpose.

The Government of Sri Lanka is ready to constructively engage with the Special Rapporteur in the future on the basis of transparency and fair process being adopted. Progress achieved through domestic procedures and mechanisms will be communicated to the Special Rapporteur upon completion of internal processes.