FUNDAMENTALS OF SOUND DESIGN

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SOUND DESIGN IN FILM

A KENYAN CINEMA BOOK SERIES

Gabriel Thuku Kimani

UTAFITI FOUNDATION

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DEDICATION

Remembering the Titan, Geoffrey Mbui Kimani;

and

This is for you Maisy Murugi and Gabriella Wanjiku.

Keep this flame burning. Daddy believes in you.

ACKNOWLEDGMENT

This work has been made possible by the abundant grace of God. I consider this milestone a blessing. It has indeed been an odyssey from the dusty paths of Mihang'o, through the peeling walls of Kenyatta Hall in Dagoretti High School, the towering studios of KIMC and the hallowed stage of Harambee Hall in Kenyatta University. It may not be possible to mention everyone, but your contributions are remembered and valued!

I am eternally grateful to family for their undying support. Led by my parents Rev. Michael Kimani Chege and Mrs. Mary Murugi Kimani who have shown utmost belief and trust in me and have been strong pillars in my quest to ascend in education and life. Thank you to my sisters Gladys, Veronicah, my brother Ibrahim, my nephews and nieces for support.

I raise a glass to all of you in my support system, my intellectual friends and mentors. To those I have mentioned and the many I have not, may the Lord rain a fountain of blessings in your lives. *Múroríma gúkuumia*.

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FOREWORD

Reading *Sound Design in Film: A Kenyan Cinema Book Series* is like having a walk through a filmic gallery of Kenya's film repertoire. The book intricately weaves together powerful content, focusing on sound design in the film. It is an open secret that scholarly works in film studies remain scarce in Kenya, Africa and other developing countries. This book, adds into Kenyan scholarly stock an insightful scholarly work.

Sound Design in Film effortlessly tackles an intricate topic and makes it extremely accessible for readers at all levels, to understand the nuances of sound design in film production. Indeed, this is an indispensable read for film students and all filmmakers in Kenya and beyond.

The million-dollar question is; does sound design matter in a film production? Why should it matter after all? Thankfully, this brainy and outstandingly accessible text, gives us a platform from which to begin to discuss these auxiliary academic inquiries. The author's elucidations and synthesis of sound design in film, comes in handy when tackling these academic questions. It also serves readers in grasping the essentials of sound in film production. The book emboldens persistent exploration in these and new questions in the field of sound in film studies.

This book presents in a simple manner, the essential notions of sound design in film. It illuminates the significance of sound in film production. Sound is a vital component to any successful film. A good soundtrack, provides the images an additional mystic dimension of milieu and film personality, adding elements and realities that cannot be captured or encapsulated by a camera alone. The soundtrack remains an important cog due to its vital role in charming and engaging audience. Through the sound, the filmmaker is able to deliver the information imbued in film. It also enriches the production value, it conjures emotive reactions, accentuates what is on the screen and is employed to designate mood. The writer has aptly demonstrated that when executed

with precision, sound in its various manifestations, be it voice, sound effects, music, and even silence, can elevate your film naturally.

The case studies referenced in the text, discuss real Kenyan filmic productions and give aspiring artists prized discernment into the working practices of a sound designer, and what is needed to make an impactful film production. This book narrates how sound in film can be effectively employed by scholars and practitioners in equal measure. The author expounds how this will be achieved across all the different skills, that take to make a film, such as; scripting, directing, recording and camera work, editing, and production.

I therefore recommend this book to students undertaking film studies, film critics and every filmmaker. Suffice to say that when a filmmaker understands the rubrics of this book it will improve his or her film productions in as far as sound design is concerned. I highly recommend this book!

Dr. Mbugua Njoroge, PhD., MIP., LLB
Executive Director,
Anti-Counterfeit Authority of Kenya.
June 2022.

PREFACE

Aesthetic creativity in the manipulation of technical elements of image and sound in a film lies at the heart of storytelling in cinema. As such, this book sets out to critically interrogate how the film story is exposed, advanced, and narrated by elements of sound design. The elements, including voice, film score, sound effects, ambience and silence, are explored in view of their symbolic characteristics, and how that can therefore be translated into intrinsic narrative qualities of sounds in film. Film sound is seen to have less influence since its sense of appeal is to the subconscious as the visual sense takes the conscious center stage. It is in this view that film sound in both practical terms and theoretical study is mostly bypassed.

This book sets off from the assertion that sound, just like the image track, provides a filmmaker with options to create, recreate, manipulate, and deploy individual elements to formulate thought and generate meaning. Successful storytelling in film is therefore dependent upon the effective exploitation of the expressive and communicative qualities of the visual and audio elements, both intrinsic and the ones created by interaction among the elements in the films structure.

This book covers the range and type of elements of sound, how they are deployed in Kenyan films and their expressive, dramatic, and symbolic qualities contextualized as storytelling qualities. To achieve this, the text delves into a critique of Kenyan fiction films, including; *Killer Necklace* by Judy Kibinge (2008), *Formula X* by Steve Ominde (2009), *From a Whisper* by Wanuri Kahiu (2009) and *Nairobi Half Life* by Tosh Gitonga (2012), analyzed on their deployment of the sounds in their narratives. Further interrogation centers on the salient ways in which the sound elements advance meaning and radiate the various story points and rudiments.

The discussions in the chapters reveal deliberate deployment of a range of forms of sound in Kenyan films. Further, it is illustrated that the elements of sound under

investigation play various metaphorical and assigned functions in the films, the functions exude significations and expressions that are in congruence, and consequently mirror elements of narrative, like plot, character, thematic rendition, mood, and setting. This expressions, and symbolic representations spelled out by soundtrack elements in their singularity and as part of the intricate inter-webs of the film structure, are coded as storytelling qualities of the said elements.

THEORETICAL FRAMING

The inquiry and analytical description of the sound elements in film, the objects of this book, are theoretically moulded around and within the tenets of structuralism and semiotics. Structuralism is defined as the study of how various codes function within a single structure, within one movie[1]. Structuralism is concerned with the idea of an underlying web of symbolic meaning relative to a film's surface structure, and the meaning thus can be traced in the depth of the structural components of a film in their interactions. In this view, for instance, the story telling characteristics of elements of sound design, would not only be traced in the observation of the impact of the whole soundtrack, but also in how the individual elements radiate meaning by linking up with other elements of the aural track, visuals and narrative.

Semiotics, is the study of signs, signification, and signifying systems[2]. The language concern of the sign is the relationship between its manifest form, the signifier, and its conceptual form, the signified. This book examines voice, music, silence, sound effects, and ambience as expressive and communicative elements of sound in a film and the symbolic nature of their deployment as signs in the selected films within the structuralism and semiotic frameworks discussed in the foregoing.

[1] Giannetti (2001)
[2] Stam, Burgoyne & Lewis (1992)

THEMATIC FRAMING

The discussions in this book follow a trail of trying to understand sound design in concept, practice and analysis. The book content is laid out in three main thematic parts and subdivided further into topical chapters.

PART I: SOUND DESIGN CONCEPTS AND TECHNIQUES

The first chapter sets out a historical, theoretical and conceptual grounding of sound design providing a ground for the arguments in the preceding chapters. The second chapter lays out conceptual ideas of sound design and important codes of sound design theory. Drawing from chapter two, the third chapter extends into a discussion of sound design techniques and practice. To achieve this, the chapter sets off on a critical explanation of processes and a practical illustration of the tools and techniques. Chapter four morphs in the discussion, highlighting the contextual applications of sound design in Kenya and the attendant industry practices.

PART II: SOUND DESIGN ANALYSIS

Chapter five opens the analysis section of this book by exploring the form the narratives in some of the Kenyan movies analysed in the book. Specifically, the chapter details the plot summaries and important trivia information about the movies that is relevant to the discussions thereof. Chapter six explores the content of the soundtracks in Kenyan movies carefully discussing the range, types and categories of sounds that make up a film soundtrack, with specific examples from Kenyan movies. This leads into an analytical reasoning of the roles of the sound elements in films discussed in chapter seven and the storytelling qualities of sound based on their contributions to narration in chapter eight.

PART III: EPILOGUE

The book concludes in chapter nine with an epilogue that ties together the discussions in the book and ponders on the ever growing Kenyan film industry.

USING THIS BOOK

- This book can be used by film educators, students and researchers to explore the subjects in film sound, sound design and film analysis. It can be used as a general course book or reference book. Each of the main parts of this book contains a quiz and practical/analysis exercises tailored for enhanced comprehension of the content in the book.
- This text is also a good resource for general film enthusiasts, critics and filmmakers looking for perspectives on film sound and analysis of a film from the perspective of the sound track.

PART I

SOUND DESIGN CONCEPT AND TECHNIQUES

FUNDAMENTALS OF SOUND DESIGN

Sound design is an intricate balance of science of sound and artistic creativity in manipulation and blending of the sounds. This chapter creates a - as for the book by reviewing practices and theoretical concepts in sound design creation. The chapter attempts to define sound design by outlining its formalistic and narrative components. The chapter locates sound design within the principles and components of design, codes of cinematic soundtrack and concludes with - in sound. This chapter provides a reference point for important definitive and explanatory concepts that elucidate the rudiments of sound design conceptually and in practice. The chapter then builds a narrative on the actual and ambient issues that characterize the development and current trends in the practice of sound design in the Kenyan film scene.

FUNDAMENTAL CONCEPTS OF SOUND DESIGN

Sound design is a product of the constant need in filmmaking to improve the aural aesthetics of cinematic storytelling, to compliment the advancements in visual techniques and the evolving filmmaking technology. To understand this assertion, we shall attempt to derive a plausibly succinct definition of sound design. Whittington (2007, p. 1) defines sound design based on four basic concepts:

- ✓ Creation of sound effects.
- ✓ The establishment of an overall plan of a film soundtrack.
- ✓ The wiring of sound exhibition technology in theatres.
- ✓ A mode of reading in critical analysis of cinema.

Sound design refers to the creation of specific sound effects which are multi-layered and multifaceted in their ability to convey meaning (ibid, p. 1) To comprehend this perspective, we shall break the definition into its components; **creation** which is to actualize or bring into existence; **specific** or clearly defined or identified; **sound effects** which are understood in this context as elements of the cinematic soundtrack; and **conveyance of meaning** which is the expression of particular messages. The second perspective looks at sound design as the collaborative establishment of an overall plan for an integrated soundtrack. This introduces additional components like **collaboration**; **overall plan** and **integrated sound track.**

The above definitions develop an idea of sound design concept as bi-pronged: a **product** and a **process**. Sound design as a process points to actions and activities that are serially undertaken by different personnel in the sound crew from the pre-production phase to post-production. This would include; script analysis and drawing up of the sound plan in collaboration with the director, in order to make it tally with his vision, hiring of different sound crew personnel, for the production and post-production stages, selection and procurement of appropriate equipment and resources, the recording, composition and creating of the different elements of auditory settings, the editing, mixing and re-recording of the whole nest of sounds. The process connotes collaboration, time and space within which the sound is designed.

Sound design as a product on the other hand refers to the final, artistically embellished soundtrack or the design: The design is what constitutes the aural experience that the audience gets to listen to during a movie screening or the final audio element in a movie. To qualify as a design, the factors of manipulation geared towards generating meaning are very vital. The manipulation encompasses multi-layered and multifaceted elements and effects of sound encapsulated in one mix to augment their, and the visual elements communicative potential. The collaboration therein, holds together the elements of sound, which are presented as a seamless wave, blurring the conflicts in the soundtrack in what Chion (1994) refers to as synchresis.

In his analysis of what sound design means to the film sound techniques Prince (1997, p. 153) asserts that,

> Sound design goes far beyond the routine of getting audible sound and mixing effects and music with dialogue. Sound designer create a total sound environment for the films images, an environment that not only supports the images but also extends their meaning in dynamic ways.

Sound design in Prince's assessment transcends the judgment upon its pristine technical qualities like frequency, fidelity and amplitude. His argument recognizes that sound design creates holistic sonic environments that go beyond providing the aural dimension for the visual elements, but raises within it, questions and perspectives, that aid in locating meaning not only of the visible image, but of the 'invisible' image and thus, advancement on the story being told.

To understand the design component in the creation of a film soundtrack, it is important to locate it within the context of basic design concepts. This is to help transcend it from the technical understanding to a more artistic rendering and view of the making of a soundtrack. This can be outlined into elements of design.

- **Line and Shape** – Line is the positioning along intervals and shape is an outline of a figure. There a variety of lines and shapes. Lines and shapes in sound can be achieved or created through manipulation of panoramic qualities of the sound and the interaction of frequencies produced by different objects or music instruments.
- **Colour** – Colour in sound would refer to the tonal qualities of resonance and intensity. Sound colouring can be done through manipulation of frequency and amplitude of the sound.
- **Texture** – In sound, texture would refer to the rawness (smoothness) of sound or "roughness" created by the additives in the main track with background sounds, acoustic and distortion effects in the audio, or dithering with noises like white or pink noise.

- **Tonal variations** – Tonal variations in sound would refer to the differing and shifting pitches, harmonics and modulations. Can be achieved through manipulation of amplitude and dynamics of the audio track.
- **Contrast** – contrast in sound refers to the differing sound levels, frequencies, tempo, rhythms and effects. It could also refer to the differences in contextual application of sound. For instance, a slow song in a first paced scene, or silence in a war scene (loud).
- **Balance** – Balance is a concept of blending various sound sources and qualities attributing to each a correspondent level of domination as it serves in the story. In sound design, balance reflects the sound levels, frequency interactions and spatial balance.

THE CINEMATIC SOUNDTRACK AND CODES OF SOUND DESIGN

A movie soundtrack is the collection of all sound elements in a film. The film soundtrack constitutes the aural half of the audio-visual dichotomy of cinema. Akin to a sum total of sound elements, the soundtrack will in this context be regarded as a series of montages that work, by assembling elements into a complex whole that is richer in meaning than each of the elements taken into consideration. As such, the cinematic soundtrack edifies and multiples the power and potential of the individual sound elements in telling the film story.

The soundtrack constitutes of the elements of cinematic sound, which include; dialogue, voice over, sound effects, ambience/natural sound, music and silence. All those elements are also plural in terms of their types, which shall be discussed later in chapter 5. Putting the elements together would easily translate to a disorganized collection of noise. Sound design however, has the ability to organize many sound sources into a coherent whole. This is made possible through the application of six essential codes of sound design identified by Prince (1997 p.157) as; **sound hierarchy, sound perspective synchrony, sound bridges and off-screen sounds**.

SOUND HIERARCHY

Sound hierarchy denotes the dominance of particular sounds and the congruent suppression of others. In telling a film story, different elements of sound export their expressive qualities to a film sequence and intertwine with others to build a network of meanings that build a coherent progress to the film story. Cinema began as a silent medium and inventors ran a myriad of experiments to infuse sound in film. However, the soundtrack, as we know it today developed gradually with different sound elements added to the mix at different points of the development.

Film is a dynamic story telling tool that grows around the visual and aural aspects. As a film story and plot develops, it utilizes the various elements of sound to advance its varying messages, exploiting the elements in their singularity and in multimodal blends. This can pose far-reaching challenges, the greatest being to find the prime story telling element among the cacophonous din of the rich blend.

This ultimately calls for what is referred to as **dense clarity**[3], which is simply a simulacrum of lucidity amidst the density of the multitudes of sound elements. In **Apocalypse Now** (1979), a film considered by sound critics as a model of sound montage, the sound designers found themselves dealing with up to one hundred and sixty (160) tracks of different sounds (Thom, 1999). Such a copious number of tracks, even with the smart Digital Audio Workstation (D.A.W) technologies of the 21st century would raise pertinent questions on how to privilege the sound element that best radiates the film story at particular moments in a film. It further raises many questions on how then, to determine which elements are fit for the soundtrack in a certain sequence, how to determine the density of those elements, and how to find clarity amidst the density of the elements. The answer to these questions lies in the film narrative, which is the skeletal framework on which the sinews of audio-visual elements are moulded.

The film narrative imports the expressive characteristics of each element, and blends of the elements, to create and recreate its own elements of plot; story, mood, point of view,

[3] A concept discussed by Walter Murch in Murch (2005)

setting and characters. For instance, if a particular sound element, like ambience is deployed to show a certain geographical locale, then the location sounds characteristic to the setting in question will be dominant in the soundtrack. "The bottom-line is that the audience is primarily involved in following the story: The right thing to do is ultimately whatever serves the story telling in the widest sense."[4]

Service to the story being the key element therefore, the soundtrack at each ticking second of a movie's running time should bear the ability to tactfully privilege certain sound elements, thereby establishing some sort of pecking order among the sounds that would dynamically vary in amplitude. This ranking is what is discussed herein as the hierarchy code of designing sound. To achieve hierarchy, the design element of balance is explored through manipulation of sound level in amplitude and frequency.

SOUND PERSPECTIVE

Sound perspective in sound design denotes the idea of sonic space. Primary in the construction of a film soundtrack is the creation of real and imagined environments for the characters to float and glide therein. Sound perspective is, the use of sound to convey information about physical space.[5] The physical space referred to is the sonic environments that are created by the cinematic soundtrack. The environments created are defined by their various characteristics that include their sound-reflective and sound-absorption features, which refer to the reverberant qualities of the environments. Sound reflective environments are the settings characterized by surfaces that reflect sound or create echo effects. Such environments can be expressed by applying delay effects in the sounds.

Sound absorption qualities on the other hand refer to the absolute or relative absence of the sound reverberations. These features denote acoustically treated surfaces, which are mostly done using sound absorbent materials such as, soft boards, Styrofoam, natural fiber, Rockwool or porous foams which are used in sound recording

[4] Murch (2005 p. 23)
[5] Prince (1997, p.161)

environments like studios or sound stages. Sound absorption quality is mostly used in narration and commentaries or 'voice of God' which is deemed to be aloof, authoritative and unaffected by the other elements of the sonic environments. This helps distinguishing the space in which the sound elements are set, hence suggesting two or more environments.

Perspective also helps to describe other characteristics of the sonic environment, like the magnitude of the space, the distance of objects in the said space and the directions of the objects' locations. The expanse of the sonic space is well suggested by the density of the sounds, blended in a sound track. Multiple sounds, suggesting numerous objects in the same physical space would suggest a smaller space compared to few sounds playing in each other's background, like a couple looking at a necklace through a jewelry shop window (on display) talking, and the sound of a distant ambulance siren wailing in the background. The suggestion of distant objects also simulates expansive sonic space or large spatial dimensions.

By simulating the panoramic properties of sonic space, directions of various objects in a film scene is established. This is possible in multi-speaker systems, as the monaural systems blare all sounds from the centre and seems to fill a room from a single direction. In stereophonic systems for instance sounds can be panned to the right or left speakers with the centre speaker only serving, when the sound producing objects fill the screen or are at the centre of the screen. For instance, the couple, later having a conversation, the lady standing near the window on the left side of the screen and the gentleman sited on the bed which is on the right side of the screen could be panned by placing the lady's sounds in the left speaker and the gentleman's voice in the right speaker, with the ambient sounds playing in both speakers. This suggests the directionality of the sounds and ultimately the perspective. The physical space in film is very vital. Further, the setting as created using a sound track that exudes the code of perspective goes a long way in building the diegetic space in the minds of a film audience, which is an important step in constructing the film narrative.

SOUND SYNCHRONY

It involves synchronous and non-synchronous sounds which denote a relationship of sounds with the image. The causal relationship is basically the connection between a sound and a visual of its source. Synchronous sound is matching of a sound and its visual counterpart, a phenomenon widely discussed in the context of realism. Synchronous sound can be traced to the dawn of the talkies when, after many experiments, a film with synchronized dialogue, *The Jazz Singer* (1927) was projected.

The synchronized dialogue ushered in a new paradigm where the image and audio could express the film story. Debates arose though, on the issue of synchronized sound, which made sound seem like an appendage of the image as opposed to an autonomous tool of constructing a film story in collaboration with the image.

If we compare the sound film to the silent film, we find that it is possible to explain the content more deeply to the spectator with relatively the same expenditure of time. It is clear that this deeper insight into the content of the film cannot be given to the spectator simply by adding accompaniment of naturalistic sound; we must do something more. This something more is the development of the image and the sound strip each along a separate rhythmic course.

Concerned with the 'naturalistic' creation of the talkies, Pudovkin (1985) raises pertinent issues, by first acknowledging the importance of sound as a dimension of creating meaning in film and then decrying the deployment of sound as an accompaniment to the images to enhance their realism. In that line of thought, he strongly suggests the deployment of sound asynchronously, a phenomenon explained by Balazs (1985) as the situation in which **there is a discrepancy between things that are heard and those that can be seen**. He also avers that hearing a sound without seeing its source in synch, makes it grow beyond the dimensions of the image adding that asynchronous use of sound helps in the conveyance of the pathos, symbolic significance, and providing rich opportunities for the effects of tension and surprise. As a code of sound design, synchrony lies at the heart of storytelling as it defines the relationship and level of

interaction between sound and the image, in developing meaning. Walter Murch a sound designer likens the relationship between the image and sound to a dance.[6]

> Image and sound are linked together in a dance. And like some kinds of dance, they do not always have to be clasping each other around the waist: they can go off and dance on their own. There are times when they must touch, there must be moments when they make some sort of contact, but then they can be off again.
>
> **Walter Murch**

With the dance analogy, it is lucidly notable how a dynamic relationship between sound and the image can be built in a film sound track by creatively and tactfully engaging synchronous and non-synchronous sounds, as a design strategy.

[6] Paine (1985, p. 356)

Sound Bridges

"Sound wields the ability to connect otherwise, unconnected series of images by establishing a flow in time and space. By deploying synchronous, asynchronous ambient sounds endemic to a sonic environment; a soundtrack is able to create a connection between images that seem unrelated or unconnected. Boggs (1996) affirms that, "Sound is a vital transitional device in films. This is because it is able to show the relationship between shots, scenes, sequences, and naturalize changes in image from one shot or sequence to another."

For instance, in *From a Whisper*, Abu after dropping Tamani in her makeshift home and gallery, sits in his car and fingers an audio cassette thoughtfully and the crackling sound of the tape morphs into another scene of Fareed looking for the tape in the centre console storage compartment and inserts it in the car stereo. The sound effect of the crackling tape therefore becomes a connecting device for the two scenes, creating a bridge from present to past in a flashback.

Sound bridges also function in dialogue scenes where the visuals transits from talking heads, to reaction shots, to cut-ins and surrounding mise-en-scene, by establishing continuity through the uninterrupted flow of the dialogue. The voice connects all those shots and grounds them on to the dialogue scene space. Sound bridges are also used in foreshadowing an upcoming scene by deploying the sound before the corresponding image and together with the image. This is achieved using the J-Cuts and L-Cuts during sound processing. The resultant overlapping of sound and picture largely - a transition of time and space.

This is reflected in *Nairobi Half Life*, when a conversation between Oti and Mwas while having a meal in a food stall, begins playing while the image of a sprawling skyline of the slums, reigns the screen, predicting their dialogue scene. Their voices are heard off -screen before a change of visuals is occasioned to have them on-screen, which is a transition technique.

Screen and Off-Screen

Off-screen sound space connotes the 'frameless' disposition of film sound. Unlike the image, that is bound inside a frame, segregating the expanse of space and density of objects outside it, sounds emanate from both on-screen and off-screen sources. Therefore, it is the off-screen sounds that establish the world outside the image frame and contextualize the images on screen to a larger space. Sound is simultaneously "in" the screen, in-fact, behind, around, and throughout the entire movie theatre.[7] "Off-screen sound can suggest space extending in various directions beyond the visible action."[8]

The spatial dimensions created by the cinematic sound track, that the image segregates, reveal how the off-screen sounds add a sinew to the storytelling muscle of cinema. By extending and revealing new spaces and space dimensions, off-screen sounds add to the levels of meaning that the visuals and other sounds import to the film. This is because the off-screen sounds suggest other characters, objects and phenomenon that are not visible, but are present in the visible character's physical environment.

Sound Montage

Sound montage refers to the arrangement of sounds into complex and highly intricate patterns that create meaning. The meanings generated mostly emanate from the sound patterns as opposed to individual sound elements regarded in singularity. Through editing, sounds are cut together, cross fading into each other, blending together and juxtaposed, creating various tones of parallels and contrasts that work towards radiating certain meanings.

The crux of a sound montage is building into a film's story, what any sound element in singularity would not achieve. For instance, in building narrative elements like plot and story, a progressive network of information needs to be developed and as such the collaboration of the various elements of sound. With this in mind therefore, the

[7] Metz (1985, p.157).
[8] Bordwell and Thompson (1985, p. 193)

cinematic soundtrack is further guided by the need to develop meaningful montages to build a film story.

DIEGESIS IN SOUND DESIGN

Diegesis in cinema refers to the location of a film's events or actions in **the fictional world** or the **story world**[9]**.** Every story in film creates a world for itself in which characters exist and the events in the story take place. Such a world consists of its visual and sonic characteristics that are therefore depicted in the film.

The concept of diegesis is very important in sound design as it pertains the allocation of sound to serve various elements of storytelling. Each level of diegesis represents a specific level of story consciousness which include; setting, plot, audience and character.

- Setting includes the physical/geographical, historical and cultural setting. To connote physical setting, the sound is deployed at the diegetic (ambient) level whereas the cultural setting can work with both diegetic and non-diegetic since it relates with the intranet of diegesis and internet of external diegesis.
- Plot being a combination of the diegesis levels that can be reflected by diegetic and intradiegetic sounds mostly.
- Character is at the diegetic level but also goes deeper into the character psyche, which means it also straddles metadiegetic and intradiegetic levels.
- The audience is outside the 'story world' but also add their consciousness in relating with the story. Mostly using non-diegetic sounds that characters cannot hear or relate with.

[9] (Buckland, 1998).

Based on the foregoing, the diegetic matrix in sound design can be expressed as follows;

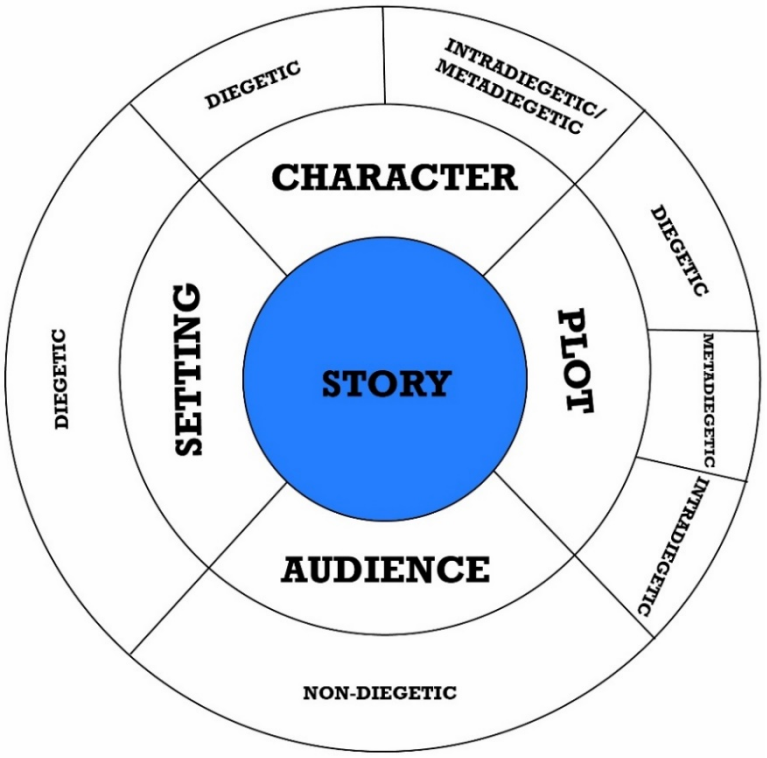

Figure 1: A diagrammatic matrix indicating the relationship between elements of the story and diegesis in sound elements in a film.

Diegesis in this view, provides a platform for the categorization of sounds, which include, diegetic sounds, non-diegetic sounds, and internal diegetic sounds or meta-diegetic sounds.

For example, in *From a Whisper*, the diegetic spaces n Kenyan films include; the bomb scene, Tamani's house, Fareed's house, the Mosque etc. In *Nairobi Half Life*, the diegetic space includes; Mwas's Home, the theatre, the Gang's house, the Police cells, the streets of Nairobi and so on. The diegesis level of the sounds thereof deployed is in relation to the foregoing spaces and the characters and actions in them.

Diegetic Sounds

Diegetic sounds are sounds that characterize the story world and are produced by characters and objects visible or invisible in a given story space. Diegetic music is referred to as Screen music by Chion (1994) and Source music by Gorbman (1987). the diegetic sounds would include; The city sounds in *Nairobi Half Life*, The bomb site sounds in *From a Whisper*. The sounds within the scenes of *Formula X* and *Killer Necklace*. The ambient soundscapes, dialogues, action sounds and source music (with visible sources in the scenes) would constitute diegetic sounds.

Non-diegetic Sounds

These are sounds deemed to be emanating from sources that exist outside of the story space. Chion (1994) also encodes non-diegetic music as **pit music.** Non-Diegetic sounds are the aural equivalents of the visual "breaking the fourth wall" where there is a direct communication with an audience. Non diegetic level is the world of the audience. Non diegetic sounds include; the background music, transition music and artificial sound effects deployed in the films.

Internal Diegetic Sounds/ Meta-Diegetic Sounds

They are sounds considered as representative of a character's inner world, emanating from a character's mind like in dreams, memories, and hallucinations.[10] **Intradiegetic sounds** include sounds heard in isolation by a character, for instance in *From a Whisper*, Tamani listens to some music through earphones. The music barely seeps through, to be heard by other characters, so it becomes a part of a characters' isolated or personal diegetic space. **Metadiegetic** sounds include; the voices in Mbugua's (*Killer Necklace)* head, as he aims a gun at his girlfriend and the family, when he discovers the lies he was subjected to by Noni, his girlfriend. During that moment, Jonah's voice rings in his head... "*Mbugua ukishamwaga damu hakuna kurudi nyuma.*" The voice is accentuated by a reverb effect to enhance its surrealism.

[10] (Sijill, 2005)

TECHNIQUES AND PROCESS OF SOUND DESIGN

Sound design can be defined as the planning, creation, recreation and manipulation of sound elements to generate meanings, by exploiting their intrinsic communicative qualities, and those derived by interaction with other visual and narrative elements. The spine of sound design, is the development/advancement of the film narrative.

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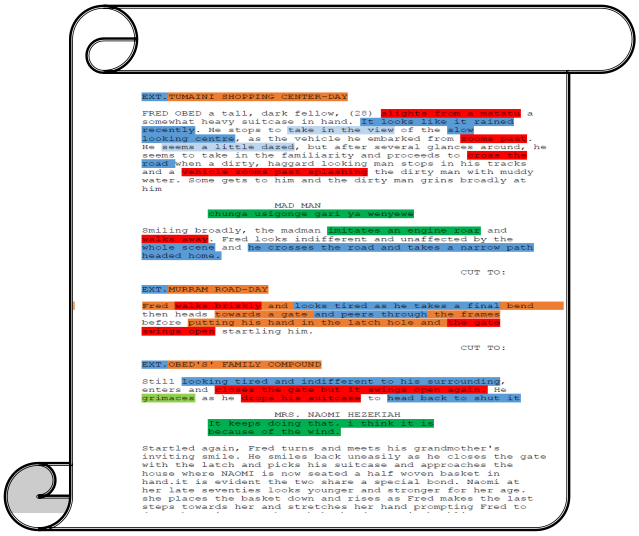
In order to achieve the fete of successfully designed sound, several basic techniques in sound creation, recreation and manipulations prove vital in the process of sound design. They include:

i. Script analysis and pre-production design
ii. Recording
iii. Sound editing
iv. Sound mixing
v. Design synchronization



EXT.TUMAINI SHOPPING CENTER-DAY

FRED OBED a tall, dark fellow, (28) alights from a matatu a somewhat heavy suitcase in hand. It looks like it rained recently. He stops to take in the view of the slow looking centre, as the vehicle he embarked from zooms away. He seems a little dazed, but after several glances around, he seems to take in the familiarity and proceeds to cross the road when a dirty, haggard looking man stops in his tracks and a matatu zooms past splashing the dirty man with muddy water. Some gets to him and the dirty man grins broadly at him

MAD MAN
chunga usidonge gari ya wenyewe

Smiling broadly, the madman imitates an engine roar and walks away. Fred looks indifferent and unaffected by the whole scene and he crosses the road and takes a narrow path headed home.

CUT TO:

EXT.MURRAM ROAD-DAY

Fred walks briskly and looks tired as he takes a final bend then heads towards a gate and peers through the frames before putting his hand in the latch hole and the gate swings open startling him.

CUT TO:

EXT.OBED'S' FAMILY COMPOUND

Still looking tired and indifferent to his surrounding, enters and closes the gate but it swings open again. He grimaces as he drops his suitcase to head back to shut it

MRS. NAOMI HEZEKIAH
It keeps doing that, I think it is because of the wind.

Startled again, Fred turns and meets his grandmother's inviting smile. He smiles back uneasily as he closes the gate with the latch and picks his suitcase and approaches the house where NAOMI is now seated a half woven basket in hand.it is evident the two share a special bond. Naomi at her late seventies looks younger and stronger for her age. she places the basket down and rises as Fred makes the last steps towards her and stretches her hand prompting Fred to

SCRIPT ANALYSIS AND PRE-PRODUCTION SOUND DESIGN

In sound design it is important to analyse a script in order to identify elements of sound to be recorded for various sequences. Script analysis includes;

- Identifying sounds explicitly highlighted in the text e.g. "*DOG BARKING*", "CAR HOOTING", "ALARM RINGING" etc.
- Isolating sounds that are implied by the text without explicit mention e.g. "There is heavy traffic" Suggests a cacophony of traffic sound including; running and revving engines, hooting sound, motorcycle sounds etc.

PROCESS OF SCRIPT ANALYSIS

The process of analysing a script for purposes of sound design involves multiple readings of the script, each with different goals.

- The **familiarisation stage** involves uninterrupted read-through of the script to gather the gist of the story and general texture and mood of the story.
- The **sound design conceptual stage** involve more focussed readings of the script picking out different nuanced elements of the story that connote specific

sound elements, montages, and perspectives. For instance, scenes, narrative sequences, dramatic actions, characters and settings are identified and marked against sound elements and effects. It is at this stage that the parameters of analysis (narrative and technical) are critically observed and noted. The main idea of this stage is to form a conceptual framework of the soundtrack design by identifying its main components.

- The **Sound design build-up stage** involves reading the script drawing patterns and stacking up the design structure, while exploring technical ideas and processes of achieving particular sound elements and effects. At this stage the components of the script are enhanced with research and inspiration is drawn from other films.
- **Script analysis report stage** involves synthesizing all the observations and collating them on a tabulated sheet, putting together all the elements noted in their scenic contexts and an elaboration of their creation technique and deployment space in the story.

PARAMETERS OF SCRIPT ANALYSIS IN SOUND

GENERAL SOUND SCRIPT ANALYSIS CODES

1. **Time –** entails identification of the time of day, time in history, time and season in a year etc.
2. **Space –** is composed of iidentification of diegetic setting, mental condition, geographical locale and acoustic qualities of the space in a script.
3. **Action –** is characterized by noting specific actions and action sequences that translate and influence the sonic production in a film.
4. **Mood and Texture –** involves taking into considerations various emotional states of characters and the overall mood in scenes, sequences and shots and relating to specific sounds that would work with the situation

NARRATIVE ANALYSIS

The analysis of a script for purposes of sound design is grounded on the following elements of a film story/narrative.

- **Discovery –** This includes the beginnings or establishment of important story elements like settings, characters and plot points
- **Developmental –** refers to the elements of progression in a film story they include; dramatic actions, Movement, Transitions, anagnorisis, peripeteia.
- **Resolution –** involves the ending of a story or a complete change of time and space and character arc. The sounds can include conclusive phrases and musical cadences, sound cuts and fades.

Elements of Narrative Analysis

- **Character -** In the analysis, the sound designer explores how a character as a carrier of the story produces, perceives and reacts to sound.
- **Setting -** The sound designer synthesizes the sounds of a locale (geographical, historical or conceptual) i.e. sounds of places and the sound producers within it; like objects, geographical features and animals. It can also capture the historical or cultural context or location.
- **Plot -** The analysis explores how the flow, the structure and the distinctive parts of the plot are or can be defined by sounds. The plot analysis involves important parts of the dramatic structure including;
    - **Discovery –** This includes the beginnings or establishment of important story elements like settings, characters and plot points
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    - **Resolution –** involves the ending of a story or a complete change of time and space and character arc. The sounds can include conclusive phrases and musical cadences, sound cuts and fades.

- **Perspective/ point of view -** The analysis of perspectives expounds how the character experiences and perspectives, at any one moment in the story, can be expressed sonic wise. Additionally, it also explores how particular sound reveal themselves as motifs in a pattern of indicating a particular character or their perspective.
- **Theme -** The object of analysis in theme is to deconstruct the message of the film and how particular sounds enhance the threads and nuances of the message.

TECHNICAL ANALYSIS

Technical analysis of a film script is centered on the elements of the soundtrack, the techniques and technology that would be deployed to achieve the sound and the physical, acoustic properties of the sounds relevant in the specific contexts.

Elements of soundtrack design

- **Voice -** The analysis demarcates vocal elements like dialogue and non – verbal vocalizations. In the analysis, film voice constitutes dialogue, monologues, and non-speech vocalizations including, screaming, moaning, humming, yodelling, shrieking etc.
- **Music -** In the analysis various musical forms, genres and characteristics are identified and recorded. In general, the melodies and rhythms expressed as vocal, and instrumental sounds, or their fusion, are noted. The musical ideas are demarcated in the form of background scores, signature tunes, diegetic music performance or playback
- **Ambience** - The sonic environment is composed of natural or ambient sounds. These are identified as per the scripted scenes noting specific sounds endemic to particular environments.
- **Sound effects** - Various sounds of objects animals and actions in the scripted scenes are noted.
- **Silence -** Specific moments of silence (actual or relative) are identified in the script.

It is important to develop an analysis key to enable decoding of the analysis parameters on the analysed script without having too much clutter on the text. This can be in colour codes, marking codes or developing a rubric of symbols or initials that can be tagged to the script. Each sound element can be assigned a hue, with different shades or saturations being deployed in the key to represent forms of the element. For example, voice as an element can be divided into various shades to distinguish dialogue, monologue, voice overs and nonverbal vocalizations like screams, gasps, shrieks etc. For example, using colour, we can have it as;

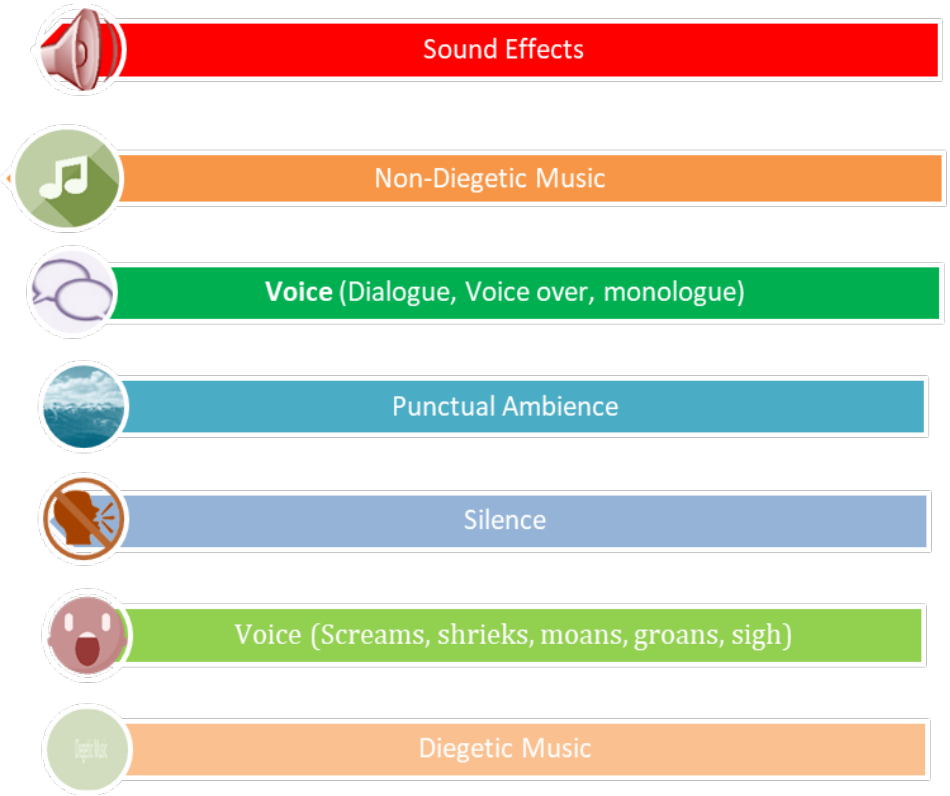

Figure 2: A sample colour coding for different sound element that may be used as a key when analyzing a script.

This is not a strictly standard code but a sample. One can freely select the colour of their choice to create a key. You can use highlighters or underline or strike through to code. This colour coding considers the loudness and sharpness of the sound whose intensity is captured by loud warm colour. This identification, allocation and mapping of sounds using colour is demonstrated in **Figure 3**.

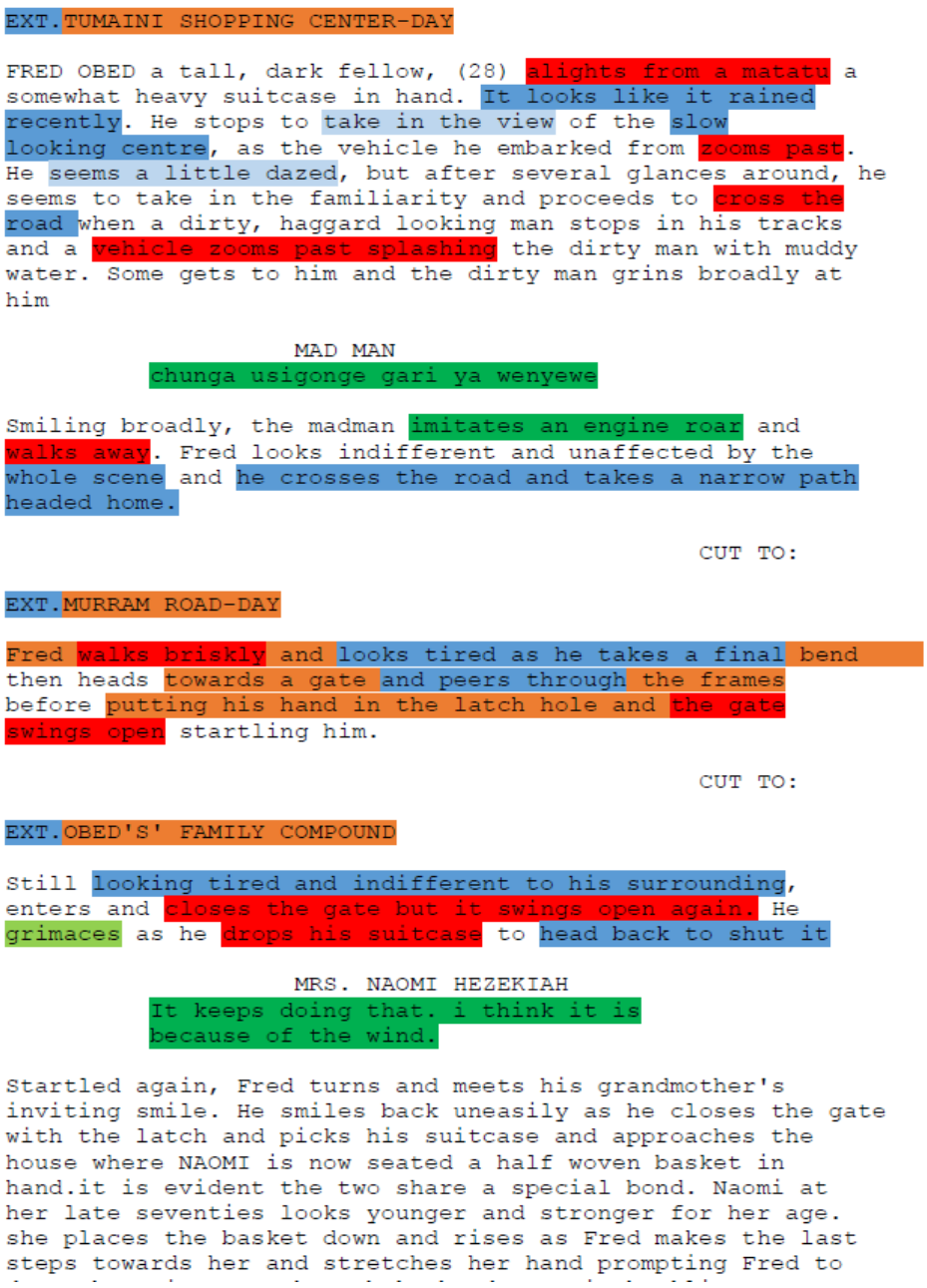

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Figure 3: A sample analyzed script using the color coding.

Following the key in **Figure 2**, it is possible to decode the analysis and write an analysis report. The report format is as indicated in **Figure 4**.

Techniques and technology Analysis

- **Equipment and software:** The analysis and the attendant sound script analysis report, should capture any special equipment necessary for the achievement of particular sounds, depending on scenic requirements and the sound sources. The equipment could include; Microphones, mixers, recorders, effect processors, DAWs, Plugins, music instruments, Sound editing software to be used in creating, recording, processing and reproduction of the sounds.
- **Techniques:** The analysis captures the specific, and necessary technical processes and activities, that should be undertaken to achieve the desired soundtrack. The techniques in general include; recording, Foley, editing, mixing, eequalization, filtering, fading, cutting, synthesis among others.

Properties of sound

- **Sound level** - the script is analyzed to deduce the contextually correct intensity of specific sounds in a scene.
- **Dynamics** - the analysis notes, the range of interaction, and level comparisons between and among sounds, which is actualized by dynamic manipulation including compression and expanding.
- **Frequency -** Frequency is the fundamental tone of the sound, translating to pitch and harmony. Pitch and timbre are important in demoting mood and texture of a scene.
- **Acoustic imaging** - the spatial qualities of the sound e.g. stereo, mono, surround. This is to assist in demoting spatial direction and distance.
- **Resonance and reverb** - The live (spatial) nature of the sounds.
- **Fidelity** – The quality of clear reproduction of specific sounds and the realism thereof, is important to be considered which would help in selecting the tools and techniques to be used in creation and manipulation of sounds.

SOUND SCRIPT ANALYSIS REPORT

NO.	SCENE NO.	SOUND ELEMENT	DESCRIPTION	SOURCE/ RECORDING TECHNIQUE	REMARKS
1.	E.G SCENE 1	SOUND EFFECT	"Dog barking inside the compound"	Wild track	Portable digital recorder needed
2.	"	SOUND EFFECT	"Train hooting"	Library	Online
3.	SCENE 2	MUSIC	"Lingala Music blaring through car stereo"	Library	Release licenses to be sought
4.	"	MUSIC	"melancholic instrumental"	Composition	Record a piano played in minor. Notation to be done with transcription software

Figure 4: This is an example of how the script analysis can be put together in a report that can be used in the next stage of recording. The order and number of columns can vary slightly depending on how specific one wants to be. For instance, a column on paragraph number, and line number, can be included for specificity.

FILM SOUND RECORDING

Sound recording in film consists of storing transduced audio signals on audio archiving playback material such as tapes, disks, films, digital cards, hard disks for later retrieval. To record any sounds, various resources must be present i.e. a sound source, a transducer (microphone) and recording software or storage material. "Recording is a technique that spans from the pre-production to the post-production phase as different elements of sound are created for the film." This include recording of ambiences and 'room tones' as 'wild tracks' in the selected filming locations, the recording of dialogue and other sounds during principal photography, the recording of Foley effects, dialogue replacements, and musical scores.

There are two main ways of recording sound.

- **Sound picture recording** which represents the "complete picture" or a full audiovisual story encompassing **synchronized sound and images.**
- **Selective sound recording** which is capturing of a singular element of sound e.g. a sound effect like Gunshot, footsteps or a location buzz track in an **unsynchronized recording.**

As a technique of sound design, recording is not just the simple task of taking the artists voices with a microphone into a recorder, but an intricate process that also involves the following;

- **Equipment selection:** selecting the right equipment. Ranging from microphones, mixing consoles, audio cables and recorders. It also encompasses identifying the best suited equipment among the many varieties including microphone transducers, polar patterns and physical designs DAW plugins; powering options and storage materials.
- **Techniques:** How the equipment is utilized in an actual recording situation. The techniques refer to ways and styles deploying the recording devices including **miking** (microphone placement) and technical settings including, sound level settings, recording metadata settings, recording format and imaging settings and output routing settings in the various equipment being used for the recording.
- **Sound recording setups:** These refer to the connections and combinations of the various sound equipment and accessories, following a particular signal chain. Typical technical recording setups in film production can vary from;

FIELD RECORDING SETUPS

Field recording sound setups in Kenyan film sets range from Simple, and fully kitted, depending on budgets and the format of recording (separate or synchronized recording). The equipment composition could be as lean as one shot gun microphone or video mic, on a fish-pole/boom or mounted on the camera mic holder or cold shoe mount as shown in **figure 5**.

SIMPLE/DIRECT CAMCORDER SOUND RECORDING SETUP

Figure 4: A simple setup of a shotgun microphone connected directly to a professional video camcorder, DSLR or cinema camera via an XLR or TRS cable.

This setup is popular within Electronic News Gathering, events coverage and low budget "run and gun" documentary and feature film setups and VLOGS. The setup allows for sound recording directly into the camera which has the advantage of working with a small crew. The downside of this setup is that quality control of the sound and the ability to perform field mixing from various sources is diminished. This is because, the connections depend with the number and type of input slots available on the camera body. Most camcorders host two built-in balanced input slots where one can plug a professional microphone, and that can provide phantom power for a condenser microphone, mostly used as a shotgun or boom microphone. With the influx of DSLRs that can record quality images the setup has slightly changed and simplified as shown in **figure 5**.

A sound recording setup can also be complex and fully kitted with shot gun microphones on a fish-pole/boom/shotgun mounts, lavaliere microphones, field mixer, field multitrack recorder, headphones, wireless monitoring transmitters and portable DAW setups.

This is a relatively expensive setup and in the Kenyan filmmaking industry mostly found in medium and high budget sets in the production of short films, feature films, television drama series and Television commercials by local and international crews. This is shown in **figure 5**.

COMPLEX SOUND RECORDING SETUP

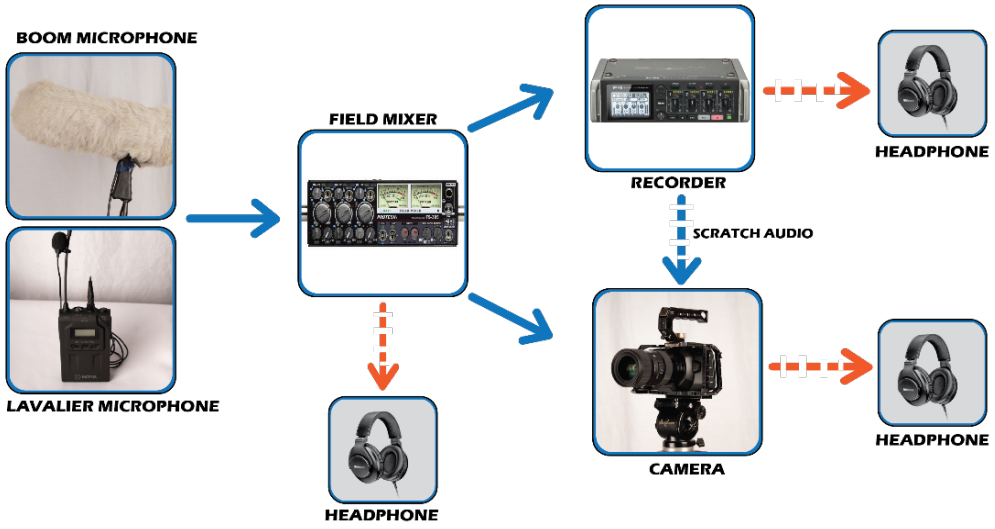

Figure 5: A complex setup of a separate or hybrid sound recording system.

This system includes a setup of microphones connected to a mixer that is connected to a separate audio recorder that can send an output signal to a professional camcorder or Cinema camera.

In Kenya, this setup is popular within Electronic Film production and would be found in documentary, Television drama, Television commercials and feature film sets. It mostly requires more than one member of the sound crew to handle miking, mixing and recording. As the diagram indicates, monitoring can be done at three levels;

i. **At the mixing levels whereby headphones are connected to the mixer for listening to the raw sources and the mixed output.**

ii. At the recording stage where the mixed audio is monitored as it is being recorded.

iii. Through the camera headphone output or speaker to monitor the audio input levels in the camera.

iv. A wireless output, mostly for the director to monitor the sound as he/she directs the scenes.

STUDIO SOUND RECORDING SETUP

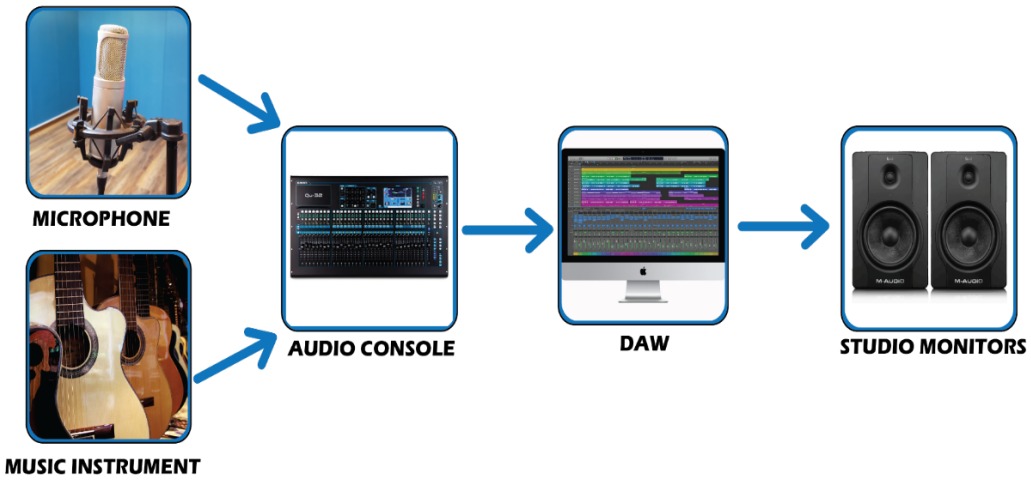

Figure 6: A sound studio recording signal chain setup.

Figure 6 shows a studio setup that indicates studio microphones and musical instruments connected to a mixer/audio interface that is connected to a computer installed with a DAW.

In Kenya, this setup is popular within music production but is also used by film makers in Television commercials and feature film. In recording ADR, Foley sounds, narration, (VO) and music scoring. The setup varies in complexity depending on the budget and technical needs of the studio. For instance, the mixing console can be substituted with a soundcard/ audio interface that plugs into the computer via USB illustrated in Figure 7.

Figure 7: audio interface or soundcard that is used in the studio to connect analogue sound inputs to a DAW.

Besides recording, the studio space and equipment is also very important in performing tasks in sound processing, specifically in sound editing and mixing. The hardware,

including the sound and visual monitors, the sound processors, and the Digital audio workstation software, are adequate tools in manipulation of audio.

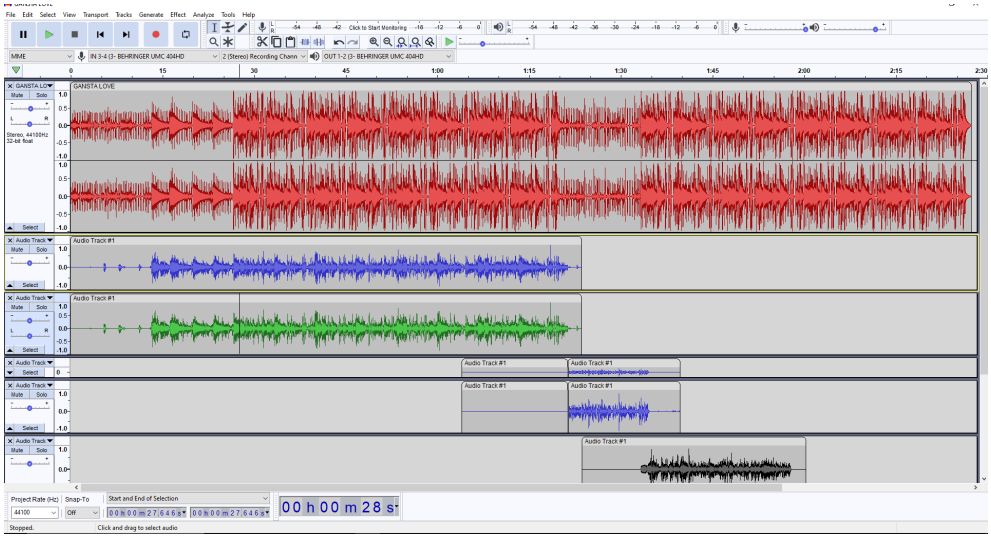

Figure 8: A screenshot of a DAW interface with recorded stems.

PRODUCTION SOUND REPORT

During recording the production sound mixer or sound recordist needs to create notes on the recorded sound either in the field or studio. The notes are collated together into a **production sound report.** The report details the specifics of each recorded take in each scene and labelling it as a good or faulty take. In the report, the labels can be **Print** (good take), **Hold** (useable take with some issues), and **Discard** (Not/minimally useable)

Sound reports are helpful in keeping an accurate history of the recorded sounds and the quality of each clip, which is very useful for the post production sound crew. According to sound reports should include a ***Header*** with project data and a ***tabulated sheet*** for entering key information about the recorded sound. This is demonstrated in **Figure 9**.

SOUND REPORT

Project Title..... Recording Date.....

Location..... Production Sound Mixer.....

Recorder Model..... Track Format..... Ref. Tone level.....

Bit Depth..... Sample Rate.....Timecode.....

Scene#	Take#	File Name	Quality			Track	Remarks
			Print	Hold	Discard		

Figure 9: A specimen production sound report

This form can be generated and filled manually or can be generated automatically in a sound recorder that supports digital metadata processing. The metadata including file names and the remarks on each clip can be auto-generated from factory or customised presets.

SOUND SPOTTING

Spotting for sound, is a stage of the audio post-production process which involves the sound designer and his/her crew watching the film, then identifying and creating "Ghost Regions" (where "missing" sounds need to be added). The "ghost regions" are then loaded on a DAW timeline for addition of the "missing" sounds. Sound spotting takes place after the picture editing is complete. This is also a very important process in designing sound for animation which is inherently silent. It is important to note that sound spotting comes after the picture has been recorded and edited.

THE PROCESS OF SOUND SPOTTING

Analysis preview. The sound designer conducts a preview of the edited film. The preview like script analysis follows the narrative lies and reviews technical issues notable in the edited film. Taking note of;

- Challenges with dialogue that require to be fixed.
- Sequences that need addition of sound effects.
- Scenes that need background sounds or ambiences added.
- Sequences that require music added.
- Scenes that need the removal or enhancement of a particular element of sound.

RUBRICS AND CODING IN SPOTTING

To undertake efficiently there is need to create a coding rubric for the "ghost regions" to capture particular information about the sound that will "liven" the regions.
The sound designer can either use color codes or a short hand rubric e.g.

- **"Bkd music"** (Music in the background),
- **"Gunshot SFX"** (sound effect of a gunshot)
- **"WTK market place"** (for a wild track sound of a market place)

After the analysis, a report is written detailing the specifics of the sounds and proposing ways of achieving the design requirements. The format and content is as indicated in **Figure 10**.

SOUND SPOTTING REPORT				
SCENE #	TIMECODE	SOUND	DESCRIPTION	REMARKS
SCENE 1	00:10-00:15	SFX	"Dog barking inside the compound"	Wild track to be recorded with portable digital recorder.
"	00:16-00:19	AMBIENCE	Market place	WTK recording
SCENE 2	00:20-00:35	BCKGD MUSIC	"Lingala Music blaring through car stereo"	Release licenses to be sought for library music
SCENE 3	00:45-00:59	MUSIC	"melancholic instrumental"	To record a piano in minor. Notation to be done with transcription software

Figure 10: A sample sound spotting report

The order and number of columns can vary slightly depending on how specific one wants to be. For instance, a column on paragraph number, and line number, can be included for specificity. Also timecode can be included if the report is as a result of spotting.

SOUND EDITING

Sound editing, like image editing, involves a rigorous process of selecting, processing, arranging and logging sounds, with its own parameters, also defined by Viers (2008, p. 126) as the process of trimming, cutting, and preparing audio. Prince (1997) enumerates the editing techniques as sound dissolves, sound cuts, sound fades and sound perspectives.

- **Sound cuts** refers to splitting and directly joining of sound clips together and combining them into a coherent montage
- **Sound fades** denote the increase and decrease in amplitude (volume) of the sounds on beginnings and ends of particular sound clips or sequences;
- **Sound dissolves/crossfades** like the image dissolves, refer to the smooth transitions between disparate sound clips/sequences.

- S**ound perspectives** refer to the audio processing to assign directionality to particular sounds, by panning to particular speakers depending on the audio system be it monaural, stereophonic, quadraphonic or surround systems.

Sound editing also brings together different sound elements that have been recorded. For instance, on the editing bench, dialogue, sound effects, ambience and music are blended, contrasted and in some sequences non-diegetic silence is created.

Reasons Why We Edit Sound

i. To fix recording faults/mistakes committed during recording. The recording faults/ mistakes that occasion sound editing include;
   - Very high levels of background noise
   - No sound recorded at all/muted tracks
   - Distortion and sound clipping in recorded sound
   - Very low level recording/ low signal: Noise ratio
   - Lack of image and sound synchronization

ii. To create continuity between shots, scenes and sequences.

iii. To enhance emotional tone in a scene.

iv. To match or enhance location acoustics to build an aural diegetic setting.

v. To fill "ghost areas" in the movie sequence.

Tools and Techniques of Editing Sound

i. **Noise reduction** refers to the noise removal technique from a sound signal. The voices may include white noise, Background sounds, Hums, clicks and pops. Some of the tools used in the process include; Noise reduction tool, noise-gate, click removal, Dehummer and so on.

ii. **Equalization** is the manipulation, boosting, and reduction of sound frequencies in a sound signal. The tools of equalization include; Graphic EQ, Parametric EQ and filters such as High Pass Filter **(HPF),** Low Pass Filter **(LPF)** and Notch Filter.

iii. **Automated Dialogue Replacement (ADR)** is the process of Re-recording and replacing dialogue clips (Lines, Phrases and Words) that are faulty. The faults may include; Inaudibility of the dialogue, very loud background noise, Distortion and clipping, or corrupted files. ADR is also deployed as a process of dubbing the film dialogues to different languages. The ADR process involves the actors re-recording performed dialogues in synch with the images, capturing the emotional texture of the dialogue.

iv. **Gain/Amplification** is the process of increasing the sound level/amplitude (Input and Output) in decibels (dB) to enhance audibility or balance with other sound sources. The amplification tools include; gain, amplification and normalization. **Attenuation/PAD** on the other hand is the reduction of the sound signal levels by a given number of decibels at the input level in order to balance with other sound sources.

v. **Sound cutting** involves; time shifting/editing/trimming of the sound clips to a desired length, and removing any extra audio information from the clip. Cutting is also important in ensuring flow of conversation in the scene (critical listening and fine-cutting) and fine-tuning pauses and transitions.

SOUND MIXING

Sound mixing or re-recording, is the process of combining and blending numerous sounds into a particular number of sound channels, and manipulating the source sound signals, amplitude, frequency, dynamics and panoramic characteristics. Mixing can be done on mixing consoles or digital audio workstations in studio or in the field where the recording involves multiple sound sources, hence separate recording inputs with a field mixer. The essence of sound mixing is to build a soundtrack that incorporates different sound elements without creating a din that is unintelligible.

SOUND MIXING TECHNIQUES

TONE EMBELLISHMENT

This encompasses the enhancement of audio signals. Improving aural quality involves the process of manipulating elements of frequency, and spatial acoustic qualities. To embellish the timbre of the sounds, tools such as pitch shaping and modulation and use of reverb to create "liveliness" in sound clips.

Figure 11: A DAW graphic equalizer effect plugin.

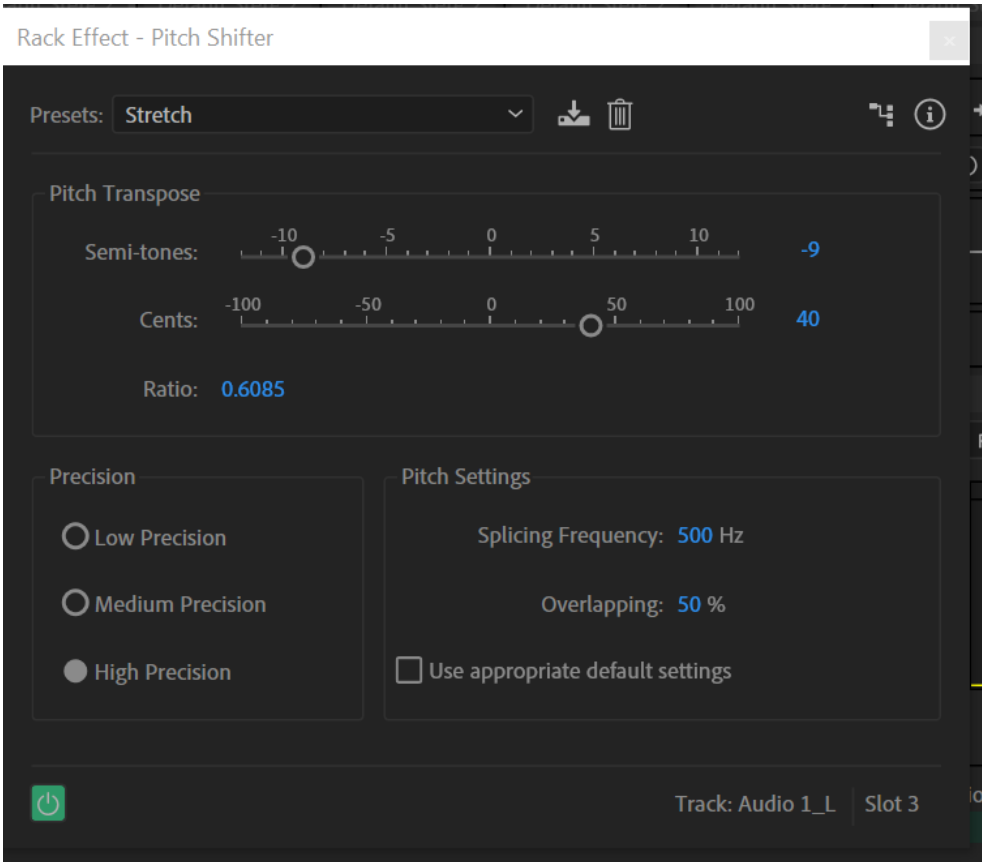

Figure 12: A DAW Pitch Shifter effect plugin.

Figure 13: A DAW reverb effect control plugin.

SOUND IMAGING DESIGN

Sound Spatial imaging refers to the placement or positioning of the sound signal to different sound channels or speakers in a multichannel sound system. Panning and fading are the techniques used to manipulate the panoramic characteristics of particular sounds, in order to create an illusion of **direction**, **distance**, and **speed** of an object on screen or off-screen. For instance, a vehicle driving from the left to the right side of the screen

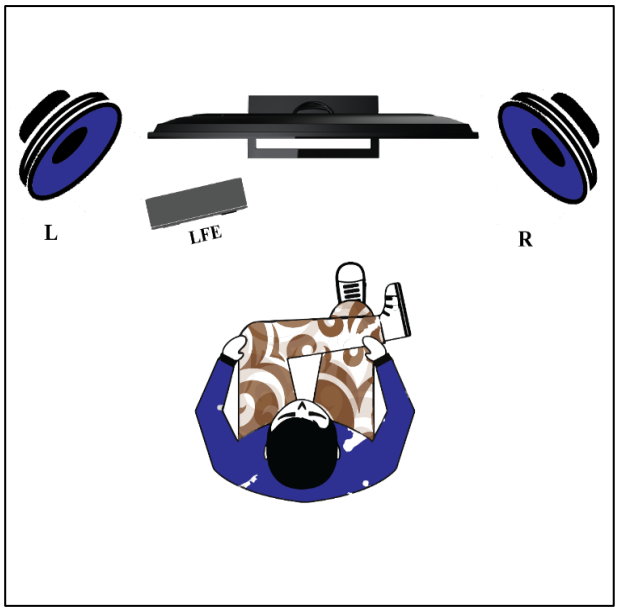

Figure 14: A two-channel (stereophonic) sound system simulation

is panned from the left speaker, through the center speaker and to the right speaker. Sound is faded in and out denoting the distance of the vehicle and the time taken to fade indicates how fast the vehicle is driven away. Panning can take place in either stereophonic (Left – Right or Left – Centre – Right) or surround panoramic tools, including panoramic potentiometers, digital panning plugins, DAW track envelopes etc.

The channels in the stereo system mostly referred to as the 2.1 system, are as follows; **FR –** Front Right, **FL -** Front Left, **LFE –** Low Frequency Effect (Subwoofer)

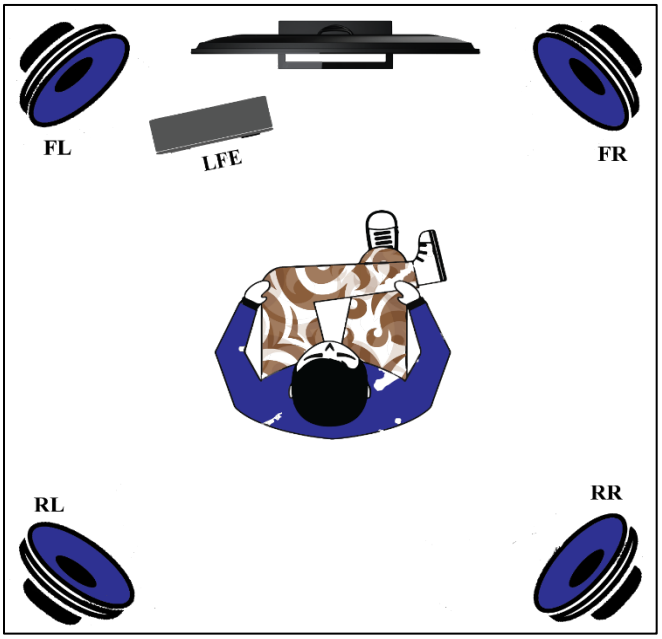

Figure 15: A simulation of a 5.1 surround sound system

The channels in the 5.1 surround system are as follows; **FR –** Front Right, **FL -** Front Left, **RR -** Rear Right, **RL -** Rear Left, **C -** Center **LFE –** Low Frequency Effect (Subwoofer)

SOUND BALANCING

Balancing is setting each sound channel or track to its interactive level within the mass of other sound sources. Balancing largely follows the principle of hierarchy. To achieve this, sound mixing employs various tools and techniques including fading, gaining, trimming, attenuation and envelope automation. using sliding faders or knob potentiometers to increase or decrease the level of different sounds, this helps in highlighting the dominance of particular sound elements to enhance the meaning attached to those sounds in the story.

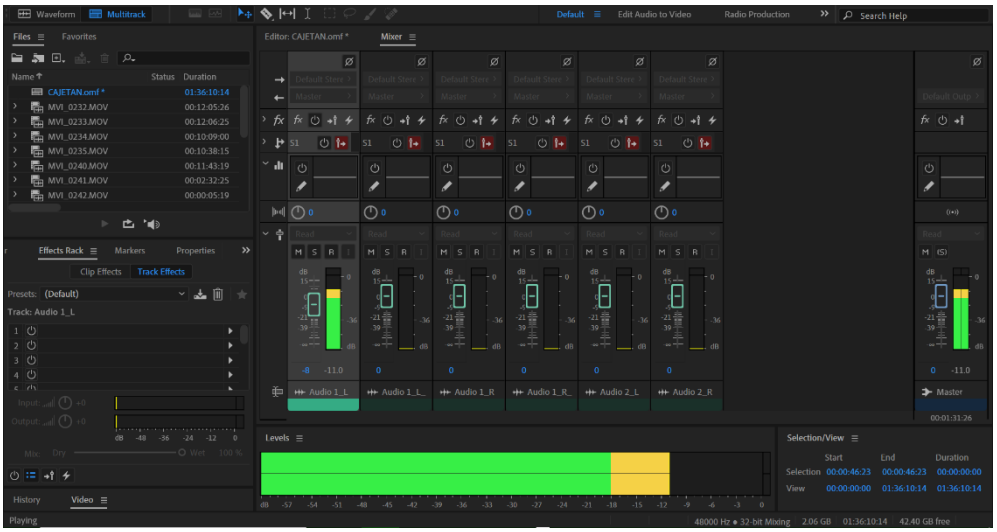

Figure 17: A sound mixer view in a DAW showing level faders that are used for balancing the sound tracks.

Therefore, balancing is vital in creating coherence in the aural storytelling. The application of sound balancing involves using balanced ambience to foster continuity balancing sound levels and manipulating the transitions from scene to scene.

SOUND MASKING AND REPLACEMENT

Sound masking and replacement involves using alternative sound elements to create a 'sound bed' or 'background noise' for a specific signal track. For instance, if the dialogue track has noise in mixing. A background music score or atmos can be used as a bed to

mask the unintelligible background noise. Sound masking can also be purposed towards filling ghost areas in a movie by using voice over, music or ambience.

DYNAMICS CONTROL

This is an important technique that involves the manipulation of the dynamic range of the track. Dynamic range is the scope between the noise floor (threshold of hearing) and the signal peak (threshold of pain-) that is measured in decibels. This includes the dynamic range which is actuated by using a compressor, expander and noise gate.

DESIGN SYNCHRONIZATION

Design synchronization is the final re-recording and combination of the processed sound with the locked picture. The soundtrack at this stage is matched with the images capturing the time sync and emotional nuances required. The design is complete at this point and the track is mastered as per the broadcast or theatre standards for preview and premier. The soundtrack may at this point be mastered as an album for sale separately. The specific tracks are then mastered for audio streaming and broadcast.

CONCLUSION

The techniques of sound design as elucidated in the foregoing discourse denote the process of creating designed sound for a film. However, notwithstanding the details fleshed out of the three techniques, it would fall short of fact, to assert that they constitute the whole gamut of the process of sound design as they lack the vital planning and the final dubbing phases of sound design. The process of sound design therefore begins before recording and ends well after the sound is mixed.

SOUND DESIGN PRACTICE IN KENYAN CINEMA

Development of cinema in technology and aesthetics can be viewed as a product of invention, innovation, and diffusion.[11] Invention is the creation and unveiling of new technology in terms of equipment, innovation on the other hand includes experiments and discoveries of new techniques in the creation of motion pictures and diffusion is the rapid and far-reaching spread of the inventions, innovations and their products. The portrait of Kenyan cinema in retrospect would in view of the sound design process be a product of diffusion but the 'product' would staunchly remain a formulation of 'innovation'. The films that dot the Kenyan cinematic scene reflect the dexterity and creativity of the personnel and the reverberance of the Kenyan sonic spaces.

The genesis of Kenyan cinema is dated in the early decades of the 20th century, with the earliest Kenyan films identified as documentaries and travelogues detailing the adventures of famous explorers and game hunters in African hinterlands, exposing the flora and fauna. Early films in Kenya included instructional videos for Africans. Such instructional films, constituted tools of civilizing the backward Africans training them on importance of washing hands after visiting the toilet and before eating (Simiyu, 2010). The films, ranged from silent films to sound films that were screened using mobile cinema units.

[11] Crafton (1997)

Kenyan films, regarded so, by virtue of their creation by Kenyans, involving Kenyan crew and cast for the Kenyan market, date around the 1960s, characterized by the making of *Mlevi* and *Mrembo* by Ragbil Singh and Kuljit Pal, featuring actors such as Athmani Kipanga and Peter Lukoye popularly known as Tamaa Bin Tamaa (Diang'a, 2013). Amidst numerous films by foreign filmmakers like Adam Root, Joy Adams and the Oscar winning Sydney Pollack feature *Out of Africa* (1985) a few Kenyan films among them *Rise and Fall of Idi Amin* by Pal Singh (1981) and Sao Gamba's 1986 film *Kolor Mask* began cementing the creative niche of indigenous Kenyans in filmmaking through the first three decades of independent Kenya.

The 1990s saw numerous Kenyan productions by Kenyan directors enter the market. This helped in establishing a sector in the creative industry that promised to be vibrant. Films like, inter-alia, *Baisikol* by Ingolo wa Keya (1995), *Saikati* by Anne Mungai (1992), *The Married Bachelor* by Ingolo wa Keya, *Project Daddy*, *Dangerous Affairs* by Judy Kibinge, and *Babu's Babies* by Christine Bala, began setting pace in the Kenyan films industry for the postmillennial era in which many quality productions have been made. Some of the films include, *Benta* by Cajetan Boy, *Formula X* by Steve Ominde (2008), *Killer Necklace* by Judy Kibinge (2008), *From a Whisper* by Wanuri Kahiu (2009), *Nairobi Half Life* by Tosh Gitonga (2012), *House of Lungula* by Alex Konstantaras (2013), *Forty Sticks* (2020), *Supamodo* ( ) *Veve* ( ) by Simon Mukali*, Subira* (2019) by Sippy Chadha*, Mission to Rescue* (2021) by Gilbert Lukalia*, Lost in Time*(2019) by Peter Kawa*, Family Meeting* (2019) and *Kizingo*( ) by Simiyu Barasa.

As the Kenyan films grew in number, the quality of the audio-visual element came under scrutiny as film festivals and film awards came up, joining the blossoming sector. Kenya International Film Festival (KIFF), Kalasha, WIFA, KISIMA awards among others, provided competitive and critical forums in which filmmakers not only received feedback from their audience through open plenary discussions, but also got their films evaluated and adjudicated, some winning awards and some falling short. Among the myriad of awards presented sound aspects, like the overall soundtrack encoded Best Sound, Best Sound Editing and Best Sound Mixing were slotted for separate awards.

Some of the films adjudged for merit in Sound in the Kalasha Awards include:

AWARD WON	FORUM	FILM TITLE	YEAR
Best Sound Designer	Kalasha	*House of Secrets*	2021
Best Original Score	Kalasha	*Crossroads*	2021
Best Sound Designer	Kalasha	*Karanja Kiarie*	2019
Best Original Score	Kalasha	*What's On Your Mind - Cathy Matete*	2019
Best Sound Designer	Kalasha	*Disconnect – Eric Musyoka*	2018
Best Original Score	Kalasha	*World Tofauti - Hart the band*	2018
Best Sound Design	Kalasha	*Kati Kati – Florian Holzner*	2017
Best Sound Designer	Kalasha	*Before and After*	2015
Best Original Score	Kalasha	*Hear Me Move*	2015

Figure 18: winners in Kalasha Awards for achievements in film sound

To understand the development of the soundtrack designs in Kenyan film narratives, we must retrace our steps to where it all began. As discussed earlier in this chapter, Kenyan filmmaking processes are results of diffusion from established industries in Europe and America. For instance, filming equipment, that mostly included blimped 35mm film cameras, super 8mm and 16mm film cameras, magnetic tape audio recorders like the ¼ inch Nagra tape recorder, microphones, lights and analogue film and tape editing benches were imported into the country and personnel to use the equipment were trained by foreigners[i]. This stretched even into the premier film training institute in Kenya, the Kenya institute of Mass Communication, established in 1968, with a film department being started in 1975, a product of collaboration between the Kenyan government and the German organization Friedrich Ebert Stiftung [12]

The film training courses, tailored on the main departments of filmmaking included; production training that trained directors and producers; camera training to train camera persons and lighting operators; Editing that trained film editors and sound training

[12] (Nguru, 1982).

departments that trained film sound personnel. Through the years to date, albeit being one of the many institutions that train filmmakers, KIMC continues to train its students in the aforementioned courses with new additions like animation. The factor that breaks the narrative of training constancy in the courses is the ever-changing technology that transforms with it, the techniques of film making.

When Kenyans began filming, the available technology was in the form of 16mm, 8mm and 35mm film cameras, and magnetic tape field and studio recorders, a technology that mostly demanded out of sync recording and synchronization of picture and audio at the editing stage. The level of involvement of a soundman in involved recording sound in the field, and transferring the tape to 16mm film. Once the sound and picture had been edited and they needed music and sound effects, the soundperson sourced from the library and transferred to 16mm. Then the sounds were handed to the sound editor who now had several soundtracks. The mixed tracks including sounds recorded in the field, mixed with sound effects and music were referred to as an **international track** which could be taken anywhere in the world.

> The mixing process therefore, began with an I.T (international track) as the first tracks, which had the picture and synchronized sounds. We used to call it I.T1. Later on we could have an I.T2, which had synchronized picture and sound plus sound effects. The I.Ts would be merged together until there was the final master mix, which came last. The soundperson was involved in every stage to ensure quality from recording to post-production.
>
> ***John Wambulwa***

The next phase of technology was video recording, in relatively smaller and lighter equipment like the Electronic News Gathering (ENG) cameras (video camcorder) that recorded both sound and picture in magnetic tapes. The portability and the infusion of sound inputs and controls on the camera body was received with enthusiasm by producers and cameramen and with petrified anxiety by sound personnel, who felt that the autonomy and creative space of the sound recordists had been irrevocably breached.

Video technology though proved to be more malleable in terms of creating and manipulating the film soundtrack. Synchronized sound picture recording enabled the sound persons to exert their creative energy on bolstering the film soundtrack by adding other sound elements, as the task of synchronizing was no longer there. However, as true as the foreboding the arrival of video cameras brought to soundmen, sound recording was subtly relegated, and the relevant stature of the soundman threatened. The soundperson who had earlier on enjoyed a lot of freedom in creating the soundtrack was not having the same chance, since in the field the first microphone that came in, was attached to the camera and the cameras had no facility to support an external microphone. So, the recording of sound was not very good due to microphone placement issues.

> When the camcorder arrived in Kenya, anybody could become a soundman. The belief was, so long as one could see the deflection of sound (in the input meters) then they could handle a recording. That is when we had (albeit in error) anybody, (regardless of expertise) claiming to be a soundman.
>
> **John Wambulwa**

The result of the crowned cameraman and the drowned soundman was poorly recorded audio that ultimately demanded the return of the soundman on set, though not to the above the line position they previously enjoyed. However, Kamau[13] expresses hope, noting that there was a time sound recording was done by simply plugging the boom microphone to the camera and shooting. He adds that producers have realized there is a need to have a field mixer. Recording practice has currently adopted separate sound and picture recording and there is more emphasis in postproduction sound, which was previously left to the mercy of picture editors. So, now a sound editor is sliding back to his space.

Digital audio recording even after the perils of the video technology brought forth more creative space for the sound personnel in Kenyan film, especially in postproduction. With the availability of various Digital Audio workstations and recorders added

[13] This was said in an interview with Kamicha Kamau is an experienced Kenyan recording sound mixer. The interview conducted on July 13, 2015 in Nairobi.

flexibility in the process of audio creation. Recorders like zoom H4N, H6, H2, DAT recorders, F4, F8, Roland R44, Sound devices 664, mix pre3, taslam Dr60, Dr70, recording on digital discs and memory sticks and flashcards made it easy to manipulate the audio on various D.A.Ws like cool Edit, soundtrack pro, reason, Cubase, Adobe sound booth, pro-tools and so on, transcending the sound practices a notch close to the idea of sound design. Digital audio technology has empowered the sound recordists to explore techniques of sound design, for better aural implementation of a film script, while maintaining pristine quality of recorded sound. In addition, Digital sound recording equipment offers the flexibility of simulating sound studio set-ups even in the field.

THE KENYAN FILM SOUND CREW

Production sound mixer/ Sound recordist

- Also known as location sound recordist /engineer he/she is responsible for the recording of all sounds during principal photography
- To achieve this the sound mixer plays the following roles
- Supervises and guides the recording crew on set including the boom operator and sound assistants
- Interprets the sound designers' vision into recording
- Prepares a sound recording /mixing report
- Performs real-time mixing of different sound sources on set
- Is responsible for the selection, deployment, and placement of the field recording equipment

Sound designer

- He is the overall team leader that creates the aural vision of the film in consultation with the director
- The sound designer is involved in carrying out the following tasks
- Scripts analysis and creating an aural blueprint /template that determines the recording
- Supervising recording of all sounds
- Working of the final master mix

Boom operator/ swinger

- The boom operator is charged with the task of positioning the microphone mounted on a boom or fish-pole, and radio mics during real-time recording including following actors' movements as an assistant to the sound recordist the boom operator also plays the role of monitoring equipment maintenance and set up
- A boom operator has to work closely with camera crew to ensure there is no interference with framing and camera movement

Sound editor

- The sound editor is responsible for the post production assembly and manipulation of the recorded sounds
- The sound editor under the guidance of the sound designer selects and deploys various audio tracks and puts them together in a DAW for the final sound track
- He/she manipulates each sound element in the assembly (voice, music, ambience, SFX) separately and mixes them together to create a coherent and meaningful track in synch with the images

CONCLUSION

Kenyan film soundtracks have been, and trudge on as products of continuous innovation. Aside from dialogue, creative deployment of sound effects and music is notable in Kenyan productions. Supported by a strong music sector that boasts of hundreds of music production studios that have set pace in East Africa since the 1950s, Kenyan films offer rich and tasteful soundtracks that augment the storytelling process in the productions. The Sound and music recording houses provided and added to the filmmakers a range of sound effects not in their libraries and a range of music genres that fit and expand in their film narratives, importing their intrinsic communicative dispositions and creating meaningful sequences in their interaction with the visual and narrative film elements. The designed soundtracks in contemporary Kenyan films continue to exhibit the wealth of sounds in Kenya and expand the space of aural storytelling in the motion pictures.

PART I QUIZ

1. Define sound design
2. Describe the process of sound design
3. Explain the following techniques of sound design
    a. Script Analysis
    b. Recording
    c. Editing
    d. Mixing
    e. Synchronization
4. Explain the parameters of sound script Analysis
5. Analyse a film script of your choice and create a sound breakdown report
6. What components are important to include in the script breakdown report?
7. Discuss the codes of sound design and how you would apply them to achieve the goals of designing sound for film
8. Explain the process of sound design
9. A sound designer and fashion designer ask similar questions to create their products. Evaluate this statement in using the fundamental concepts of sound design
10. Describe the sound studio hardware and their specific functions in the process of sound design

PART I PRACTICAL EXERCISES

Produce a short film or a slide show based on a storyline and genre of your choice for your project. Undertake the following sound design activities as part of the task;

a. Analyse the script
b. Record sounds using different techniques
c. Compose relevant music
d. Edit and mix the sounds into a coherent soundtrack