NATIONAL FILM AND TELEVISION INSTITUTE (NAFTI)

REPORT ON SUMMER SCHOOL AND 67TH FIAF CONGRESS IN PRETORIA, SOUTH AFRICA.

(27TH MARCH – 16TH APRIL 2011)

BY

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1. Executive Summery

The International Federation of Film Archives, FIAF, brought together the world's leading institutions in the field of moving picture heritage. From 27 March to 16th April 2011, the federation organized its summer school and congress in Pretoria, South Africa.

The summer school brought together 50 participants from selected countries in Africa with instructors from within South Africa and others from Europe and America. Participants went through the whole process of film production from shooting through lab processing, editing and printing of final film. This was possible by the local industries based in Johannesburg and the Film School, AFDA.

Presentations/workshops during the summer school deliberated on digitization of film, handling and care of film, metadata, digital storage, digital cinema (D-Cinema) mixed media and film storage. Others include international standards of cataloguing, documentation; preservation and conservation, restoration techniques of film Archives.

During the congress a symposium was held to discuss the copyright issues and ethics in film archiving. Others issues discussed includes, the restitution, repatriation, history and the future of indigenous collections

It was observed that the audio visual archives in Africa is in danger and needs urgent attention. This will involve moving all analogue formats to digital. It was noted that, there is limited time available to undertake this massive project, especially given the fact that hardware manufactures are no longer producing machines needed to support analogue systems.

Though digitization has a lot of advantages, it will be expensive as it involves high tech facilities including wider area network and high capacity storage systems. It will also involve a lot of technical expertise to come up with a practicable infrastructure.

I recommend that, NAFTI should start digitizing all its archive collection, provide access to these archives and preserve the originals. This should also involve proper metadata collection, cataloguing and documentation. Most of our collections are on video tapes which have short life span compared to film formats.

Comparing other African countries to Ghana in terms of Audio-Visual Heritage preservation, Ghana is trailing behind. It will therefore be appreciated if NAFTI can lead the national campaign to form a National Audio-Visual Archive Unit which will be given the mandate to collect, preserve and provide digital storage and access of the Ghanaian heritage of moving images.

2. <u>About FIAF, Summer School and Congress</u>

FIAF, the International Federation of Film Archives, brings together the world's leading institutions in the field of moving picture heritage.

Its affiliates are the defenders of the Twentieth Century's own art form. They are dedicated to the rescue, collection, preservation and screening of moving images, which are valued both as works of art and culture and as historical documents. When it was founded in 1938, FIAF had 4 members. Today it comprises more than 150 institutions in over 77 countries - a reflection of the extent to which preservation of moving image heritage has become a world-wide concern.

FIAF's aims are:

- to uphold a code of ethics for film preservation and practical standards for all areas of film archive work
- to promote the creation of moving image archives in countries which lack them
- to seek the improvement of the legal context within which film archives carry out their work
- to promote film culture and facilitate historical research on both a national and international level
- to foster training and expertise in preservation and other archive techniques
- to ensure the permanent availability of material from the collections for study and research by the wider community
- to encourage the collection and preservation of documents and materials relating to the cinema
- to develop cooperation between members and "to ensure the international availability of films and documents".

FIAF affiliates

FIAF's members are archives that are actively engaged in the activities and fully committed to the ideals described earlier. Current members reflect a wide range of non-profit institutions, including government archives, independent foundations and trusts, self-contained cinematheques, and museum or university departments.

FIAF's Associates are non-profit institutions that support the goals of the Federation but are not involved in film preservation per se. In this way, FIAF is joined by moving image museums, videotheques, documentation centres, and so on.

FIAF activities

Much of the work of FIAF takes the form of active cooperation between members on projects of mutual benefit or interest - for example, the careful restoration of a particular film, or the compilation of a national or international filmography.

2.1 The FIAF Congress

The international Film archival community has the opportunity to meet every year at the **FIAF Congress**. This is the occasion for FIAF archivists and external participants to share their experiences and to exchange their information. The FIAF Congress is held every year in a different country, and consists of scientific, cultural, legal and administrative programs, such as symposia, workshops, open forum discussions, regional meetings, presentation of cinema and moving image programs, restoration projects, and the General Assembly.

2.2 FIAF around the world

FIAF has always had an active international profile. It was closely involved in the preparatory work for the UNESCO Recommendation for the Safeguarding and Preservation of Moving Images, approved in Belgrade in 1980. In pursuit of the goals of the Recommendation, the Federation facilitates contacts between developing archives and older archives to make sure that experience is passed on.

.2.3 Summer School

From its early times, FIAF was aware of the importance of developing educational and training programs for a recently born profession: the profession of moving image archivist.

Training of archive personnel takes place at FIAF Summer Schools and Technical Symposia that have been held several times in various countries. Their aim is to introduce participants to the necessary skills of preservation, cataloguing, documentation and even administration

The establishment of archival education programs is based on the premise that there is an urgent need for developing the professional skills of the archivists who will preserve and keep alive our moving image heritage. One of the first problems FIAF archives had to face was to provide theoretical and practical education to senior employees and future key staff members without sending them out for very long periods.

3. <u>Practical Training</u>

The summer school was designed with the objective that, participants goes through the whole process of film production, that is, from shooting with the film camera, through to film processing, telecine, editing and final film print. This gives a clear picture of the need to preserve such and expensive and time consuming processing

3.1. *Shooting with the Film Camera*

A simple story was directed and shot by participants with a Film camera. This was made possible at the film school in Johannesburg, AFDA. Honors class students led the shoot which involves setting up, loading of film into the camera and recording of scenes. It was observed that, using the film camera, one need to be sure of what is been captured since there are several limitations as compared to video technology. It was noted that, for every out-door shoot, the light intensity need to be considered.

3.2. *Film refinery processing*

After the shoot the film was exposed or processed in the refinery. Negative of the rashes were developed. Participants viewed these rashes in a processing lab based in Johannesburg. Technicians in the lab introduced basic refinery procedures and technology. Participants were given a quick tour of the processing plant. Chemicals used were also introduced

3.3. *Telecining of film*

From the refinery lab, the printed film which is now rashes, were viewed in the processing lab based in Johannesburg. Technicians in the lab introduced basic telecine procedures and technology. It was noted that, the scanner in the telecine lab could capture 2K resolution. This resolution is good enough for editing and final print.
At the telecine stage, color correction, grading and other adjustments were made before the material was transferred on to digital tape.

3.4.   Non-linear editing

The digital tape (Beta) was captured to the computer editing system at AFDA editing suits. Participants when through the editing process, marking in and out, arranging sequences on the time line and applying effects to transition points. The short video was completely edited by Final Cut Pro editing platform. It was noted that, while traditional film was edited by cutting and joining negatives, digital evolution has simplified this process and has created flexibility in film post production work. The output final work was transferred back to digital tape for final film print at the refinery.

3.5.   Final film print

The final movie was then printed on film at the refinery. Technicians at the refinery demonstrated how commercial films are printed in the industry before it is finally released in cinemas. The refinery has one of the best archive storage of over 100,000 prints. These film prints are kept under favorable conditions.

4. Digitization of Archival materials

Digitization of archival materials involves converting analogue formats to digital. Analogue formats include film prints, umatic tapes, VHS etc. To digitize film prints, a high resolution film scanner is required to scan at a standard resolution of 2K or 4K. The scan process generates JPEG 2000 files which are in digital formats. At this point, color grading and other adjustment to the original can be made.

To digitize other analogue tapes, source playback equipment is required. The signals from the playback equipment can be recorded directly on DVD, Hard drives or digital tape. During digitization, it is recommended that a high resolution format is created. A lower resolution format can be produced from the high resolution format. The purpose of creating a lower resolution copy is to give easy access to users without tempering the original.

It was noted that, digitization is not the best recommendation for preservation but for easy access of archival materials to users. Digitization ensures that, the master copy is kept safe while the digital copy can be easily accessed through a network computing environment, DVDs or through a website.

In the digital environment, copies can be crated easily. With a wider area network storage a form of preservation is achieved. Files on servers are replicated on other servers which makes is difficult to loose the entire material incase of disaster.

It was observed that, digitization of archival materials has become necessary due to the fact that, old formats has become obsolete and playback equipment are not easy to come by. Manufacturers such as Sony have stopped the production of Umatic decks and other analogue playback systems. This will create huge problems in the future in terms of getting access to archives. Even with the analogue equipment that exists presently, maintenance cost is very huge and personal to operate this equipment is limited.

Digitization therefore is a must in today's archival science.

5. Presentations/lectures

5.1.   Film Conservation

Conservation means the safeguarding and protection of original materials from damage, decay and loss.

The primary task of film preservation is the conservation of the original elements. Ideally these elements will include the earliest generation elements which survive, as well as an original presentation copy. In no circumstances should the original elements ever be cut or in any other way altered.

The single most important factor in the preservation of film is the maintenance of a cold and dry storage environment. Film can be preserved for a very long time if stored and handled properly. New film has an estimated life expectancy of around 500 years at 5 °Celsius and 35% Relative Humidity.

Film should be stored in appropriate containers, flat on shelves, and the recommended conditioning time observed when moving between different environments. Correct physical handling of film is essential in avoiding damage.

Archives are responsible for setting up comprehensive policies and procedures for collection management, to include such factors as:

- the use of modern information science tools (catalogues, databases, etc.) based on international standards
- the regular inspection of the materials in the collections
- collection handling procedures to ensure the safety of both staff and the collections
- control of analogue and digital access to guarantee the security of the collections, particularly in regard to copyrighted materials.

Archives must also set up policies and procedures that strictly regulate the de-accessioning of materials in the collections. Original elements should not be de-accessioned unless their

instability becomes a danger to the rest of the collection; this is because improvements in preservation and restoration techniques may lead to better results in the future.

5.2.   Film preservation

Preservation means the duplication, copying, or migration of analogue and digital film to a new support or format, typically in cases where the life expectancy of the original elements is limited or unpredictable.

Any duplication of analogue material will inevitably create a new element which is different from the original. However, the process should attempt to create a duplicate that adheres as faithfully as possible to the original. It is of the utmost importance that newly created elements retain the originals' authenticity. Maintaining authenticity is not only an issue of image quality, but also of frame ratio, aspect ratio, etc.

It must be recognised that:

- Preservation is a demanding and complex process, requiring specialised staff and equipment, and is not routine work.
- Preservation must be entrusted to specialised laboratories within or outside the Archive, with a proven record of handling archival film to the highest possible standards of quality, safety and security. Archives are responsible for identifying the laboratories that best meet these standards.
- No loss of quality in preservation duplicates is acceptable beyond what is unavoidable in analogue duplication. For example, image characteristics such as aspect ratio, format, etc. must be maintained to the limit of available techniques, the original gauge and format should be retained whenever possible, and reductions (such as duplication from 35mm to 16mm) avoided. Similarly, when migration or reformatting are performed as part of digital preservation, the original quality of the content must be maintained: lossy compression, reduction of resolution or bit-depth are to be discouraged.

- Because the ultimate goal of preservation is to extend the life expectancy of the original work, and to allow for future access, the use of the best available techniques and materials (e.g. polyester base films vs. acetate, well-established films stocks and equipment) is essential.

5.3.   Film restoration

Restoration is a complex term which can mean the faithful duplication of an original element using techniques to remove or disguise damage and deterioration, or it can mean the recreation of an original cinematographic work from surviving elements which may be incomplete or from different versions.

Restoration will inevitably involve subjective decisions, both on technical matters and on the question of content, such as the choice of version, soundtrack, titles etc.. These decisions must be informed by as much knowledge of film production at the time of production as possible, and by historical information about the specific work. Because a restoration involves the manipulation of each element that contributed to it, it is imperative that all restoration projects are fully documented and that this documentation is accessible.

It must be recognised that:

- o Restoration projects must be based on a sound and coherent theoretical and historical approach and be entrusted to highly specialized and expert staff.
- o The long term conservation of all original elements used in the restoration must be ensured, so that future restorations may be undertaken should improved techniques or new elements become available.
- o Any restoration process should be reversible: this implies that no modification is allowed to the original elements on which the restoration is based.
- o The condition of the original elements and the requirements of the restoration process will determine whether analogue or digital technologies

are used; however, any restoration process should result in a new set of elements suitable for long term preservation.

- o Any restoration process should be documented as precisely as possible; such documentation should be retained by the archive and made accessible along with the elements derived from the restoration.

5.4.   Access

Access is the ultimate goal of the archive: the purpose of conservation, preservation and restoration is to achieve this objective.

Access must be regulated in order to limit any danger to the elements in the collection, and therefore archives must define access policies and procedures to protect their collections, while not restricting accessibility for legitimate uses.

In order to achieve this:

- Archives must identify which elements in their collections are 'master elements' and which are 'access elements'. Master elements are irreplaceable (or replaceable only at high cost, or at the expense of a loss of quality). Access elements, on the other hand, can be handled without endangering the existence and the quality of the work.
- Archives will implement policies and procedures which clearly define how master and access elements may be used.
- In devising these, archives must take into consideration the obsolescence of many film processes (e.g. colour processes, sound systems, etc.). A release print, for example, can become the only reference to the way a film looked and sounded, and it may therefore be necessary to designate it as a master.
- Whenever film elements are accessed, they should be carefully checked to ascertain their condition, both before and after use.
- Access will be provided only in environments (laboratories, theatres, etc.) controlled or approved by the archive.

- Access to master elements in particular must be closely regulated to ensure their safety, especially when this is for processes which require significant handling, such as digitisation or the production of new prints. Consequently, archives must set up procedures to ensure that:
  - Any such processes will take place under the strict supervision of the archive, preferably within its premises; whenever this is not possible, the master elements will only be entrusted to laboratories considered by the archive to meet the highest standards
  - Masters and printing elements will not be endangered by excessive use. The number of times a master element is exposed to such processes should be strictly regulated, for example by limiting the number of prints that can be made from an original element before the mandatory production of a duplicate.

5.5. Cataloguing and documentation

During this presentation, definitions, advantages and rules of cataloguing and documentation were explained. FIAF rules regarding cataloguing was also explained.

It was noted that, the main objectives of cataloging is

- To enable a person to find a book of which either the author, title

- To enable a person to find a book of which either the author, the title, the subject is known.
- To show that the library has by a given author, on a given subject, in a given kind of literature
- To assist in the choice of a book as to the edition (bibliographically), as to its character (literary or topical)

Catalogs functions in the following way

- **Preservation**
  - Help identify and locate extant versions of an item.
  - Saves wear and ear on prints if accurate information is available in a catalog
- **Research**
  - Learn where or whether items exist
  - Identify works by multiple access points (title, author, subject)

- - Facilitates use of collections for exhibition, preservation and study purposes
  - Administratively it helps the acquisition, circulation and management rights

Cataloguing and Metadata

- Both are intended to help a user find what they are looking for and to help a collecting institution find, store and preserve analog and digital assets
- One main difference – when the record creation takes place
  - Catalog occurs after a work is created
  - Metadata creation often occurs from the beginning of a work's lifecycle
- Metadata can be descriptive, structural and administrative(technical/management)

Types of Cataloging Standards
The standard below were discussed in brief

- Data content
- Data value
- Data structure
- Data communication

Why use Standards?
- Economical
  - Benefit from many professionals' input
  - Easier to share data if it is arranged and formatted in similar fashion
  - Easier to train staff and develop catalogs (no need to reinvent the wheel)
- Researches benefit
  - Recognizable punctuations, layouts
  - Broad adoption of standards reinforces familiarity

5.6. Digital Storage Technology

Storing audio-visual materials in digital formats is an important factor in today's archival preservation. It can be complex and very expensive. Above all, technology is rapidly changing hence uncertainty in investing in digital archives.

In digital environment, files can be saved on hard drives, compact discs or digital tapes. The main factor to be considered in storage is the capacity or space of the medium. Audio-visual material requires huge storage capacity. Hence storing large amount of data in terms of archives requires huge disc space.

Though the current capacity of hard drives may not bet sufficient for the archivist, manufacturers keep increasing the storage capacity every day. It is expected that, ultra high capacity storage systems will be created in the next few years. But such systems could be very expensive.

There are several dangers in digital storage. Either the files cannot be read on a couple of playbacks due to file corruption or a disc failure. Digital file can be affected by virus and files can easily be corrupted. With disc drives, playing back few times caused surface scratches which makes it impossible to future playbacks.

It was recommended that, the best storage technology in recent times is the cloud storage technology. This storage comprises of several storage services located in different part of the world in a parallel network. Files store for example in Japan is replicated in a storage server say in USA. This means that, loosing an entire storage server does not cause a total lost of materials. The cloud system also creates lower resolution copy for easy access. Internet client such as Google, YouTube and Facebook utilize the cloud storage technology.

The other storage medium used by broadcasters for storing archives is the LTO tape drives. This according to manufacturers' specification can last for about 50years. It is quite robust and expensive .

Disc drives such as DVD, VCD, CD-R etc are the worst storage system to be considered. Though they are not expensive, their life span is very short.

6. Congress/symposium

The FIAF congress attracted over 200 delegates from around the world. The congress was organized with workshops and symposium. Copyright and ethic issues, repatriation of African heritage films, Indigenous collections were discussed among others. During the workshop, digital preservation, storage and access were presented.

7. Workshops

Workshops held during the congress include analogue to digital formats, D-Cinema technology and the digital workflow.

7.1. Analogue to Digital/ Digital Workflow
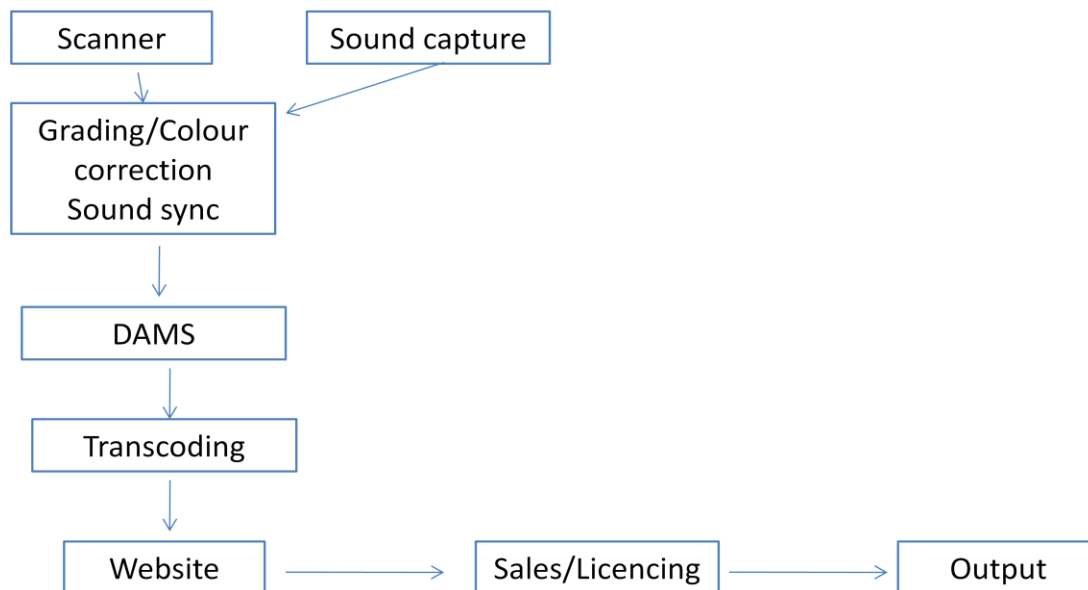
Converting analogue to digital formats involves a systematic process. In case of film prints, video and audio is converted to digital formats through a film scanner at a recommended resolution or standards. It further goes through colour correction or grading. Since the final destination is to a website for easy access, the audio and video files are further converted or compressed to suit the web application. The website may have the appropriate application software for easy search by users.

7.2.   D-Cinema Technology

Digital cinema refers to the use of digital technology to distribute and project motion pictures. A movie can be distributed via hard drives, optical disks (such as DVDs) or satellite and projected using a digital projector instead of a conventional film projector. Digital cinema is distinct from high-definition television and, in particular, is not dependent on using television or HDTV standards, aspect ratios, or frame rates.

Technology

D-Cinema has improved theater experience for movie audiences, a digital cinema system also provide high-quality image and sound. Additionally, theater managers use server controls for managing and displaying content for multiple theaters, and normally their content is encrypted for studios release with secure delivery, playback, and reporting of play times to distribution companies.

In the post-production process, camera-original film negatives (the film that physically ran through the camera) are scanned into a digital format on a scanner or high-resolution telecine. Data from digital motion picture cameras may be converted to a convenient image file format for work in a facility. All of the files are 'conformed' to match an edit list created by the film editor, and are then color corrected under the direction of the film's staff. The end result of post-production is a digital intermediate used to record the motion picture to film and/or for the digital cinema release.

When all of the sound, picture, and data elements of a production have been completed, they may be assembled into a *Digital Cinema Distribution Master* (DCDM) which contains all of the digital material needed for projection. The images and sound are then compressed, encrypted, and packaged to form the *Digital Cinema Package* (DCP).

8. Recommendations

NAFTI archives which is made up of student's productions from 1978 need to be restructured. The Institute need to ensure that best practices of conservation and preservation is achieved. Above all, the Institute should find ways of making these archives accessible to users which are mostly students or researchers.

Due to equipment being absolute for our analogue materials, I recommend that, the Institute factor the cost of digitization in their budget. To create an access system, we will need at least two high capacity storage servers networked in different locations on campus. We will need to restore and convert all our collections to digital and preserve the master tapes.

A well catalogued and documented archives can help the IT department in creating a searchable database on the Institute's network. In future our website can be used as a tool to link up or archive database.

I also recommend that, the Institute should lead the national campaign on preservation Ghana's archives since it is our heritage. NAFTI could secure funds, plan and host the national audio-visual archives. This unit could be part of the Institute management in a dedicated department.

The nations documented history is in danger. NAFTI can save it.

9. Conclusion

The FIAF Summer School in Pretoria was successful. Sharing ideas from participants from different countries was the excellent part. The aim and objectives of the summer school was accomplished. It was worth attending this program and I will encourage other participants to attend the next summer school.

It will be appreciated if NAFTI becomes full member of FIAF. This will facilitate the national campaign of audio-visual heritage in Ghana.

10. Appreciation

My appreciation to NAFTI, Goethe Institute and FIAF for making this course possible.

11.Appendix/References

- o www.fiaf.org
- o Nancy Goldman Presentation in Pretoria
- o David Welsh Presentation in Pretoria
- o Summer school Pretoria Handbook
- o FIAF Reference Material