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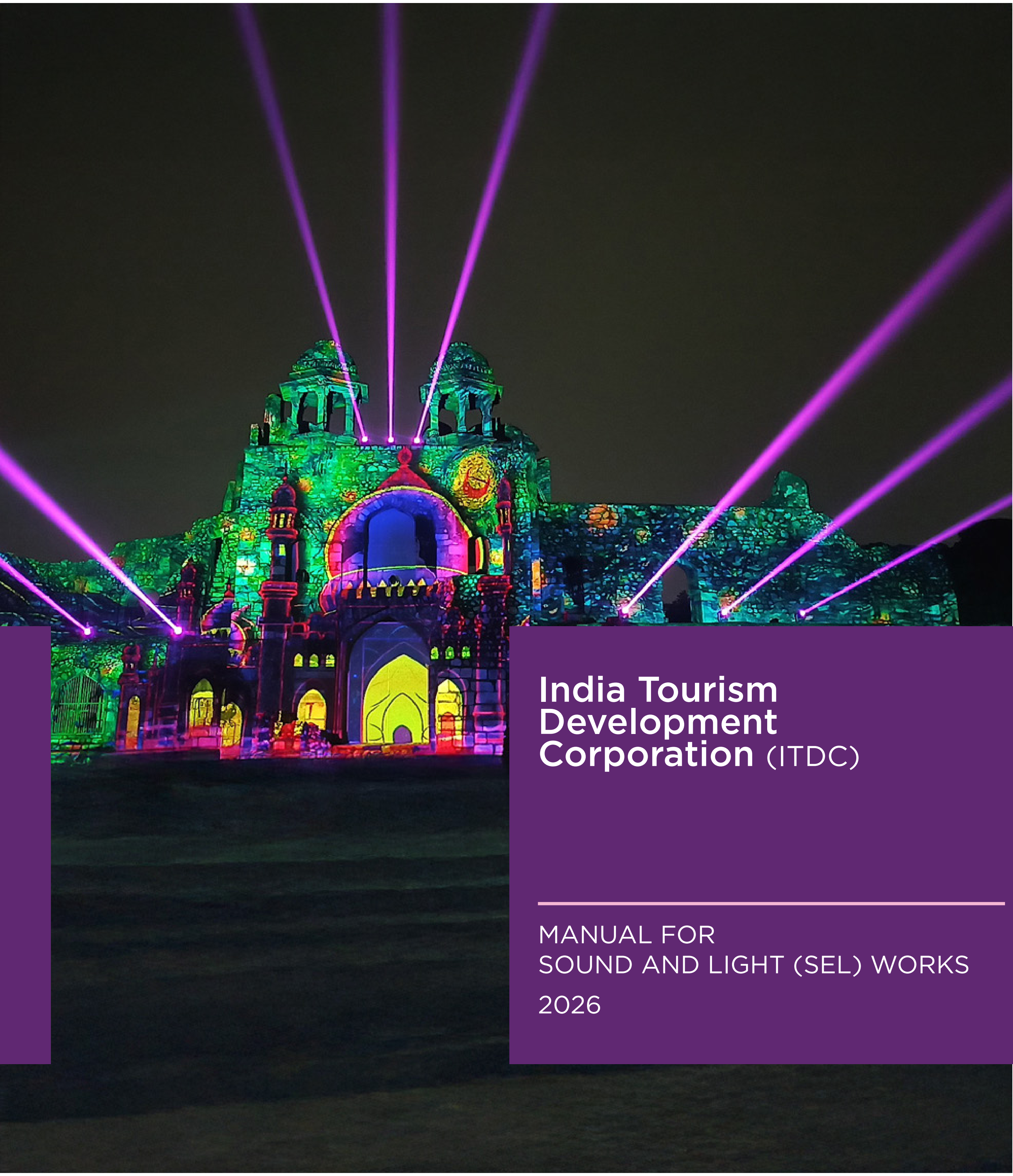

India Tourism Development Corporation (ITDC)

MANUAL FOR
SOUND AND LIGHT (SEL) WORKS
2026

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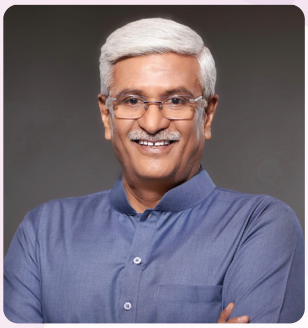
MANUAL FOR
SOUND AND LIGHT (SEL)
WORKS

2026

गजेंद्र सिंह शेखावत
Gajendra Singh Shekhawat

सत्यमेव जयते

संस्कृति मंत्री एवं पर्यटन मंत्री
भारत सरकार
Minister of Culture and
Minister of Tourism
Government of India



It gives me immense pleasure to commend ITDC on the release of the **ITDC Manual of Sound and Light Works 2026** on the auspicious occasion of its 60th anniversary. For many years, ITDC has been at the forefront of breathing new life into our heritage monuments through world-class sound and lighting experiences that not only entertain but also educate and inspire.

The heritage edifices of our nation deserve nothing less than cutting-edge technology combined with sensitive storytelling that respects their rich cultural significance. This manual is an important milestone that reflects the rapid advancements in technology and project practices that have revolutionized this field. The integration of everything from scripting and digital content creation to technical advisory and tender specifications demonstrates ITDC's commitment to quality, innovation, and accountability.

I am confident that this comprehensive resource will greatly support capacity building within ITDC and serve as an invaluable reference for central government organizations, Archaeological Survey of India (ASI), State Tourism boards, and other private organizations involved in heritage Sound and Light Works.

I congratulate all those involved in this important endeavor and reaffirm the Ministry's continued support to promote excellence in preserving and showcasing our cultural heritage using modern techniques.

I am confident that the **ITDC Sound and Light Works 2026** manual will empower stakeholders to transform heritage sites of our country into vibrant, living theatres of history ensuring that the saga of India continues to shine for generations to come.

Jai Hind!

(Gajendra Singh Shekhawat)

सुरेश गोपी
Suresh Gopi

सत्यमेव जयते

पर्यटन, पेट्रोलियम एवं
प्राकृतिक गैस राज्य मंत्री
भारत सरकार
Minister of State for Tourism
Petroleum and Natural Gas
Government of India

It is with great pleasure that I offer my commendation to the team for producing the comprehensive ITDC Manual, of **Sound and Light Works, 2026,** which serves as a technical and creative guide to ensure the highest standards of safety, aesthetic integrity, and historical accuracy.

India's journey toward becoming a Viksit Bharat by 2047 is deeply rooted in our commitment to preserving our glorious past. Our monuments and heritage sites are not just silent stone structures; they are living testaments to our civilization's values, courage, and creative spirit. It is our effort to make our history more accessible and engrossing for the new generation.

In an era of immersive and advanced technologies, Sound and Light (SEL) shows have emerged as a powerful infrastructure bridging our glorious past and the modern-day exploration. By blending cutting-edge projection mapping, laser technology, synchronized audio, evocative storytelling, and high-resolution immersive systems, these shows transform historic sites into living chronicles.

The ITDC Sound and Light Works Manual 2026 serves as a comprehensive guide for implementing these shows with technical precision and excellence. This manual is a crucial step towards standardizing fineness in the execution and maintenance of such projects, while aligning with our broader mission to modernize infrastructure, empower communities, and enhance visitors' experiences.

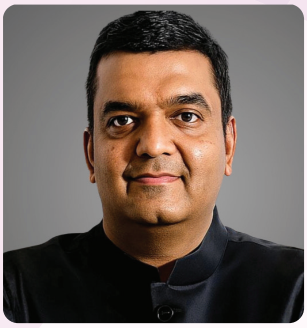
I am confident that this manual will serve as a helpful resource for officials and stakeholders in creating and providing a world-class experience that celebrates the spirit of Viksit Bharat.

(Suresh Gopi)

डॉ. श्रीवत्स कृष्ण, भा.प्र.से.
Dr. Srivatsa Krishna, IAS

सत्यमेव जयते

सचिव
भारत सरकार
पर्यटन मंत्रालय
Secretary
Government of India
Ministry of Tourism



I am delighted to extend my congratulations to India Tourism Development Corporation (ITDC) on the release of the **"ITDC Manual of Sound and Light Works 2026",** coinciding with the auspicious occasion of its 60th anniversary.

Within India's vibrant tourism landscape, as epitomized by the iconic 'Incredible India' campaign launched in 2002, sound and light shows play a pivotal role in showcasing our rich cultural heritage and diverse historical monuments to global audiences. This manual advances these efforts by integrating cutting-edge technologies in digital content creation, projection, audio engineering, and infrastructure, thereby enhancing immersive experiences at key heritage sites such as Khajuraho Temples and Golconda Fort.

ITDC's pioneering contributions, including mounting sound and light programs nationwide, align seamlessly with Incredible India 2.0's thematic focus on sustainable and experiential tourism, fostering greater visitor engagement and positioning India as a premier cultural destination. This comprehensive, user-friendly resource will serve as an indispensable guide, elevating heritage presentations across the country and supporting our national tourism strategy.

(Dr. Srivatsa Krishna)
02.02.2026

मुग्धा सिन्हा, भा.प्र.से.
Mugdha Sinha, IAS

प्रबंध निदेशक
भारत पर्यटन विकास निगम
Managing Director
India Tourism Development Corporation Ltd.

It is a matter of immense satisfaction to present the **ITDC Manual for Sound and Light Works (SEL) 2026** on the auspicious occasion of its 60th anniversary. There could not have been an moment more apt than the *'Shastipurti'* year of ITDC to bring out this comprehensive technical Manual.

Quite by serendipity, we are also launching the teasers for five of the ITDC curated Sound and Light Shows at Leh, Purana Qila, New Delhi, Bundi, Rajasthan, Sarkhez Rosa, Gujarat and Udaygiri-Khandagiri, Odisha, on this auspicious occasion, as a prelude to their upcoming on-site inaugurations.

In recognition of the rapidly evolving ecosystem characterized by advancements in technology, infrastructure, and project specifications, it had become essential to review and update our processes, procedures and specifications to meet with the expectations of the new tourist typology. The new Sound and Light Works Manual 2026, which replaces our previous edition of 2019, addresses these challenges comprehensively & is fully aligned with the statutory mandates of the Department of Expenditure (DoE) and the Central Vigilance Commission.

The SEL Manual encompasses the full spectrum of activities involved in our projects, ranging from the initial stages of conceptualizing and scripting to developing compelling storylines, voice-overs and visualizing, designing, and producing captivating digital content and illuminating monuments, thereby enhancing their visual aesthetics that align with the unique character of each heritage monument.

A memorable sound and light experience is as much about narrative as it is about the latest technology. The manual emphasizes the importance of using visualization and presenting relevant stories that provide an enhanced immersive experience that resonates with our audiences. It also provides guidance on the procedure for implementation of new projects and upgradation, including the Feasibility Report, Detailed Project Report, and embedding all these considerations within the tender conditions to ensure clarity and efficiency in project execution.

We are pleased to share this base document not only as an operational handbook but as a key instrument for capacity building and training within ITDC and among peer institutions and government organizations striving to understand the standard operating procedures for SEL Shows. To ensure its robustness and strategic alignment, the manual has been formally approved by ITDC's Board on 23.09.2025.

With this technical Manual in place, ITDC is future ready to deliver many more such SEL Shows for our built heritage and historical monuments across India for various stakeholders. We stand committed to not only preserving and enhancing the cultural heritage of Incredible India but of ensuring that our experiences are state of-the-art and use the best of the New and Emerging Technologies.

With best wishes,

M Sinha

Ms. Mugdha Sinha

PREFACE

Sound and Light/Multimedia Works Manual, 2026

ITDC, through its Ashok Consultancy and Engineering Services (ACES), undertakes various Sound and Light (SEL) shows for various government agencies and clients, including the Ministry of Tourism (MoT), Archaeological Survey of India (ASI), several State Governments and Tourism Corporations, and various universities, institutions, organizations, corporations, etc.

The ecosystem of sound and light shows relies on a collaborative network of creative intellectuals/storytellers, scriptwriters, visualizers, graphic designers, Animation, Visual Effects, Gaming, Comics (AVGC), technicians, and professionals. Over the last couple of years, new and emerging technologies like Augmented Reality (AR), Virtual Reality (VR), Mixed Reality (MR), Artificial Intelligence (AI), and Generative AI have become instrumental in creating immersive experiences. In keeping with the above, it has become imperative for ITDC to create its domain-specific SEL manual, incorporating both the creative and aesthetic aspects as well as the technical and engineering aspects. Additionally, to ensure that there are standard operating procedures for undertaking sound and light shows as part of their commercial consultancy and engineering services in compliance with the overarching guidelines of the Department of Expenditure (DoE), the extant manuals of the Central Vigilance Commission (CVC), and ITDC's model legal template approved by the board on 23rd September 2025.

Son et Lumière is a multimedia performance combining sound and light elements to create a synchronized and immersive experience, which is often projected onto buildings or monuments.

This manual provides a well-structured understanding of the concepts, components, and standard operating procedures that define modern sound and light shows, highlighting both traditional practices and emerging technologies that continue to transform this field.

The Sound and Light Shows comprises the following components:

A. Consultancy services include preparation of concept notes, Detailed Project Reports, Feasibility Reports, and Environmental Impact Assessment studies, etc.

B. Project Implementation of Sound and Light/Multimedia shows

C. Contract for Annual Maintenance of Sound & Light Shows.

Note: The ACES Division also undertakes works involving a blend of technology and creativity through multidimensional shows and interactive museums, thematic/architectural lighting & illumination, theme parks, or any other work involving creativity.

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GLOSSARY

S.No.	Infrastructure	Description
Light system		
1.	LED	A semiconductor device that emits light when current flows through it. LED stage lighting is a technology that uses LEDs as a light source
2.	RGB lights	Combines red, green, and blue LEDs to create a broad range of colors
3.	DMX Splitter	A specialized device that connects to a console or converter to effectively stage lighting
4.	Laser lights	Create sharp light beams, highly focused over long distances, and are used as an entertainment medium
5.	Moving Head	An automated stage lighting fixture that can physically move and direct a beam of light
6.	GOBO	"Go Between Optics", describes location where it needs to be positioned in the light path of a lighting fixture to create projected image or pattern
Projection system		
7.	Projector	Device that uses light to cast an image onto a surface and may include or connect to a sound system for a complete audiovisual experience
8.	RDM panel	Remote Device Management is an extension to DMX that connects lighting consoles to dimmers, moving lights, and other varied lighting equipment, even some 'non-lighting-related' but compatible devices
9.	Fiber optics cable	Technology that transmits information as light pulses along a glass or plastic fiber
10.	Software & licenses	Software is defined as digital programs and applications used to design, control, and manage sound and lighting equipment. The licenses are legal agreements that grant permission to use this software, protecting the intellectual property of the developers and defining the terms and conditions for users
Audio system		
11.	**Speaker**	
a.	Surround Speakers	When the audio is being played from multiple speakers such that sound can be heard coming from all directions
b.	Sub-woofers	A speaker that delivers low frequencies, i.e., 200-20 Hz, broadening the soundstage of a mix and ensuring deep resonances of the sound mix, for eg. bass guitar or kick drum
c.	Main woofers	Part of the speaker kit designed to handle the low-to mid-range frequency sound, such as those generated by a bass guitar or a singer's voice

S.No.	Infrastructure	Description
12.	Amplifier	Alongside loudspeakers, they drive the speakers and amplify audio signals ensuring clear and impactful sound projection to engage audiences effectively
13.	Digital Signal Processor	They are crucial for manipulating signals with high speed and accuracy to modify and enhance the sound before it is converted back to an analog signal and sent to speakers
14.	Audio interface	Device that connects computers to musical instruments and audio equipment, allowing user to record, play, and process sound with computer
15.	Sound system	Set of technical equipment that allows broadcasting of an audio signal to an audience
Fountain system		
16.	Musical fountain	Also known as a fairy fountain, prismatic fountain or dancing fountain, is a type of choreographed fountain that creates aesthetic designs as a form of entertainment
17.	Fountain Nozzles:	One of the very important parts of a fountain system because the type of water jet generated in the air is at the exit of a particular nozzle
a.	2D nozzle	Chances of creativity in Fountains are increased many folds due to possibilities of its vertical and horizontal movements
b.	3D nozzle	These are two-step motor nozzles, flexible to move in all directions, thus creating exemplary fountain designs
18.	Motors & pumps	Motors are used for movement and automation, while pumps are used to move fluids to create atmospheric effects
19.	Fog machines	Electric device that lets off a dense vapor that gives off the effect of fog and may also sometimes look like smoke

DEFINITIONS

1.	Client	An entity that initiates the project and sets high-level vision while owning the responsibility for the success or failure of the project.
2.	Executing Agency	Specialized service provider responsible for operations, planning and management, execution, and maintenance of the project.
3.	Stakeholder	An individual, group, or organization that can be affected by or has an interest in the project activities, operations, or outcomes.
4.	New Emerging Technologies	Innovations that create highly immersive, interactive, and personalized audience experiences by pushing the boundaries of traditional audio and visual media
5.	Son et Lumière	Multimedia performance combining sound and light elements to create a synchronized and immersive experience, which is often projected onto buildings or monuments.
6.	Script/ Screenplay	Script is a comprehensive written document that provides the entire blueprint for the performance. Screenplay is a specific type of script written for visual media like film and television, with a primary focus on elements that can be captured by cameras and edited on a screen
7.	Render	Artistic interpretation and technical production of the show's narrative, emotional atmosphere, and special effects
8.	Handover	Formal process of transferring the completed show and its entire technical setup (sound systems, lighting rigs, control software, etc.) from the project installation team to the client
9.	CAD	Computer-Aided Design is the use of specialized computer software to create detailed, precise two-dimensional (2D) drawings and three-dimensional (3D) models of the show's design elements
10.	LiDAR	Light Detection and Ranging is used to create highly detailed, real-time 3D maps of the surrounding environment, allowing for precise projection mapping and interactive effects that synchronize with the audio and lighting element
11.	Signage	Refers to the use of signs, symbols, and visual graphics to communicate specific messages, provide context, and guide the audience's experience within the performance space
12.	Façade	Physical exterior "face" of a building or structure that serves as a dynamic canvas for light projections, special effects, and architectural illumination

13.	AVGC	Animation, Visual Effects, Gaming, and Comics. Elements and technologies from the AVGC sector, particularly visual effects and animation, are often integral components in the production and enhancement of modern sound and light shows, which are also known as live events
14.	Multi-dimensional shows	Integration of effects that create an immersive, all-encompassing sensory experience beyond simple two-dimensional projections or standard stereo sound
15.	EPC	Engineering, Procurement, and Construction. A turnkey solution that is comprehensive, single-responsibility agreement where a specialized contractor manages the entire project from initial design to final, operational handover
16.	QCBS	Quality and Cost Based Selection method used to select a contractor or agency by evaluating both the technical and the financial bid of the prospective bidder.

SCOPE OF WORK

01

The implementation of the proposals shall be carried out on a Turnkey basis, unless otherwise specified. The agency appointed for executing the show will be responsible for all aspects related to creative and aesthetic work, procurement and installation, commissioning, handover of the show, and annual maintenance contract, as per the requirements of the project. The show will be developed to highlight the historical, cultural, or thematic elements of the location while delivering an engaging audio-visual experience for the audience.

1.1. Roles and responsibilities of stakeholders

The section describes the obligations of each of the stakeholders involved in executing the Sound and Light Show, which encompasses the client, service provider, executing agency, and client/stakeholders for executing the Annual Maintenance Contract (AMC) of operations and management of the SEL show.

A. Client

1. Client is the entity that initiates the project and sets high-level vision while owning the responsibility for the success or failure of the project.
2. Define the scope of work, objectives, budget, timeline, and impact of the project.
3. Secure necessary funding and ensure the timely release of payment to the executing agency through the service provider.
4. Facilitates necessary approvals and obtains administrative and financial sanctions
5. Provide necessary site data and project brief along with essential site drawings, surveys, etc., as applicable.
6. Provide approvals to the script and screenplay before initiating the visualization stage.

B. Service Provider

1. ITDC to act as a service provider for the client for SEL shows.
2. Draft tender documents, including technical specifications, Bill of Quantities (BOQs), evaluation criteria, scope of work, cost estimates for administrative and financial sanctions for tendering of the project, etc, and facilitate industry consultations, if applicable.
3. Float tender on the bidding portal, manage inquiries from the prospective bidders, facilitate pre-bid meetings, evaluate pre-qualification, technical, and commercial bids.
4. Ensure tender documents clearly delineate the roles and responsibilities of the executing agency for procurement, installation, project commissioning, inspections, and AMC.
5. Consolidate evaluation results for the client and facilitate the Award of Tender.
6. Conduct quality inspections and ensure all as-built drawings, test reports, user manuals, etc., are provided to the client before project handover.

C. Executing Agency

1. Specialized service provider responsible for operations, planning and management, execution, and maintenance of the project.
2. Develop detailed project plans and identify risks and mitigation strategies while ensuring the project is delivered as per the defined timeline and within the defined budget.

3. Develop detailed designs, and provide essential details such as labour requirements, materials and machinery, and equipment required to execute the work safely.
4. Maintain detailed progress reports, test reports, and comprehensive operations and maintenance manuals.
5. Ensure that the scope of work covered remains the intellectual property of the ITDC and adheres to the contractual terms and obligations.
6. Conduct rigorous testing to ensure seamless integration of sound and light effects.
7. Provide warranty and comprehensive maintenance of the project during the contract period.
8. Client and ITDC stands indemnified from and against all the claims, expenses, liabilities, damages, and losses arising out of activities conducted by the executing agency.
9. The Annual Maintenance Contract for Operations and Management of the SEL show rights is to be managed and maintained between the client and the executing agency.
10. Ensure mitigation of safety hazards and compliance with all the established safety norms.
11. Ensure acknowledgements and credits are attributed jointly to both the service provider and the executing agency for conducting the sound and light show.

D. Other Client/Stakeholders for AMC

1. Ensure the show operates within local and national laws and regulations.
2. Ensure all equipment and installations meet fire codes and mitigation systems are always functional during the show hours.
3. **Local Fire Department** to conduct regular inspections, issue necessary fire safety certifications and ensure fire hazard mitigation system is functional.
4. **Local Enforcement Authorities** to maintain public order and ensure general security of the public during the show hours.
5. **Local Community Representatives** act as a medium for providing community impact feedback and serve as liaisons for interactions with the residents.
6. **Utility providers** to ensure a stable supply of essential utilities which are required for the show's operations such as power, water, etc.
7. **Local State Government Departments** to ensure compliance with the Annual Maintenance Contract (AMC) and grant necessary approvals for major maintenance works or show cancellations.

1.2. Project Lifecycle

The creation of a thorough Sound and Light Show follows a structured project lifecycle classified into four fundamental stages:

a) Pre-tender: Creates the foundational stone of event planning which defines creative objects, conducts site surveys, and establishes project budget and technical specifications.

b) **Tender:** Involves inviting qualified prospective bidders to submit their proposals, evaluate the submitted bids, and eventually award the contract to the successful bidder.

c) **Creative Part:** Where the facts and narrative are scripted and approved, audio and music is mixed to the screenplay, visual content is created, and all the technical elements are put in place.

d) **Commission:** Encompasses live execution of the show, handover of the project to the client, followed by annual maintenance of the operations and management.

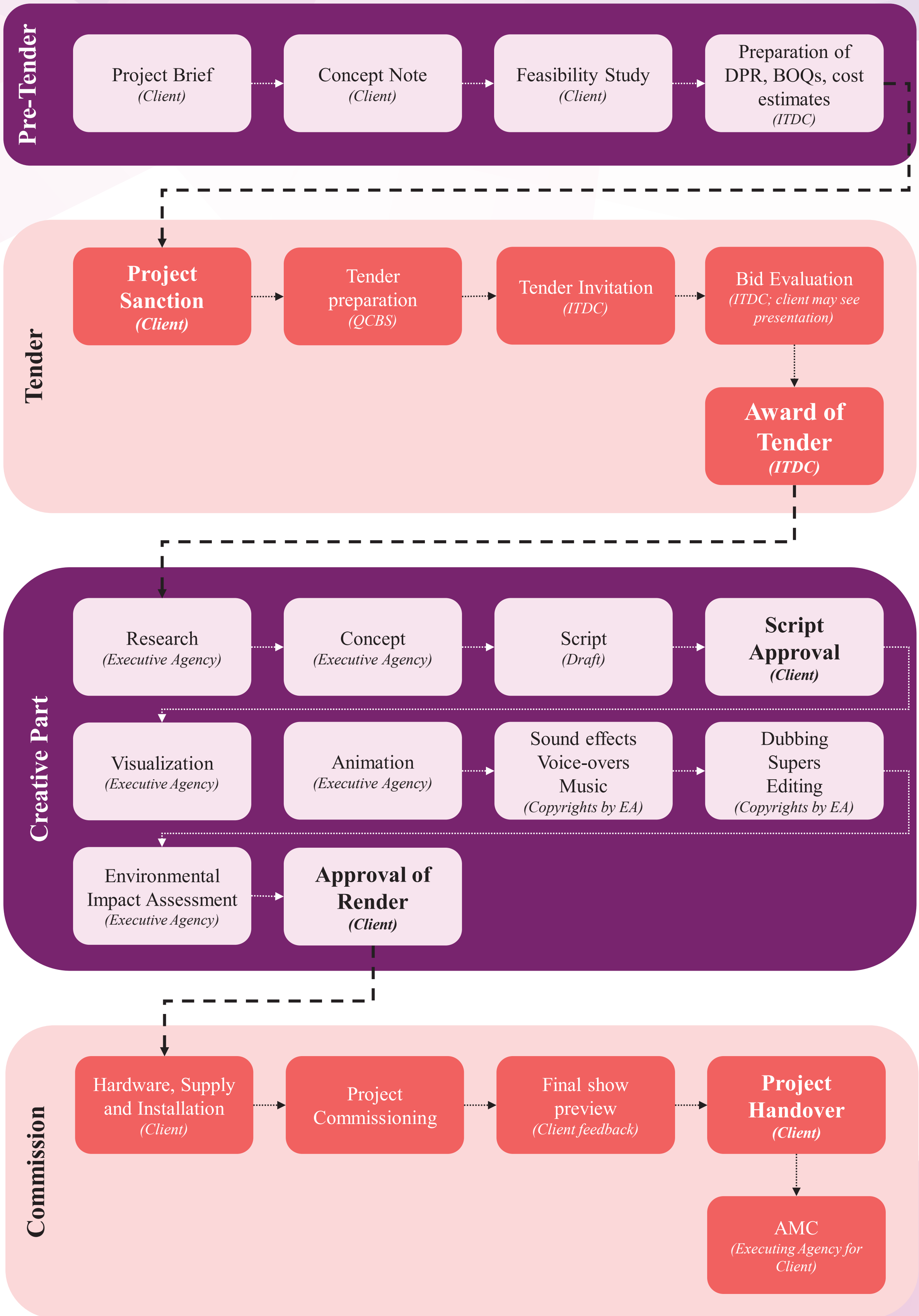

Figure 1: Project Lifecycle

A) Pre-tender

I. **Project Brief:** The client provides the project brief to ITDC, indicating specific needs and the impact of the show. The project brief also includes the theme of the show, desired technical effects, details of the project site, project duration, infrastructure, and technologies to be used.

II. **Concept Note:** The client shares the vision, purpose, and scope of the project with ITDC. This document becomes the groundwork for the client to onboard ITDC and for assisting ITDC in preparing tender documents.

III. **Feasibility Study:** The client conducts feasibility studies once the concept note is approved to assess the technical requirements such as power supply, infrastructure, and environmental or logistical challenges and ensure the viability of the project, including estimation of the budget required to execute the project.

IV. **Preparation of DPR, BOQs, cost estimates:** Based on the feasibility study shared by the client, ITDC prepares a Detailed Project Report (DPR), outlining a description of the project site, work to be performed, technical requirements with respect to equipment and software, hardware supply and installation, commissioning, and operations and management of the project. ITDC shall submit the DPR to the client for approval and project sanction.

B) Tender

Project sanction: Once the approvals are accorded and the project sanction is received from the client, ITDC shall proceed with the tendering process of onboarding the executing agency. ITDC shall be responsible for undertaking the following:

I. **Tender preparation:** Prepare tender documents based on the project brief, concept note, and feasibility study provided by the client.

II. **Tender invitation:** Prepare Tender document/Request for Proposal (RFP)/ Expression of Interest (EoI)/Notice Inviting Tender (NIT)/Request for Empanelment (RFE) and publish on the e-procurement portal of the Government of India and ITDC for wide circulation to the prospective bidders.

a) Facilitate pre-bid meeting(s) for all the prospective bidders, coordinate for sending responses, and issue a corrigendum if required.

III. Bid evaluation: Evaluate technical and financial bids and ensure compliance with the procurement regulations.

IV. Award of Tender: Prepare tender award document and facilitate information to the successful bidder.

C) Creative Part and Commission

Once the tender has been awarded to the successful bidder and the Letter of Intent (LoI) has been signed and accepted by the parties, the execution of the sound and light project will commence on the 7th day after the issuance of the LoI for the specific work.

Stages, Scope of Work, and Timelines of Project Execution

Creative and Aesthetic Work

Stage	Timeline
Stage 1: Approval of script	**T^{th} day**
Stage 2: Visualization and animation	**T+60 days**
Stage 3: Approval of Final Render	**T+120 days**

Note: Layout will work simultaneously with Stage 1 (Approval of Script) and Stage 2 (Visualization and animation)

Installation

Stage	Timeline
Stage 4: Supply of hardware items	**T+180 days**
Stage 5: Installation, Testing, and Commissioning of Hardware items	**T+210 days**
Stage 6: Site preview	**T+240 days**

Commissioning

Stage	Timeline
Stage 7: Final Preview prior to inauguration (H)	**T+270 days**
Stage 8: Project handover (H)	
Stage 9: Annual Maintenance Contract (AMC)	**H+3/5 years**

Note: Executing Agency to successfully run the show for 3 months after handover of the project and before commencement of AMC

Figure 2: Stages, Scope of Work, and Timelines of Project Execution

A. Stage–I: Approval of script (Date of receipt of approval – 'T'th day)

Research:

I. I.The executing agency's scope includes research, approach, and creation of storyline and dramatization as given below:

- Analyze the client brief and study the concept notes.
- Identify key research areas for facts for chronology, historicity, facts, and narratives.
- Conduct research using credible sources, such as books, academic articles, and others.
- Create a research dossier or summary document that includes key facts and figures, chronology or historical background, technical or industry-specific terminology, biographies of characters or real persons, and background of events or settings, if applicable.
- Provide source citations for all information.
- Offer creative or narrative angles based on the research.

Storyboard and screenplay:

II. Writing a staged script/ screenplay in language basis the requirements of the client, and thereby making necessary amendments as suggested, if any.

III. The script should be prepared keeping in mind that the duration of the show shall be as per the requirements of the client.

IV. The script/ screenplay shall be compatible with the proposed technology for implementation.

V. The script/ screenplay, including dramatization, shall be prepared in language(s), as specified by the client.

VI. The draft narrative script shall be presented to the client for review and approval.

VII. A comprehensive review shall be conducted to ensure historical accuracy, narrative coherence, and alignment with the expectations of the client before finalization of the script.

VIII. The executing agency shall submit the script/ screenplay through ITDC and assist in obtaining approvals from the concerned authorities. The same must be modified, wherever required, basis the requirements of the concerned authorities.

IX. The translation of the script/screenplay can be done either in the vernacular language and/or through technology, and every translation will incur additional cost.

X. The executing agency shall be responsible for the preparation and submission of a detailed layout plan as given below for approval of the authorities concerned. The plans must be modified wherever required, basis the requirements of the concerned authorities.

- The executing agency shall conduct the LiDAR scans, GPR surveys, etc. of the site before preparing the layout plan, if applicable.
- Layout plan to include detailed drawings about the position and placement of the projection system, audio equipment, lighting fixtures, show control room, cable laying paths, camouflaging methods, viewers' gallery (min. 200 persons or as per the requirement of the client), and any other physical structure. Load calculations, CAD files, and 3D renders to be submitted in the required format for approval from the concerned authorities.

XI. The executing agency to ensure seat planning for audiences that shall achieve perfect sightlines and ideal sound distribution from every potential angle for a flawless visual and acoustic experience.

XII. The executing agency shall submit the layout plan with full consideration of the site conditions. The contractor shall ensure that the layout plan to be least intrusive and it does not stain the beauty of the location.

XIII. The project timeline to be calculated starting from the date of script approval, i.e., the 'T'th day

XIV. All the layout plans shall be simultaneously approved by the client.

B. Stage–II: Visualization and Animation (Date of receipt of approval – T+60 day)

I. The executing agency to ensure the usage of the latest New and Emerging Technologies (NET) and Animation, Visual Effects, Gaming, Comics (AVGC) in the SEL show based on the approved client budget and requirements.

II. The screenplay shall be visualized and rendered in accordance with the approved script.

III. Writing/ translating the script/ screenplay in languages basis the preference of the client.

IV. To arrange proper voice-over for the approved script/ screenplay, recording in vernacular language and/or any other language as suggested by the client.

V. To arrange background music (original score) from the approved music director, recording, mixing, re-mixing, tracking, and others.

VI. To design, create, and synchronize text-based superimpositions (supers) and scrolling graphics (scrolls) to overlay onto the visual elements for contextual enhancement.

VII. Create content using the proposed technology based on the concept, ensuring the duration of the show to be as per the requirements of the client.

VIII. Transferring the voice-over and content generated in a suitable format.

IX. Manage all aspects of the dubbing studio process, from voice casting and recording of the narrative, along with recording and synchronization for casting of additional on-screen elements such as voice-overs, dubbing, scrolls, supers, still photography, and animation on monument-related objects. The entire production layout is to be represented on the main façade.

X. For artists included by the bidder/project executing agency during the technical bid, the price quoted by the project executing agency for the artistic work includes the celebrity artist.

XI. If the client requires any specific artist apart from the artist mentioned by the project executing agency, then the project executing agency shall arrange the services of the particular artists. The additional costs incurred will be added to the project cost on submission of all relevant documents such as Artist Contract documents, expense bills, etc.

XII. If the artists mentioned by the project executing agency are not used for the SEL project, the agency has to submit the contract documents of the agency with the particular artist to deduct/adjust the amount of the project execution.

C. Stage – III: Approval of Final Render (Stage completion time = T + 120 days)

The executing agency shall be responsible for the commencement of content preparation immediately upon receipt of the approved Script. He shall submit weekly progress reports detailing the status of the following visualization works and renderings, duly vetted, that have been undertaken. The approved script shall be visualized and rendered in accordance with the script. Additionally, the executing agency shall ensure that the final content is submitted on time, allowing sufficient time for obtaining content approval within the stipulated Stage Completion Time.

I. The executing agency is responsible for obtaining all necessary licenses and permissions for third-party scripts, music, and content used in production, ensuring no copyright infringement.

II. Submission of visualization and rendering documents in the form of hard/soft copies.

III. The executing agency to proactively assist ITDC in obtaining the approval of the content from the client within the stipulated timeframe, ensuring adherence to the stage completion timeline.

IV. The executing agency shall submit the completed content to the client for approval using a suitable format

V. **The client reserves the right to review and suggest modifications to the submitted content.**

D. Stage – IV: Supply of Hardware items (Completion time = T + 180 days)

I. The executing agency shall be responsible for the procurement and supply of all hardware items, including cables and accessories, strictly in accordance with the technical specifications and schedule of quantities outlined in the Model NIT, Contract, BOQ, Bid document, Request for Proposal, etc.

II. An e-way bill or delivery challan for all materials delivered to the site shall be submitted to the Engineer-in-Charge for verification.

III. The executing agency shall submit all relevant documentation about the equipment supplied, including but not limited to test certificates, warranty and guarantee cards, MBs, user manuals, compliance certificates, and others, to the Engineer-in-Charge at delivery or installation, as applicable.

E. Stage – V: Installation, Testing, and Commissioning of Hardware items (Stage Completion time = T + 210 days)

I. The executing agency shall be responsible for the installation, testing, and commissioning of all equipment, including all associated work, strictly in accordance with the client's requirements and based on the approved layout plan.

II. The executing agency shall undertake the complete programming of the content, which includes voice-over synchronization, lighting integration, alignment, and any other technical configurations necessary for the optimal functioning of the system.

III. The executing agency shall ensure complete and seamless system integration and carry out the soft commissioning of the project in accordance with the client's specifications.

IV. All work, such as installation, testing, and commissioning of equipment, must comply with applicable standards and project specifications.

V. The executing agency is to perform end-to-end testing of all the equipment to confirm that all the components are functioning as an integrated system.

F. Stage – VI: Final Site Preview (Stage Completion time = T + 240 days)

I. **Modifications/Alterations:**The executing agency shall be responsible for implementing all the required modifications or alterations at no additional cost before final handover of the project, whether related to concept, screenplay, technical integration, or overall execution.

II. **Essential Services:** The executing agency shall provide all essential services and safety-related items, including but not limited to danger plates, safety signage, and informational signage, as per the client's requirements at no extra cost to the client. The executing agency to also ensure that the safety signage is compatible with the aesthetic part of the SEL show.

III. Following soft commissioning, the show shall undergo trial runs and preview sessions by ITDC and/or the client.

G. Stage – VII: Final preview prior to inauguration [Handover (H) = T + 270 days]

I. Following commissioning, the executing agency shall operate the project for a period of three months, or as otherwise required by the client. During this period, the contractor shall also provide comprehensive training to the designated personnel of the concerned Authority/ ITDC to ensure effective and independent operation of the system thereafter.

II. The executing agency is to continue working for a period of three months following commissioning, or as otherwise required by the client, for complete handover of the project.

III. The executing agency is to conduct thorough final inspections for licensing compliance, fire safety, and general hazard mitigation, with all the safety protocols verified for the stage deployment of the SEL project.

H. Stage – VIII: Project Handover (Stage Completion Time = T + 270 days)

I. It should be the responsibility of the executing agency to remain available for the next three months following commissioning and shall submit all relevant project documentation, including show videos, as-built drawings, Annual Maintenance Contract, and guarantee/ warranty cards in both soft and hard copies.

II. The executing agency should provide all audio and video codec files in editable formats for future reference or for modifications/alterations by the client.

III. The executing agency shall ensure that the entire system and all components of the project are in full and proper working condition before the final handover to the client. Any deficiencies must be rectified before the handover.

Note:

a) Executing Agency is to run the show successfully for three months (i.e., 90 days) after handing over the project and before commencement of AMC.

I. Stage – IX: Annual Maintenance Contract (AMC) [Stage Completion Time = H + 3/5 years (subject to technology obsolescence)]

I. The executing agency shall be responsible for the operation and maintenance of the show for a duration of three or five years, or as otherwise specified by the client, commencing three months after the formal handing over of the project by the executing agency. During this period, the contractor shall ensure smooth and uninterrupted operation of the show, including routine maintenance, fault rectification, system monitoring, and any other support required to maintain the project in optimal working condition.

II. The contractor shall operate the required number of shows daily, as directed by the client, with or without weekly offs. The operation shall be carried out by trained and qualified staff who are thoroughly familiar with the technology and systems used in the project, always ensuring smooth and efficient show execution.

III. **Defect Liability Period:** In the first year of operation, there will be a defect liability period of 12 months from the date of completion and handing over, whereby defects, if any, noticed during the period shall be rectified by the Vendor free of cost. Additionally, the equipment is warranted for 12 months; therefore, the bidder should quote the operation & maintenance costs for 1 to 3/5 years, taking into consideration the above facts. The first year shall not include any maintenance costs, except for consumables and operational expenses related to the shows. The bidder is required to quote for comprehensive maintenance with operations and consumables of the shows from the 2nd year onwards. Price quoted shall be inclusive of all spares, consumables, except for electricity, water, fuel, etc., which would be borne by the Client.

IV. **Payment terms:** Payments for operation and maintenance (3/5 years) will be made quarterly or as per the client's requirement on the yearly charges after satisfactory work.

V. A separate or combined agreement in this regard will be executed between ITDC/ Client and the Vendor, incorporating the terms as may be required by the client for smooth Operation and Maintenance of the show, including the legal clauses of dispute and jurisdiction. The vendor shall submit a Bank Guarantee of 10% of the operation & maintenance work for 3/5 years or the number of years as decided by the client before execution of the O&M agreement.

VI. Following the successful commissioning and handover of the project, establishing a formal Annual Maintenance Contract (AMC) with the client is essential for ensuring long-term performance, safety, and reliability.

VII. The executing agency is to submit a completion certificate after the project handover but prior to the initiation of the Annual Maintenance contract for Operations and Management of the SEL show. The completion certificate is to be submitted on the letterhead of the company, signed and sealed by the authorized signatory, along with the pictures of the project site, containing before and after of the handover.

Note:

a) The scope of project execution (Artistic and Hardware) and Operation & Maintenance may get modified/ updated basis the requirements of the project, with prior approval of the competent authority.

b) ITDC Engineering Division will conduct quality inspections periodically, along with maintaining the Measurement Books (MBs), safety compliance, and verification of final as-built drawings, test reports, and user manuals before final acceptance of the installation.

c) Land chosen for the project site have to be provided unencumbered. The service provider or the executing agency will not be liable for site readiness.

d) The SEL manual is to be read in conjunction with the Engineering Manual of ITDC.

1.3. Inviting Tender/ Expression of Interest/ Request for Proposal / Notice Inviting Tender

The SEL Shows Manual, 2026 to be read in conjunction with the ITDC's Engineering Manual, General Terms and Conditions (GCC), DoE manuals, and CVC, as updated from time to time. This manual shall take precedence over the Engineering Manual and GCC, in case of any difference between the two.

A. Procedure

1. Preparation and approval of concept note and feasibility reports, if required by MOT/ State/Client.
2. Preparation and approval of Detailed Project Report (DPR) along with preliminary estimates. **DPR fee**: ITDC will charge a fee for the preparation of DPRs from the client as per the Guidelines of MOT/State Govt., or as per the approval of the client and the decision of HOD (SEL).
3. Detailed estimate for Hardware work (70% of the project cost or as scrutinized by the scrutiny cell). Estimate for Artistic Work (up to 30% of the project cost) shall be worked out on a pro rata basis in the ratio of 70:30 of scrutinized Hardware work.
4. Estimate for Operation & Maintenance work (as sanctioned by MOT/State/ Client).
5. Draft tender to be prepared for a three-bid system on QCBS i.e. pre-qualification bid, technical bid, and financial bid, which is to be approved after vetting by the Scrutiny Cell. Draft tender/RFP document shall be shared with the MOT/State Govt./Client, if required. The MOT/State Govt./Client will be requested to give their suggestions within five working days. If no comments are received within the stipulated period, it will be presumed that the draft tender/ RFP document has been accepted, or the suggested changes would be incorporated with the approval of HOD (SEL).
6. Technical Sanction (TS) for Artistic work and Hardware work (all connected Civil and E&M related works)
7. **Details of establishment:** Vendor shall submit the relevant document for ascertaining the existence of the entity, such as Certificate of Incorporation, Year of establishment, profile/credentials of the Bidder, Company Establishment as Sole Proprietor/Limited/Private Limited Consortium/ Joint Venture Company (JVC)/Partnership/Limited Liability Partnership (LLP). (Bidder should submit MOA/AOA/Partnership Deed/Joint Bidding agreement or other documents, as applicable).

Note:

All such documents should bear dates before the date of NIT except the Joint Bidding Agreement (attached at Annexure 'A') as per the terms and conditions.

* ITDC will charge 1% of the DPR estimated cost as management fee on approval of the concept note and take 50% advance of the approved DPR estimated value of the project execution fee.

1.4. Security Deposit and Tender Submission

1. To safeguard against a bidder's withdrawing or altering its bid during the bid validity period, bid security [also known as Earnest Money Deposit (EMD)] is to be obtained from the bidders along with their bids. Any bid not accompanied by the requisite bid security shall be rejected as non-responsive in accordance with the provisions of the bidding document. The amount of bid security will be 2% – 5% of the value of the contract.

2. The performance security submitted during the award of contract of 10% of value of the contract of the first as interest free Security Deposit in the form of Account Payee Demand Draft/ Bank Guarantee from a commercial bank in an acceptable form, the Bank Guarantee should remain valid for a period of one year beyond from the date of completion & handing over of all works related to show.

3. Performance Security is to be furnished by 21 (twenty-one) days after notification of the award, and it should remain valid for a period of 60 (sixty) days beyond the date of completion of all contractual obligations of the contractor, including Defect Liability Period (DLP).

4. A bidder's bid security will be forfeited if the bidder
   a) Withdraws or amends its/ his tender;
   b) Impairs or derogates from the tender in any respect within the period of validity of the tender;
   c) If the bidder does not accept the correction of his bid price during evaluation, and
   d) If the successful bidder fails to sign the contract or furnish the required performance security within the specified period
   e) In case of forfeiture of earnest money as prescribed in Point (d) above, the bidder shall not be allowed to participate in the re-tendering process of the work.

5. On expiry of the Defects Liability Period, the Project Engineer, on demand from the Vendor, shall refund to him the EMD and security deposit provided after successful performance of the contractual obligation. The Project Engineer is satisfied that there is no demand outstanding against the Vendor.

6. Special terms and conditions of the Contract shall be applicable as per the requirements on a project basis.

7. Technical specifications and making of equipment shall be applicable as per requirements on a project basis.

8. Detailed information about the Script/ screenplay writer, Voice Over & Music Director etc. shall be applicable.

9. Open Tender shall be invited online through the e-portal/govt. website.

10. Delegated Authority to award the particular work shall constitute a Technical Evaluation Committee (TEC) consisting of SEL Engineer, Scrutiny Cell Engineer and Finance Executive for uploading of tender, opening of tender, pre bid meeting and technical evaluation of Bid/ Bids. The associated dealing engineer shall assist TEC at all levels of the evaluation/ selection process. However, if required, a subcommittee consisting of two Engineers and one finance executive may be constituted to uploading, opening and obtaining Deficient/ Clarificatory documents and putting up to TEC.

11. Pre-bid meeting to held within 5 – 7 days from the date of publishing the tender. In addition to the constituted committee as

per clause 19, State Tourism representative/ Client/ ASI representative shall also be a part of the committee, if required. Only interested bidders are requested to be present during the pre-bid meeting for the brief and any clarification to be addressed. No clarifications after the pre-bid meeting will be entertained. Bidders are expected to send their queries in advance by email before the date of pre-bid meeting. The dealing engineer will prepare the minutes of meeting duly signed and the same will be put up through TEC to HOD (SEL) for approval. In case any of the suggestions of those present in pre-bid meeting are accepted and approved, the same would be uploaded on website via issuing corrigendum/corrigenda.

EVALUATION AND SELECTION CRITERIA

»

02

All the bid documents shall be downloaded from the e-Tender website. A three-stage procedure will be adopted in evaluating the Bids.

2.1 Pre-qualification Evaluation as per NIT

(a) The associated dealing engineer shall assist TEC to take all the experience credentials and verify the same from the respective issuing authorities for all the bidders. The verification of credentials shall be completed within 7 to 10 days.

(b) TEC shall make a comparative statement of item wise, technical and commercial conditions as per NIT. TEC shall scrutinize and evaluate the offers received after taking in to the Technical and Commercial conditions offered. When several conditional tenders are received with different conditions and specifications each in tender, it is necessary to bring all the tenders on a common base before a comparison can be made. Equal opportunity shall be given to all the bidders.

(c) TEC shall send the comparative statement, which shall include list of deficient documents of each bidder, along with pre-qualification documents of the bidders for vetting by scrutiny cell.

(d) After vetting by scrutiny cell, the deficient documents of all the bidder may be called for.

(e) Final pre-qualification comparative statement shall be prepared by TEC and again shall be sent along with documents of the bidders for vetting by Scrutiny Cell.

2.2 Technical Bid Evaluation as per NIT

(a) Once the Scrutiny Cell clears vetting the Pre-qualification Bid, Technical bids will be opened by TEC after approval of HOD (SEL).

(b) These Technical bids will be evaluated by TEC after making a comparative statement based on document submitted by bidders or clarificatory/deficient documents may be taken from all the bidders and gives the marks as per NIT.

(c) Equal opportunity shall be given to all the bidders. Each responsive proposal shall be attributed a technical score. Evaluation of the proposal of bidder shall be done as per the documents submitted.

(d) The date and time of the thematic presentation will be communicated to the eligible bidders at short notice, which may be as little as three days in advance.

(e) After marking on technical parameters as per NIT, the same shall be sent to the Delegated Authority by TEC for approval.

(f) Thereafter, the presentation of technically qualified vendors shall be done as per NIT by the constituted TEC along with the Representative of the State Govt. (Client)/ Representative of ASI (if ASI site) and an expert from National School of Drama/Sangeet Natak Academy/ NFDC/NCERT or any other relevant agency, if required. This committee shall be approved by the Director (C&M) who can change any member or composition of the committee. They will give the marks for the presentation.

(g) QCBS procedure shall be adopted in evaluating the Bids which shall be project specific and can be changed with the approval of the competent authority. However, current QCBS 30:70 structure which has been adopted is placed at Annexure D.

Note:

a) a)The bidder shall be notified about their marks secured at these stages, i.e. after the technical evaluation stage and after thematic presentation before opening of the Financial Bid.

b) **Expert from National School of Drama/ Sangeet Natak Academy/NFDC/ NCERT or any other relevant agency:** The projects which are of creative nature involving art content, it is advisable to include at least one member from outside. These members may be from National School of Drama, Sangeet Natak Academy, faculty from film Institute and renowned Film Producers / Directors etc. Specific approval shall be obtained from the Director (C&M) if not taken from the panel. Panel of such experts may be expanded from time to time. Any such expert may be nominated by the Director / Client organization. The experts may be paid a lump sum honorarium/conveyance charge varying from Rs 5000/- to Rs. 7500/- for each visit or as revised from time to time with the approval of HOD (SEL). In case of any expert nominated by the client, the honorarium may be decided by the client themselves and conveyed to ITDC for their payment which shall be taken as a part of the expenditure on project. Further the presentation meetings may be organized at any other location as may be required.

2.3 Financial Bid Evaluation as per NIT

(a) Justified estimate to be prepared by the Dealing Engineer for the hardware work and Artistic work (on pro rata basis in the ratio of 30:70 of the Scrutinized Justified Hardware work).

(b) Based on the technical assessment and thematic presentation, bidders securing minimum 70 Marks out of Max Marks 100 marks will be shortlisted and the financial bids of only the shortlisted bidders will be opened digitally, which can be viewed by bidders on their dashboard. The date and time of opening of the financial bids will be conveyed to the selected/ shortlisted bidders after thematic presentation.

(c) The Financial Proposals shall be opened digitally which can be viewed by the bidders on their dashboard.

(d) Under the Quality and Cost Based Selection (QCBS) basis, **the weightage to Technical and Financial Bids would be 30% and 70% respectively.**

i. **Technical Bid:** The total marks obtained out of 100 marks in technical bid shall be scaled down to a maximum of 30 as follows which shall henceforth be the total marks obtained by the bidder against the technical bid.

a) Marks (max 30) on technical Bid = 0.30 x Marks of Technical Bid under evaluation as per Annexure D.

ii. **Financial Bid:** The TEC shall determine the financial proposal. The lowest financial proposal would be evaluated on QCBS system and bidder quoting overall lowest Amount (L1) (i.e. Artistic Part + Hardware Part + O&M Part for 3/5 years as per Client requirement) would be awarded the highest marks i.e. 70 Marks. Marks of the other bidders would be evaluated as per detail given below:

Lowest Bidder (L1): 70 Marks

Other bidders: $\frac{\text{Amount quoted by lowest bidder (L1)}}{\text{Amount quoted by the other bidder}} \times 70 \text{ marks}$

iii. iii.The marks as calculated would be added to the marks obtained in technical evaluation and the bidder securing the highest total marks would be considered as successful bidder. TEC shall make a comparative statement to determine the H1 vendor on the QCBS system as per the NIT. **The bidder scoring the maximum total marks (Technical Bid score + Financial Bid Score) would be recommended for selection.**

(e) TEC shall recommend in all respects whether the tender can be awarded or negotiation or re-invited. The proposal shall be forwarded to Finance for concurrence before approval of Competent Authority.

(f) After due concurrence by Finance, the proposal will be put up to the Competent Authority as per DOP for award of contract or for re-invitation of tenders.

(g) The HOD (Engg) or Competent Authority as per DOP can accept any tender including the lowest or highest subject to the limit that the accepted tender is within the Awarding zone.

Note:

If any minor modification is required in future, the same will be approved by the HOD (Engg.) or competent authority..

COMMITTEE

03

3.1 Tender Evaluation Committee:

The crucial task of the procurement committee is to administer the procurement and tendering process, ensuring that it is conducted with complete transparency, fairness, adherence to quality standards, and efficiency. The committee also ensures that the procurement plan is drafted in accordance with the activity plan and budget.

The procurement committee to be headed by HOD ACES or by representatives as designated by MD, ITDC, to oversee the entire procurement and tendering process. Delegated Authority to award the particular work shall constitute a Technical Evaluation Committee (TEC) consisting of the SEL Engineer, Scrutiny Cell Engineer, and the Finance Executive for uploading of tender, opening of tender, pre-bid meeting, and technical evaluation of Bid/Bids. The associated dealing engineer shall assist TEC at all levels of the evaluation/ selection process. However, if required, a subcommittee consisting of two Engineers and one finance executive may be constituted to upload, open, and obtain Deficient/ Clarificatory documents and put up to TEC.

3.2 Legal and Finance:

The division ensures that the SEL show is legally compliant and financially viable. While the finance division is responsible for the financial oversight of the entire SEL operations, ensuring adequate cash flow and asset management, audits and compliance, and internal controls and policies, the legal division ensures that the contracts and activities comply with the laws and regulations. Legal division also ensures that the tender/EoI/RFP, etc. documents are vetted legally and is headed by HOD Legal and Finance.

3.3 Content Vetting Committee:

The content vetting committee is a crucial administrative body responsible for rigorous evaluation and approval of all the textual and narrative content intended for use in SEL shows. The committee ensures that all the shows are:

- historically accurate
- due diligence and IPR compliant
- culturally sensitive
- aligned with the objectives of the concerned authority

Considering the critical role of the vetting committee, it is essential to establish a committee comprising experts from diverse backgrounds, including individuals from reputable organizations, university professors, historians, and local area subject matter experts. This committee shall be responsible for vetting the scripts for ongoing and upcoming SEL projects, ensuring that the content is accurate, credible, and culturally sensitive. Such a measure aims to streamline the approval process, improve content quality, and ensure the successful implementation of the SEL shows.

3.4 Monitoring Committee:

The monitoring committee is responsible for overseeing the execution of Engineering, Procurement, and Construction (EPC) work for the SEL show, ensuring vigilance and quality from the initial installation to commissioning, operational maintenance, and regulatory compliance across the lifecycle of SEL show. The basic responsibility of the committee is to ensure a fully functional, compliant, safe, and sustainable installation of the equipment of the SEL show. HoD Engineering shall designate authority to conduct periodic inspections, maintain Measurement Books (MBs), and ensure safety compliance.

3.5 Independent External Monitors (IEMs):

The IEMs are appointed as neutral third-party experts to ensure fairness, integrity, transparency, and regulatory compliance across the lifecycle of SEL show. IEMs also serve as a one-stop point for receiving and addressing grievances from the stakeholders with respect to procurement and contract execution. IEMs crucially serve as an independent vigilance and ethics body, ensuring good governance and ethical conduct. The IEMs are appointed by Comptroller and Auditor General of India (CAG) for mediating between contractors and clients.

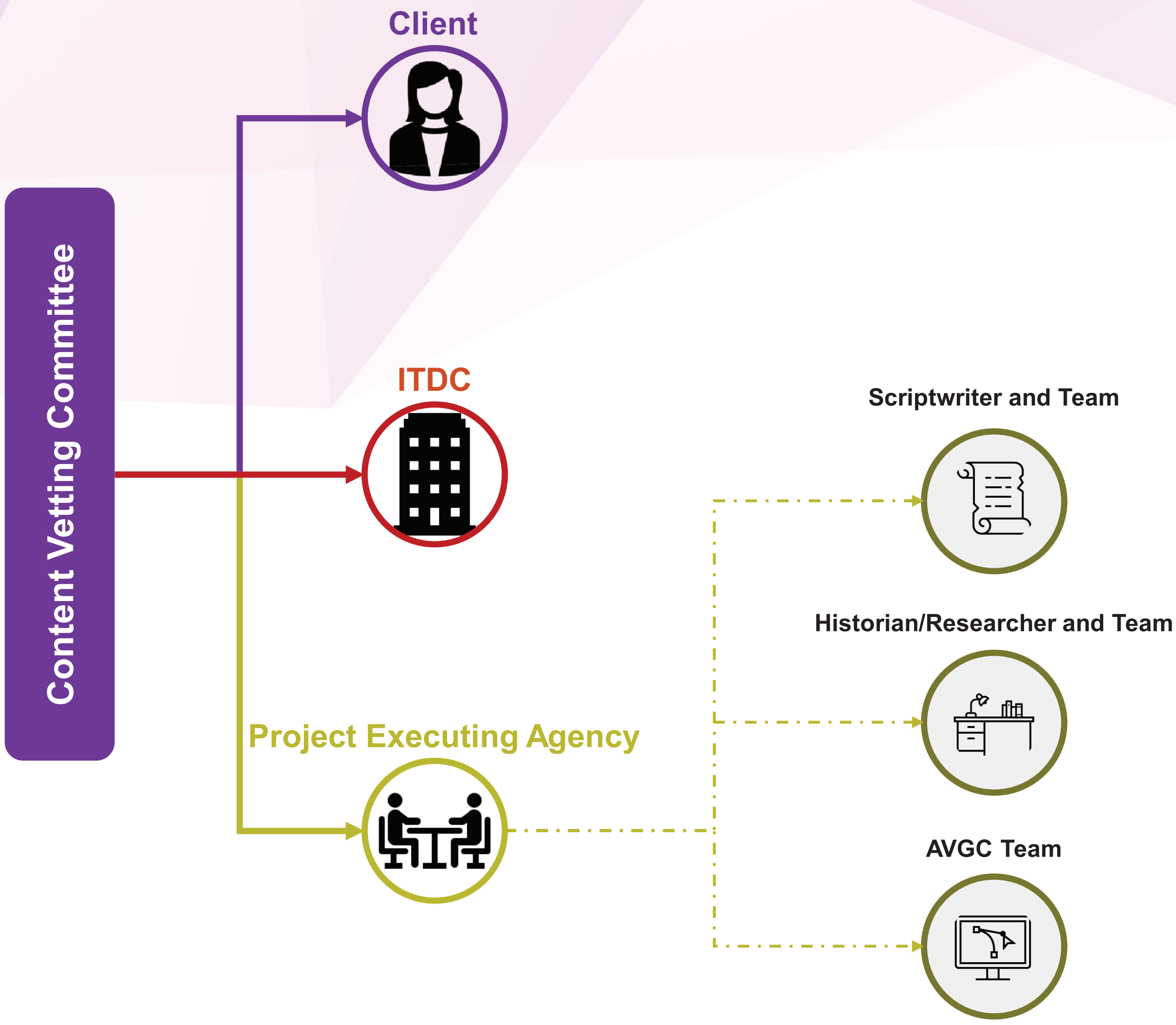

Figure 3: Content Vetting Committee Constitution

PAYMENTS AND PENALTIES

04

4.1 Payment terms

I. Payment terms shall be modified as under:

a) R/A bills or Final bills shall be submitted by the Vendor on a progress basis, which shall be certified by the Project Engineer for the work executed. The Project Engineer shall then arrange to have the bill verified by taking or causing to be taken, where necessary, the requisite measurements of the work.

b) All work executed, after deducting from the amounts already paid and such other amounts as may be deductible or recoverable in terms of the contract.

c) No advance will be paid for any kind of work to be executed.

d) Payment will be made on the following basis:-

Schedule of Payment				
			%age of payments against the project cost	
Stage No*	**Stages as per Scope of Work for Project Execution**	**Completion Time***	**Artistic Work (A)**	**Hardware Work (B)***
I	Approval of Script and Layout Plan	T days	10% of A	
II and III	Visualization and Approval of Final Render	T+120 days	40% of A	
IV	Supply of Hardware items	T+180 days	-	30% of B
V	Installation, Testing & Commissioning of Hardware items	T+210 days		20% of B
VI	Site preview	T+240 days	20% of A	20% of B
VII and VIII	Project Inauguration and Handover	T+270 days	20% of A	20% of B
After VIII	On successful running of the show for 3 months after handover	90 days after date of project handover	10% of A	10% of B

Note:
- In case of extra civil work undertaken for successful completion of work/project, the same shall be paid at actual basis on submission of bills with the approval of the competent authority.
- *B means hardware execution cost.

Table 1: Schedule of Payment

- All the above payments shall be made on receipt of valid bills along with the supporting documents.
- As regards payments for Operation and Maintenance for five years (O & M), will be done on a Monthly/Quarterly basis or as per client requirement, which shall be paid by the State Govt./Client through a separate agreement.
- The payments shall be released in INR only.

4.2 Penalties

I. Compensation for delay for Project Execution:

a) 1% of the contract amount, subject to a maximum of Rs. 10,000/- per week or part thereof. The total compensation for delay shall further be subject to an overall maximum of 10% (ten percent) of the contract amount as awarded. The decision of the competent officer of the Accepting Authority shall be final and binding.

b) The Earnest Money Deposit (EMD) may be forfeited for failure to submit a security cum performance Bank Guarantee (BG) within 30 days of the date of issuance of the Letter of Acceptance (LoA)/ Purchase Order (PO)/ Work Order (WO).

4.3 Legal Clauses

Depreciation Clause:

a) The executing agency shall account for the depreciation and amortization of all assets, equipment, and installations related to the Sound and Light show in strict accordance with the prevailing norms and rules of ITDC/Government of India.

Addition in obligations of the Service provider

a) The Service Provider shall be solely responsible and liable for the currency of the tender and the maintenance period, and shall indemnify, defend, and hold ITDC harmless from and against any and all claims, costs, penalties, sanctions, damages, or liabilities of any nature whatsoever arising out of or in connection with project.

Note:

Except for the Depreciation clause mentioned above, the relevant clauses of the 'Model Template of Genral Clauses for ITDC, 2026' shall be considered an integral part of the 'Manual for Sound and Light (SEL) Shows 2026'.

Note:

The latest Central Government guidelines to be followed in conjunction with the SEL manual. However, for this manual, the extant guidelines with the following years have been referred to:

S.No.	Manuals	Latest Edition Year
a)	General Financial Rules (GFR)	Year 2017 with amendments up to 31st July 2024 have been incorporated
b)	Manual for Procurement of Goods	Year 2024
c)	Manual for Procurement of Works	Year 2022

ANNEXURES

Annexure 'A' – Joint Bidding Agreement

(To be executed on Stamp paper of appropriate value)

THIS JOINT BIDDING AGREEMENT is entered into on this the .... day of...........2018

AMONGST

1. .... Companies/Firms/Individual/Sole Proprietor/Limited/Private Limited/Joint Venture Company (JVC)/Consortium/Limited Liability Partnership (LLP) having its registered office at (hereinafter referred to as the **"First Part"** which expression shall, unless repugnant to the context includes its successors and permitted assigns).

AND

2. .... Companies/Firms/Individual/Sole Proprietor/Limited/Private Limited/ JVC/ Consortium/Limited Liability Partnership (LLP)having its registered office at .... (hereinafter referred to as the **"Second Part"** which expression shall, unless repugnant to the context includes its successors and permitted assigns).

The above-mentioned parties of the FIRST AND SECOND PART are collectively referred to as the **"Parties"** and each is individually referred to as a **"Party"**

WHEREAS,

A. India Tourism Development Corporation having its registered office at 6th Floor, Scope Complex Core 8 Lodi Road new Delhi 110003 (hereinafter referred to as the "Authority" which expression shall, unless repugnant to the context or meaning thereof, include its administrators, successors and assigns) has invited Bids ("Bids") by its Request for Tender No ____________ dated ________ (the "SEL Project").

B. The Parties are interested in jointly bidding for the SEL Project as members of a Consortium and in accordance with the terms and conditions of the Tender document and other bid documents in respect of the said SEL Project, and

C. It is a necessary condition under the Tender document that the members of the Consortium shall enter into a Joint Bidding Agreement and furnish a copy thereof with the Bid.

NOW IT IS HEREBY AGREED as follows:

1. Definitions and Interpretations

In this Agreement, the capitalized terms shall, unless the context otherwise requires, have the meaning ascribed thereto under the "Tender Document"

2. Consortium

2.1 The Parties do hereby irrevocably constitute a consortium (the "Consortium") for the purposes of jointly participating in the Bidding Process for the SEL Project.

2.2 The Parties hereby undertake to participate in the Bidding Process only through this Consortium and not individually and/ or through any other consortium constituted for this SEL Project, either directly or indirectly or through any of their Associates.

3. Covenants

The Parties hereby undertake that in the event the Consortium is declared the Selected Bidder and awarded the SEL Project, it shall incorporate a Special Purpose Vehicle (the "**SPV**") under the Indian Companies Act, 2013 for entering into Agreement with the Authority and for performing all its obligations as the SEL Project Executor in terms of the SEL Project.

4. Roles of the Parties

The Parties hereby undertake to perform the roles and responsibilities as described below:

a) Party of the First Part shall be the Lead member of the Consortium (Financial Member/ Technical member/ Other Member of the Consortium) and shall have the power of attorney from remaining Parties for conducting all business for and on behalf of the Consortium during the Bidding Process and until the appointed date under the Agreement when all the obligations of the SPV shall become effective.

b) Party of the Second Part shall be (Technical Member/ Other Member of the Consortium).

5. Joint and Several Liabilities

The Parties do hereby undertake to be jointly and severally responsible for all obligations and liabilities relating to the SEL Project and in accordance with the terms of the "Tender Document" and the Agreement, till such time as the financial close for the SEL Project is achieved under and in accordance with the Agreement.

6. Shareholding in the SPV

6.1 The Parties agree that the proportion of shareholding among the Parties in the SPV shall be as follows:

a) First Party:

b) Second Party:

6.2 The Parties undertake that a minimum of 51% (fifty-one percent) of the total paid up share capital of the SPV for Lead member on a fully diluted basis and other member shall maintain minimum equity component of 10% in the SPV throughout the Term so formed;

6.3 The Parties undertake that they shall comply with all equity lock in requirements set forth in the SEL Project. The Board of SPV may also have participation from both the parties.

7. Representation of the Parties: Each Party represents to the other Parties as of the date of this Agreement that:

a) Such Party is duly organized, validly existing and in good standing under the laws of its incorporation and has all requisite power and authority to enter into this Agreement;

b) The execution, delivery and performance by such Party of this Agreement has been authorized by all necessary and appropriate corporate or governmental action and a copy of the extract of the charter documents and board resolution/ power of attorney in favour of the person executing this Agreement for the delegation of power and authority to execute this Agreement on behalf of the Consortium Member is annexed to this Agreement, and will not, to the best of its knowledge:

i. require any consent or approval not already obtained;

ii. Violate any applicable law presently in effect and having applicability to it;

iii. Violate the memorandum and articles of association, by-laws or other applicable organizational documents thereof;

iv. Violate any clearance, permit, concession, grant, license or other governmental authorization, approval, judgment, order or decree or any mortgage agreement, indenture or any other instrument to which such Party is a party or by which such Party or any of its properties or assets are bound or that is otherwise applicable to such Party; or

v. Create or impose any liens, mortgages, pledges, claims, security interests, charges or encumbrances or obligations to create a lien, charge, pledge, security interest, encumbrances or mortgage in or on the property of such Party, except for encumbrances that would not, individually or in the aggregate, have a material adverse effect on the financial condition or prospects or business of such Party so as to prevent such Party from fulfilling its obligations under this Agreement;

c) This Agreement is the legal and binding obligation of such Party, enforceable in accordance with its terms against it; and

d) There is no litigation pending or, to the best of such Party's knowledge, threatened to which it or any of its Associates is a party that presently affects or which would have a material adverse effect on the financial condition or prospects or business of such Party in the fulfillment of its obligations under this Agreement.

8. Termination

This Agreement shall be effective from the date hereof and shall continue in full force and effect until the SEL Project is completed under and in accordance with the SEL Project Agreement, in case the SEL Project is awarded to the Consortium. However, if the Consortium does not get selected for award of the SEL Project, the Agreement will stand terminated in case the Bidder is not selected or upon return of the Bid Security by ITDC to the Bidder, as the case may be.

9. Miscellaneous

9.1 This Joint Bidding Agreement shall be governed by laws of India.

9.2 The Parties acknowledge and accept that this Agreement shall not be amended by the Parties without the prior written consent of ITDC.

IN WITNESS WHEREOF THE PARTIES ABOVE NAMED HAVE EXECUTED AND DELIVERED THIS AGREEMENT AS OF THE DATE FIRST ABOVE WRITTEN.

Signed, sealed and delivered For and on behalf of	Signed, sealed and delivered For and on behalf of
FIRST PART (by Lead Member)	SECOND PART
(Signature)	(Signature)
(Name)	(Name)
(Designation)	(Designation)
(Address)	(Address)

In the presence of:

1)

2)

Notes:

1. The mode of the execution of the Joint Bidding Agreement should be in accordance with the procedure, if any, laid down by the Applicable Law and the charter documents of the executant(s) and when it is so required, the same should be under common seal affixed in accordance with the required procedure.
2. Each Joint Bidding Agreement should attach a copy of the extract of the charter documents and documents such as resolution/power of attorney in favor of the person executing this Agreement for the delegation of power and authority to execute this Agreement on behalf of the Consortium Member.

Annexure 'B' – Undertaking/Tender Acceptance Letter

(To be given on Company's Letter Head)

Date:

To,
HOD (SEL)
ITDC, Scope Complex Lodhi Road, New Delhi

Sub: Acceptance of Terms & Conditions of Tender.

Tender Reference No: ITDC/SEL/............................

Name of Work: Implementation of Sound and show Light/Multimedia at ....

Dear Sir,

1. I/ We have downloaded / obtained the tender document(s) for the above mentioned 'Works' from the web site(s) namely: https://etenders.gov.in/eprocure/app as per your advertisement, given in the above-mentioned website(s).
2. I/ We hereby certify that I/we have read the entire terms and conditions of the tender documents from Page No. 1 to (including all documents like annexure(s), schedule(s), etc.), which form part of the contract agreement and I/we shall abide hereby by the terms/conditions/clauses contained therein.
3. The corrigendum(s) issued from time to time by your department/ organizations too have also been taken into consideration, while submitting this acceptance letter.
4. I/We hereby unconditionally accept the tender conditions of above mentioned tender document(s)/corrigendum(s) in its totality/entirety.
5. I/We do hereby declare that our Firm has not been blacklisted/ debarred by any Govt. Department/Public sector undertaking.
6. I/We certify that all information furnished by the our Firm is true & correct and in the event that the information is found to be incorrect/untrue or found violated, then your department/ organization shall without giving any notice or reason therefore or summarily reject the bid or terminate the contract, without prejudice to any other rights or remedy including the forfeiture of the full said earnest money deposit absolutely.
7. There has been no conviction by a Court of Law or indictment / adverse order by a regulatory authority for a grave offence against us. It is further certified that there is no investigation pending against us or the CEO, Directors of our concern.
8. That the decision of ITDC Management will be undisputable in accepting or rejection of my / our offer.

Yours Faithfully,

(Signature of the Bidder with Official Seal)

Annexure 'C' - Affidavit

Affidavit of Shri _________ working as ________ with M/s ________ Agencies Companies/ Firms/ Individual/ Sole Proprietor/ Limited/ Private Limited/ Joint Ventures Company/ Consortium/ Partnership/ Limited Liability Partnership (LLP) registered under the Companies Act, 1956 (as amended in 2013) having its Registered Office at ________ do hereby solemnly affirm and declare as under:

1. That ITDC has floated a tender for Implementation of Sound & Light / Multimedia show at which apart from the other terms and conditions stipulates registration of Establishment under Employees' State Insurance Act, 1948 and the Employees Provident Funds and Miscellaneous Provisions Act, 1952.
2. That our Establishment is not covered within the ambit of Employees' State Insurance Act, 1948 and the Employees" Provident Funds and Miscellaneous Provisions Act, 1952 (hereinafter the said Acts) and as such we do not require registration under these Acts.
3. That the said Acts are not applicable on our Establishment, as on date of submission of the tender, as we do not / did not employ the persons as mandated in the said Act.
4. That if at any stage during the period of the contract, it becomes mandatory for us to register ourselves under the said Acts, we at our own shall get ourselves registered under the relevant Act and comply with the provisions therein.
5. That we hereby swear to indemnify and keep harmless ITDC from time to time, at all times hereafter against all losses, claims, demands, proceedings, expenses, costs and consequences whatsoever. In case of non-compliance by us of these Acts.
6. That we shall keep harmless the ITDC from any damages, prosecution, other legal suits etc. arising out of any violation of applicable rules and regulations of law of the land. In case of non-compliance by us of these Acts.
7. That we understand that ITDC shall not be liable for any omission / commission on our part in case of noncompliance of the provisions under the said Acts or any other laws relating to the Labour Welfare for the time being in force.

DEPONENT

VERIFICATION

Verified on solemn affirmation at...................................... on this the .... day of .... 20XX that the content of the above affidavit is true to the best of my knowledge and belief and nothing material has been concealed.

DEPONENT

Annexure 'D' – Model NIT

Bidders securing **35 marks or more marks out of 50 marks** from the Technical cum evaluation criteria under S. No. 1 to 3 of the table below, will be called for thematic presentation.

QCBS procedure shall be adopted in evaluating the Bids which shall be project specific and can be changed with the approval of competent authority. However, current QCBS 30:70 has been taken as under:

<table>
<tr><th colspan="4">Evaluation Criteria for 30% of technical QCBS weightage</th></tr>
<tr><th>S. No.</th><th colspan="2">Description</th><th>Marks</th></tr>
<tr><td>1.</td><td colspan="2">Past Experience
Note: Works, here shall mean similar works costing 40% or more of the estimated cost unless specified otherwise. (Min. Qualifying marks – 04)
(In case of JV/consortium, the works done by both the JV partners in their individual capacity/ jointly shall be considered. In case any partner had executed similar work in JV with any other agency (other than the current JV partner), those works will not be considered.)</td><td>Maximum 08 Marks</td></tr>
<tr><td>a)</td><td colspan="2">Contractors completing the number of pre-qualifying works as per PQ Criteria</td><td>04 Marks</td></tr>
<tr><td>b)</td><td colspan="2">For every additional similar work costing 40% or more of estimated value shall be given additional 02 marks each (maximum of 08 marks)</td><td>Additional 02 marks for each work</td></tr>
<tr><td>2.</td><td colspan="2">Average Annual Turnover during last three years. The bidders must submit the certificate from Statutory Auditor or Chartered Accountant in this regard. (In case of JV/consortium, Average Annual Turnover of only the lead bidder shall be considered)
If the Average Annual Turnover of the bidder is:</td><td>Maximum 06 Marks</td></tr>
<tr><td>a)</td><td colspan="2">More than 40% to 100% of estimated cost</td><td>2 Marks</td></tr>
<tr><td>b)</td><td colspan="2">More than 100% to 200% of estimated cost</td><td>4 Marks</td></tr>
<tr><td>c)</td><td colspan="2">More than 200% of project cost</td><td>6 Marks</td></tr>
<tr><td>3.</td><td colspan="2">The bidder should indicate the names of the Artists / Professionals competence with their CV and Consent letter. Artists / Professionals shall be related to Commercial Films/ SEL Shows. Without Consent letter, no marks will be given. The eminent personality in their field will get due preference in the evaluation process.</td><td>Maximum 36 Marks</td></tr>
<tr><td rowspan="6">a)</td><td rowspan="6">Script/ screenplay writer</td><td>Script/ screenplay writer with experience of writing script/ screenplays for commercial film/SEL shows. The number of writing Screenplay/ script/ screenplay should be specified in their CV.</td><td>Maximum 12 Marks</td></tr>
<tr><td>One script/ screenplay</td><td>4 Marks</td></tr>
<tr><td>Two scripts/ screenplays</td><td>6 Marks</td></tr>
<tr><td>Three scripts/ screenplays</td><td>8 Marks</td></tr>
<tr><td>Four scripts/ screenplays or more</td><td>10 Marks</td></tr>
<tr><td>(In case script/ screenplay writer has won National Film Award for Best Screenplay given by Govt. of India/NFDC. The necessary certificate for award should be attached with the CV and Consent letter)</td><td>Additional 02 Marks</td></tr>
</table>

Evaluation Criteria for 30% of technical QCBS weightage			
S. No.	**Description**		**Marks**
b)	Voice-over in 1st language (Hindi/ any other language) specified bythe client	Voice Over in 1st language. The number of voice-over with their role in the category indicated below should be specified in 1st language in their self-certified CV	**Maximum 06 Marks**
		The number of voice-overs with their role in any of the 3 commercial films/SEL shows, combined or separately.	
		Male Voice over	1 Marks
		Female Voice over	1 Marks
		The number of voice-overs with their role in any of the 5 commercial films/SEL shows, combined or separately.	
		Male Voice over	2 Marks
		Female Voice over	2 Marks
		The number of voice-overs with their role in any of the 7 commercial films/SEL shows, combined or separately.	
		Male Voice over	3 Marks
		Female Voice over	3 Marks
c)	Voice-over in 2nd language (English/ any other language) specified by the client	Voice Over in 2nd language. The number of voice-over with their role in the category indicated below should be specified in 2nd language in their self-certified CV	**Maximum 06 Marks**
		The number of voice-overs with their role in any of the 3 commercial films/SEL shows, combined or separately.	
		Male Voice over	1 Marks
		Female Voice over	1 Marks
		The number of voice-overs with their role in any of the 5 commercial films/SEL shows, combined or separately.	
		Male Voice over	2 Marks
		Female Voice over	2 Marks
		The number of voice-overs with their role in any of the 7 commercial films/SEL shows, combined or separately.	
		Male Voice over	3 Marks
		Female Voice over	3 Marks
d)	Music	Music Director in Commercial films /SEL Shows/ {Background music (original score)}. The number of works should be specified in their self-certified CV.	**Maximum 12 Marks**
		Two works	4 Marks
		Three works	6 Marks
		Four works	8 Marks
		Five or more works	10 Marks
		In case music director has won National Film Award for Best Music Direction given by Govt. of India/NFDC. The necessary certificate for any award should be attached with the CV and Consent letter	Additional 2 Marks

Evaluation Criteria for 30% of technical QCBS weightage		
S. No.	**Description**	**Marks**
4.	**Concept and Presentation:** The bidder has liberty to conceive the project as per their own research and ideas keeping in the mind that it shall match International Standards. They must visit the site before the presentation. The presentation must be supported with simulated visuals. The presentation shall be inclusive of design of gallery, positioning of equipment, control room equipment layout etc.	**Maximum 50 Marks**
a)	Thematic Concept and storyline by the scriptwriter and research team of the bidder	25 Marks
b)	Layout details and Capsule simulation based on multimedia projection mapping by the technical team of the bidder.	25 Marks

Table 2: Evaluation criteria

Bidder must secure minimum 70% marks i.e. **70 marks out of 100 marks from the above technical evaluation criteria,** failing which the bidder will be disqualified and their financial bid will not be opened. The financial bid of only the qualified bidders will be opened as per e-tender process.

The approval shall be obtained by TEC from the Delegated power for opening of Price Bid based on marks given by TEC on both stages i.e. technical evaluation stage and Presentation.

D.1 Know Your Bidder

The following documents are to be furnished by the bidders for the **pre-qualification bid** as per the tender document:

1. Digitally signed complete Tender document including Corrigendum, if any. (Note: Bidder will be outrightly rejected on non-submission of the complete Tender document, including Corrigendum, if any)
2. Scanned copy of proof of payment through NEFT/RTGS/DD of EMD/Exemption certificate of EMD
3. Scanned copy of profile of company/History and Structure of firm, Name of Director(s)/ Partner(s)/ Proprietor, along with details of technical staff.
4. Scanned copy of relevant documents for ascertaining the existence of entity i.e. Certificate of Incorporation, Year of establishment, profile/ credentials of the Bidder, Company Establishment as Sole Proprietor/Limited/Private Limited/ Partnership/ JV / Consortium / Limited Liability Partnership (LLP)/Joint Bidding (Bidder should submit MOA/AOA/Partnership Deed/ Joint Bidding Agreement) or other document as applicable for the bidder.
5. Scanned copy of Work Order/Purchase Order, Completion Certificate from Client.
6. Scanned copy of certificate from the Statutory Auditor/ Chartered Accountant indicating Average Annual Turnover of the company for the last 3 financial years
7. Scanned copy of Audited Balance sheet for last three financial years
8. Scanned copy of Undertaking/Tender acceptance letter.
9. Scanned copy of Affidavit on non-judicial stamp paper of Rs. 100/-
10. Scanned copy of Proof of GST and PAN registration.
11. Scanned copy of ESI and PF registration. The bidders claiming non –applicability of ESI and PF shall submit an affidavit on non-judicial stamp paper of Rs 100.00.
12. Scanned copy of **Contract Integrity Pact.**
13. Scanned copy of EMD Refund form.
14. Scanned copy of Authorisation letter for signing the tender related documents (as required)
15. Scanned copy of Undertaking form - Undertaking for Debarred/Black listed by any Government Department/Public Sector Undertaking and Local Bodies.
16. Scanned copy of Undertaking form - Undertaking for No Penalty is pending during the last 2 years from any Government Department/Public Sector Undertaking and Local Bodies.

Annexure 'E' – SEL Equipment & Technology

Projection System

UHD/4k 3 Chip DLP Laser Projector

Projection System is an advanced façade mapping technology that transforms the temple's surfaces into dynamic storytelling canvases.

High lumens projectors are crucial for outdoor sound and light shows because they deliver the brightness needed to produce clear, vivid images even in ambient light conditions.

This makes them ideal for projecting visuals onto large surfaces such as building facades, monuments, or custom screens as part of multimedia spectacles that combine synchronized lighting effects, music, narration, and visuals for engaging public entertainment.

High-lumen projectors are commonly used for mapping dynamic visuals onto architectural structures during shows, creating illusions of movement, transformation, or storytelling directly on buildings.

Projector Enclosure

Projector enclosures are used primarily to protect projectors, especially in outdoor or harsh environments.

Their key applications include:

Protection Against Weather: Outdoor projector enclosures shield projectors from rain, snow, wind, humidity, and moisture, preventing short circuits, rust, and damage.

Temperature Regulation: They maintain optimal operating temperature with ventilation, fans, heating, or cooling systems, preventing overheating or freezing.

Dust and Debris Prevention: Enclosures use dust-resistant filters to keep out airborne particles that can clog vents and degrade image quality.

Security: Durable, lockable enclosures protect projectors from theft and vandalism, particularly in public or unsecured locations.

Customization: Enclosures can be tailored to fit specific projector models and installation environments, including extreme weather.

Dynamic Lighting

Laser

Dynamic Lighting is an integrated lighting system designed specifically for the temple's architectural features

Lasers play a critical role in outdoor sound and light shows by providing high-impact visual effects that are synchronized with music and other audio elements, creating immersive audience experiences

Lasers are used to project vibrant, high-powered beams across expansive spaces and their visibility and reach can cover several kilometers, allowing large crowds to view synchronized light displays.

Lasers can project shapes, animations, and graphics onto natural and man-made surfaces—including buildings, water screens, clouds, and even hills—making them ideal for creative, themed spectacles, brand promotions, or urban celebrations.

For Outdoor Sound and Light Show Integration, Lasers are combined with audio systems and sometimes fog machines or pyrotechnics to create multi-sensory shows that deeply engage attendees.

Moving headlights are a core technology for outdoor sound and light shows, offering programmable move-ment, color effects, and dynamic visual engagement that enhance audience experience and artistic expression.

Moving Head Lights

Primary Applications of Dynamic Illumination and Effects: Moving heads can pan, tilt, and zoom, project-ing sharp, colorful beams and patterns that can be syn-chronized with music and sound, creating visually rhythmic effects across large outdoor spaces.

Audience Engagement: These fixtures can create aerial effects, sweep across audiences, and project customiza-ble gobos or logos, engaging and involving spectators directly in the light show.

Immersive 3D Visuals: Enhanced by movement in mul-tiple directions, moving heads produce three-dimensional lighting effects, making the outdoor envi-ronment dynamic and multidimensional.

Control and Synchronization: DMX or wireless proto-cols allow centralized, real-time control, making it possible to synchronize lighting sequences with pre-programmed audio tracks for tight audiovisual integration.

Dynamic Lighting

Programmable RGBW (Red, Green, Blue, White) lights are a cornerstone of modern light and sound shows, offering unparalleled versatility, color quality, and control to create immersive and dynamic visual experiences.

Programmable RGBW LED Lights

Atmosphere and Mood Creation: Lighting designers use RGBW lights to sculpt the mood and emotion of a performance or event.

Synchronization with Sound: Programmable lights can be controlled via DMX or sound-activation modes to synchronize perfectly with musical rhythm, beats, and sound cues to enhance audience engagement.

Architectural Illumination: For outdoor or large-scale sound and light shows, weather-resistant RGBW floodlights or wall washers are used to transform building facades, monuments, or natural landscapes into living canvases, extending the visual experience beyond the stage.

Customization and Storytelling: Advanced control systems, like DMX512, allow for complex pre-programmed sequences and custom scenes, giving designers to use the light to tell a story.

Audio System

Audio System

An audio system is crucial for a light and sound show, serving to synchronize the soundtrack with visual effects and create a fully immersive experience. The system's role includes providing clear, high-quality sound, and strategically placing speakers to ensure every member of the audience has good experience.

The essential components include:

Speakers: A sound system is built around high-quality speakers appropriate for the venue's size to provide clarity and dynamic range.

DMX controller: This is the central hub for synchronizing all show elements, from lights to sound.

Mixer: A mixer is used to control audio levels and balance different sound sources.

Backup systems: Having redundant microphones, amplifiers, and other critical components is essential to prevent technical failures.

Annexure 'F' – Technical Specifications

(The particular specifications were for the equipment that was used in the SEL show at Rashtrapati Bhavan)

General Technical Specifications* (indicative only)	
Artistic Work	
Artistic Direction, Lighting Direction, Audio expert, Research, Script modification, Translation, Dramatization etc.	
Recording in multiple languages including Artists, Musicians, Voiceover, Music effects, etc.	
Visualizing the content, creating 2D, 3D, Animation (say approx. minimum 15 minutes) CGI, Video shoot including artist (approx. minimum 10 minutes) laser animation etc.	
Programming/integration of show with content, effect etc.	
Specifications:	3D Projection Mapping, Content creation and integration inclusive of
1.	**Concept Scripting** approx. 15 minutes (Celebrity script writer) or as per requirement • Creating a detailed concept note • Defining the theme design • Developing the story according to the projection mapping show • Narrative Script/Dialogues • Writing the screenplay for the green screen shoots • Lyrics for song
2.	**Content approx.** approx. 15 minutes (2D-3D animation) and 10 minutes (Video shoot and artists) approx. 20k resolution (Considering 4k projectors) or as per requirement • Creative show Direction • Visual storyboard and mood board • Design & Artwork (Including photos & videos & Illustrations) • 2D Animations • 3D projection Animations • Motion graphics • Visual Effects (VFX) • Voice over recording supervision (Including Voice over artists in single Language) Non celebrity • Editing • High resolution Rendering- approx. 20k resolution (Considering 4k projectors)
3.	**Green screen shoot** • Pre-production (costumes, casting, etc.) • Shoot Direction & Management • Shoot equipment's- camera, Lights, Sound (Including Technical crew) • DOP • Casting (Including Actors, performers) • Costumes, props, setting • Transportation and logistics
4.	**Music & Sound design** (Music for approx. 15+10 minutes of content) or as per requirement • Composition: This involves writing and arranging the music, including creating melodies, harmonies • Instrumentation: This involves selecting and recording the instruments and sounds that will be used in the music, including both live instruments and electronic sounds • Recording involves capturing the audio of the instruments and vocals • Mixing and balancing the levels and EQ of the individual tracks to create a polished final mix • Mastering with final touches to the mix, to create the final master of the track • Creating sound FX for the film
5.	**Photogrammetry and Texture extraction** • Photogrammetry of building for texture extraction • Detailed renders of the building for Visualization • 3D model of the building

General Technical Specifications* (indicative only)	
6.	**Technical Integration and programming** • Detailed Technical elements for the show including the type and number of projectors, and any other equipment needed • Feasibility tests of the projectors and tweaking it according to the location and providing color correction and mapping supervision • Supervising the sound acoustics on location and tweaking the audio accordingly • Supervising and programming the laser content • Supervising and assisting in programming the lighting integration into the show
Floor Standing Cabin/ Rack	
1.	Rack shall be designed and engineered specifically for easy assembly and rapid equipment integration at site on the use of aluminum extrusions profiles for the four vertical pillars, which shall be connected solidly to two welded steel end-frames to take load up to 500 kg. All other parts shall be of formed sheet steel of approved shade.
2.	The rack shall confirm to DIN 41494 with Steel Doors - plain, vented at bottom, fully perforated and dual perforated lockable Glass Doors - with optional vented side trims for front-to-back air flow of powder coated shades having minimum depth 600mm and width 1000mm spacious to accommodate to 42U (23” size) with dimensions of 600mm x 1000mm complete with castors (4 nos.) with foot-operated breaks fan housing units with fan one U cable merger AC main channel with 10 points of 5x 15 amp Socket Strip IEC Sockets fitted with earthing kit and necessary mounting hardware.
Left, Right and Center Loudspeakers	
1.	The unit shall be a full-range dual powered high efficiency and low distortion loudspeaker system of dual concentric driver complement.
2.	The unit shall have a wave guide producing a well-controlled horizontally and vertically coverage to the viewers.
3.	Transducers shall be treated to be weather protected and enclosures coated with suitably finish treatment with internally sealed.
4.	All metal hardware shall be upgraded to corrosion resistant, high quality, reliable stainless-steel material.
5.	Input panel shall be protected by a weatherproof cover plate. Grilles shall be manufactured using an industry recognized ‘marine’ grade stainless steel for cosmetic perfection and lined with required material to prevent water and dust ingress.
6.	The units specified here shall include all speakers mounting hardware to final designs prepared by the bidder.
7.	The Main Loudspeaker (LCR) shall be of weatherproof IP rating or suitable IP rating enclosure for outdoor.
Left and Right Loudspeaker Specification: Dual 12”, 2-way high output system for installation applications. Nominal impedance: 8 Ohms Frequency Response: 67 Hz – 16 kHz (-6 dB) Power handling AES / peak: ≥500W Max. peak SPL: ≥122 dB Dispersion HxV: Multiple Angle Options IP rating (IEC 60529): IP55	
Center Loudspeakers Specification: 10” or better 2-way/3-way high output versatile full range speaker system. Frequency response: 66 Hz – 16 kHz (-6 dB) Power handling AES / peak (passive): ≥500W Nominal impedance: 8 Ω. Max. SPL peak: ≥122 dB. Dispersion: Multiple Angle Options IP rating (IEC 60529): Standard IP55	

General Technical Specifications* (indicative only)	
Subwoofer	
1.	The unit shall be direct radiating, 1 x 18" or 2 x 18" high efficiency, high power handling passive subwoofer, powerful bass and high sound pressure capacity at low and ultra-low frequency enclosure of durable medium density fiber board / birch plywood of suitable thickness fixed with adhesives and mechanical fasteners.
2.	The front shall be protected with perforated steel grill from any mechanical damage. Subwoofers shall be treated to be weather protected and enclosures coated with suitably finish treatment with internally sealed.
3.	All metal hardware shall be upgraded to corrosion resistant, high quality, reliable stainless-steel material.
4.	Input panel shall be protected by a weatherproof cover plate.
5.	Grilles shall be manufactured using an industry recognized stainless steel for cosmetic perfection and lined with required material to prevent water and dust ingress.
6.	Unit shall be provided with all mounting hardware required to provide an adjustable but completely lockable mounting.
7.	The Sub-Woofer shall be of weatherproof IP rating or suitable IP rating enclosure for outdoor.
Specifications: High Output Single 18” / Dual 18” Multipurpose Subwoofer. Components: 1x18”/ 2x18” Frequency Response: 37 Hz – 90 Hz (-6 dB). Power handling (AES/peak): ≥1000 W Maximum output peak: ≥122 dB. Nominal impedance: 4/8 Ω. IP rating (IEC 60529): Standard IP55	
Surround Speaker	
The Surround Speakers shall be with the suitable power capacity housed in a compact form factor featuring a professional cross-over network coupled with professional drivers. They should be suitable for wall mount bracket/poll mount as required. The surround speaker shall be of weather proof IP rating or suitable IP rating enclosure for outdoor. **Specifications:** 8”/10”/12” 2-way compact full range speaker system. Frequency response: 59 Hz – 16 kHz (-6 dB) Power handling AES / peak (passive): ≥400W Nominal impedance: 8 Ω. Max. SPL peak: ≥122 dB. Dispersion: 90°/110° horizontal 40°/ 60° vertical. IP rating (IEC 60529): Standard IP55 **Note:** The Sales & Service Centre of Approved Make for above audio/ sound systems shall be in India.	
Four Channel Power Amplifier	
The power amplifiers shall be for full range frequency response for Voice and Music application.	
It shall be a professional Sound Reinforcement amplifier with adequate protection features and monitoring built-in and shall be suitable for mounting in standard 19” or required audio rack.	
It shall be of four Channels type, each channel of sufficient rating to drive loudspeaker /sub-woofer/ Surround Speaker.	
Specification (4 Channel): 4-channel Class D 20000-Watt Network amplifier with DSP and DANTE THD 20Hz-20kHz at 1 W< 0.1% Dynamic Range >108 dB Power Handling (Per Channel) : 2400 W @ 4 Ohms, 1400 W @ 8 ohms, Amplifier Gain configurable gain from 22dB to 44 dB Frequency Response (1W into 8 ohm, 20 Hz-20kHz) +/- 0.05 dB Peak output Voltage 90-240V **Protection Features:** Current Average Limiter (CAL), Very High Frequency Protection (VHF), Direct Current Protection (DC), Short Circuit Protection, Current-Clip Limiter, Voltage Clip Limiter, Temperature protection Eight dual redundant Dante network audio inputs Analog Inputs, Control port, Two AES3 digital inputs	

General Technical Specifications* (indicative only)
4-channel Class D 4000 Watt Network amplifier with DSP and DANTE THD 20Hz-20kHz at 1 W<0.1% Dynamic Range >108 dB Power Handling (Per Channel) : 1200 W @ 2 Ohms, 800 W @ 4 ohms, 400 W @ 8 ohms Amplifier Gain configurable gain from 22dB to 44 dB Frequency Response (1W into 8 ohm,20 Hz-20kHz) +/- 0.05 dB Peak output Voltage 90-240 V Protection Features: Current Average Limiter (CAL), Very High Frequency Protection (VHF), Direct Current Protection (DC), Short Circuit Protection, Current-Clip Limiter, Voltage Clip Limiter, Temperature protection 8 dual redundant Dante network audio inputs Analog Inputs, Control port, Two AES3 digital inputs Note: 1. Manufacturer's test certificate to be submitted by the successful bidder during execution. 2. The Sales & Service Centre of Approved Make for Amplifiers shall be in India.
Audio Interface
The audio interface should be advanced FireWire audio interface, raising the bar with innovative features, enhanced standard features that remain unique, superb sound, and reliable performance.
It shall provide suitable channels, analog recording and playback, combined with required channels of ADAT digital I/O and stereo S/PDIF.
The audio interface shall equally well-suited for studio and stage, with or without a computer.
As an interface or standalone mixer, it shall have required separate inputs and separate outputs, including dedicated main outs on XLRs/ any audio interface headphone outs.
Should be suitable to connect all studio equipment - microphones, synths, keyboards, audio machines, and even effects processors.
All mixing and effects parameters shall be adjustable using the front panel, backlit LED.
The audio interface shall provide cross-platform compatibility and will also work with all audio software and host-based effects.
The sales and service center of approved make for audio shall be in India.
Note: 1. Manufacturer's test certificate to be submitted by the successful bidder during execution. 2. The Sales & Service Centre of Approved Make for Audio Interface shall be in India.
Digital Signal Processor (DSP)
The Signal Processor equipment shall operate in Digital Audio Platform and shall have multi-channel configuration analogue minimum 10x6 channel configuration or 24 x 24 channel on Dante. Although both the input/ output shall be analogue with built in internal 24-bit A/D and D/A converters operating at sample rate up to of 96KHz, the internal signal processing shall be digital. Electronically balanced input and electronically balanced output shall be provided on plug in barrier strip connectors. Inputs shall be individually programmable to accept variable line level/Mic level signals from the Audio interface. Output shall normally provide line-level signals. Software should be provided for creating/connecting DSP system components with each hardware unit. Available system components shall include but not limited to various forms of mixers equalizers, filters, crossovers, dynamic/gain controls, routers, delays, level controls, level meters and tone generators. Ethernet communications shall be utilized for software control, configuration, and DSP sharing. After initial programming, systems may be controlled either using TCP/IP or RS 232 serial communications. Note: 1. Manufacturer's test certificate to be submitted by the successful bidder during execution. 2. The Sales & Service Centre of Approved Make for DSP shall be in India.

General Technical Specifications* (indicative only)
Projector
The projector shall be of high image quality with ultra-bright, highly reliable, high contrast, 3- chip DLP technology.
This projector shall offer true native resolution, light output of sufficient lumens as per the standard contrast ratio.
It should be fitted with lens – centered designed having vertical/horizontal lens shift, flexible angle setting, and easy lens replacement mechanism with suitable mechanical lens shutter.
It shall be fitted with direct power of feature, quite operation, dust proof design, easy replacement of dust filter, anti-theft feature including security chain opening, remote etc. as required.
Specifications: Projector Technology: 3-chip DLP Technology Brightness: ≥50000 Lumens Light source Laser Resolution ≥ (4096 X 2160) (4k) Contrast Ratio ≥2000:1 Light source lifetime: ≥20,000 Hours Note: 1. The Sales & Service Centre of Approved Make for projectors shall be in India.
Projector Enclosure
Projection housing enclosure for 50000 Lumens projector with DEC Control Interface for setup and monitoring of temperature, humidity and status indicators. Power control circuit with PID Management system compatible with the projection housing unit and display unit.
Specifications: Cooling: Air fusion cooling (Integrated Air Con) Insulation: Thermal Insulation Doors: Dual-locked with 3 access doors Stacking Rails: Easy to use stacking rails (if required) Installation: Cable entries to suit Projector Installation Mounting Plate: Sliding Projector mounting plate Mounting strut: Mounting strut /Uni-strut to suit projector mounting solution Optiflex Viewing Window: 6mm Optiflex viewing window which is treated with a polymer Socket: 16A/32A IP rated mains socket (with Plug) Colour: Any RAL colour finish to suit projector installation environment.
RGB Laser System
The laser shall be on the base of Pure Diode technology for the show.
The laser systems shall be enables to powerful, brilliant color laser outputs by using small housings.
This laser shall distinguish itself through high color stability and significantly lower maintenance.
The laser shall be compact in design, inconspicuous but striking eye-catcher.
The laser projector power shall be suitable for any kind of outdoor event as required.
Specifications: Maximum Power ≥15 W Optical Output: ≥ 5000 mW RGB Laser beam (nm): ≥ 638 nm - Red ≥ 520 nm - Green ≥ 445 nm - Blue X/Y Laser Scanner ≥30 kpps @8˚, Max. 60˚ scan angle Beam Diameter: ≥ 5 mm beam diameter@ 1 m rad Divergence Control Mode ILDA/ LAN/ DMX Operating voltage: 100 to 240 V Note: 1. The Sales & Service Centre of Approved Make for laser systems shall be in India.
RGB Laser System Enclosure
Projection housing enclosure for laser system with DEC Control Interface for setup and monitoring of temperature, humidity and status indicators.
Power control circuit with PID Management system compatible with the projection housing unit and display unit.
Specifications: Connections: XLR (E-Stop)/LAN Operating Current: ≥15A@230V

General Technical Specifications* (indicative only)
Server Specification
Modular & scalable video processor with upto 16x 4K60p inputs and 16x 4K60p outputs option: 0/12-bit 4:4:4 video processing power, best-in-class image quality and pure 4K60p on each input and output with HDMI 2.0. The device should be able to deliver 8 nos. of 4k mix layers, supports mixing layers (true seamless transitions) & split layers (cut transitions), background source can be still image or live source, Layer source can be a live input, a still image, a screen PGM (for split layers only) or any of the inboard clocks, countdown and timers. 2 multi viewers, 4 field swappable output connector cards, Native Dante™ Audio networking, Audio de-embedding / embedding on every input & output (raw audio), Dual redundancy Ethernet ports- AES67 support. 64x64 Dante™ channels @48 kHz or 32x32 Dante™ channels @96 kHz. Area of Interest option to customize active areas of outputs. Up to 12 Concurrent 4K Still Images Swappable redundant power supplies (1+1) EDID management on every input and output. Fully functional simulator for offline configuration and practice Full 4K Plug & Play Fiber Optical Extender (TX-RX) 4096x2160@60Hz/4:4:4 maximum resolution (600MHz), HDMI 2.0 – No compression, Zero frame delay, HDCP 2.2, passive cooling, Single Fiber Technology, Solid machined aluminum body, Compact size, External universal power adaptor Note: The Sales & Service Centre of Approved Make for Media Control Servers with Software's & licenses shall be in India.
Moving Head
The moving head profile shall be compact and bright LED with efficient optics punches out a variety of effects and colors. With two color wheels, two gobo wheels and rotating prism, the moving head offers full effect in a super compact housing, making it perfect for shows or outdoor event as required. The Moving head shall be controlled through DMX signal. **Specifications:** Light source: LED 680W-900W, 6500K-7000K and full CMYC color mixing. The fixture must have a minimum LED lifetime of 20000 hrs (to >70% luminous output). Beam Angle: Narrow Beam Min.6 deg to 40 deg, Display On board control, Pan/Tilt rotation : 540°/270° (8-16bit), Rotating Gobo : 7 gobos plus open, wheel rotation, gobo rotation, indexing and shake. Gobo animation and flow effects included. Additional static gobo wheel with 8+open gobos with index rotation and shake. Color mixing: CMY, independently variable 0-100% Color wheel: 7 color filters plus open.CTC Control from 6500K - 2700K. Rotatable framing module, +/-60°, with 4 individually controllable full framing blades with variable angle and position. Prism: 2 rotating/indexing prisms (4-facet circular prism and 6-facet linear) Frost: Soft frost effect and heavy frost effect included, Focus: Motorized. RDM, DMX512, IP66 and C5-M rated. Note:- 1. As per technical specifications indicated in this document. 2. Submission of certificates pertaining to LM79 (from third party international lab/third party NABL approved lab), LM80, IEC60598 (from third party international lab/third party NABL approved lab).

General Technical Specifications* (indicative only)
Flood Light
Specifications: The output of fixture must have Superior colour consistency. Fixture must have Integrated PSU & DMX Driver that can be directly connected to 230V, 50 hz AC supply, pf> 0.9. The fixture must be capable of producing a minimum output 1500 lm at full output. The fixture must have the capability to mount manufacturer made diffuser lenses to obtain different beam angles. Beam angle options-8°,11°,15°,30°,50°, 8° x 50°. The fixture must have an option to externally mount glare control accessories. Note: - 1. As per technical specifications indicated in this document. 2. Submission of certificates pertaining to LM79 (from third party international lab/third party NABL approved lab), LM80, IEC60598 (from third party international lab/third party NABL approved lab). 3. IES Files along with link of the official web page of Luminaries. Test certificates – relevant LM 79, UL, CE, IEC 60598, LM 80 test certificates of the Luminaries submission is mandatory. 4. Make should have been used in at least one of the Central/State Govt. project. The Sales & Service Centre of Approved Make for Par Lights, Up lighters, LED lights, Flood Lights shall be in India.
RGBW Color Grazer
Specifications: 48W Outdoor Rated Linear LED RGBW Color Grazer luminaire for facade lighting with aluminum housing. Luminaire shall be capable of producing dynamic color changing light and also color temperature control from 1800 K - 12000K. Efficacy > 54lm/W; IP rating :IP66 Impact protection rating :IK08 Corrosion resistance rating - C5 High Surge protection: 4KV Minimum LED lifetime: 50000 hours (to > 70% luminous output). The output of fixture must have Superior colour consistency. Fixture must have Integrated PSU & DMX Driver that can be directly connected to 230V, 50 hz AC supply, pf> 0.9. The fixture should have connectors that are compatible with Hybrid cables that carry data and power for easy installation and cable management. The fixture must be capable of producing a minimum output 1500 lm at full output. The fixture must have the capability to mount manufacturer made diffuser lenses to obtain different beam angles. Beam angle options-15°,15°x30°,15° x 60°. The fixture must have an option to externally mount glare control accessories. Length of the fixture approx. 1200mm

General Technical Specifications* (indicative only)
12W Outdoor Rated Linear LED RGBW Color Grazer luminaire for facade lighting with aluminum housing. Luminaire shall be capable of producing dynamic color changing light and also color temperature control from 1800 K - 12000K. The fixture must have an Efficacy > 54lm/W; IP rating :IP66 Impact protection rating :IK08 Corrosion resistance rating - C5 High The luminaire must have 4KV Surge protection The output of fixture must have Superior colour consistency. Fixture must have Integrated PSU & DMX Driver that can be directly connected to 230V, 50 hz AC supply, pf> 0.9. The fixture should have connectors that are compatible with Hybrid cables that carry data and power for easy installation and cable management. Minimum LED lifetime: 50 000 hours (to > 70% luminous output). The fixture must be capable of producing a minimum output of 500 lm at full output. The fixture must have the capability to mount manufacturer made diffuser lenses to obtain different beam angles. Beam angle options-15°,15°x30°,15° x 60°. The fixture must have an option to externally mount glare control accessories. Length of fixture 300mm. Note: - 1. As per technical specifications indicated in this document. 2. Submission of certificates pertaining to LM79 (from third party international lab/third party NABL approved lab), LM80, IEC60598 (from third party international lab/third party NABL approved lab). 3. IES Files along with link of the official web page of Luminaries. Test certificates – relevant LM 79, UL, CE, IEC 60598, LM 80 test certificates of the Luminaries submission are mandatory. 4. Make should have been used in at least one of the Central/State Govt. projects. The Sales & Service Centre of Approved Make for Par Lights, Up lighters, LED lights, Flood Lights shall be in India.

General Technical Specifications* (indicative only)
DMX Splitter
The DMX Splitter shall be rack mounted (19”) suitable to work on 240 volts 50 Hz via rear connector for distribution of DMX signals. It shall have 5 pin XLR Male inputs, 6 isolated output 5 pin XLR females and shall be having individual on/off power switch. The opto isolated DMX-512 splitter shall have minimum one DMX input and six DMX output connections, the sockets being standard 5-pin AXR connectors. The opto isolated DMX-512 splitter shall have power on LED and DMX active LED indication on the front panel. The opto isolated DMX-512 splitter input shall be internally terminated.
Specifications: Input Voltage- DC 12-24V input, 100-240V, 24VDC plug-in power adaptor included Power Consumption 5W max. Housing is made of Polycarbonate, Surface mount or DIN-rail mountable, Operation Temperature -10ºC ~ +35ºC, Output Six 3pin terminal sockets Connections Two-piece compression screw terminals Protection Rating IP20 Supports bi-directional communications for discovery, addressing and DMX control of products. This unit takes the incoming DMX/RDM signal and splits the signal into six separate output channels allowing for expanding the number of devices controlled from 32 to 6 X 32. The output terminals are electronically isolated from the input & RDM-through port and share a common ground reference. All six output ports have an independent output driver to boost the DMX/RDM signal etc. as reqd. (Note: All the peripheral accessories including vertical / Horizontal mountings arrangement including special tools and equipment for installation are included in the Item rates.) **PC Specification:** Processor ≥ 16 Core intel i9 Operating system: Windows 10 or better System memory ≥ 32 GB RAM Storage ≥ 2 TB or better Graphics Memory ≥ 4 GB NVIDIA/ AMD Display ≥ 24 Inches, 1920 x 1080 & higher specification 60 Hz brightness
UPS
The UPS shall be of suitable rating according to run the full one show, 3Ph-3Ph true ON-LINE, IGBT rectifier, IGBT inverter, Double conversion type consisting of integral battery backup of minimum 30 minutes with dynamic switch, dynamic bypass and 100% capacity rectifier charger & inverter. The UPS shall be provided with protection against sags, surges, outages, waveform distortions, frequency variations, line noise, spikes (switching transients) - sine waveform output of Tower Mount configuration complete with Tower. The batteries shall be maintenance free and shall be provided with life cycle guarantee commitments with provision that these batteries are hot-swappable, user replaceable type. The unit shall comply with BIS and Indian Electrical standards that apply to UPS power.

General Technical Specifications* (indicative only)
Specifications: Apparent power (KVA): 100 KVA Effective Power (W): 80 KW Input/output: 3Phase/3phase Technology: Double Convertor (Online) Battery Capacity 96 X 12V/ 9 Ah Battery Life: 2 to 3 Years Efficiency Rating 90% to 98% Power factor: 98.5% to 99% Operating Frequency: 50/60 Hz
Ethernet Switch
24-Port Unmanaged Network Switch shall have a variety of Ethernet-enabled devices such as access points, hubs, computers, and more directly to a larger network and to the Internet. This shall have a Plug and play configuration allows it into a rack mount configuration. The Ethernet switch shall be equipped with 24 Fast Ethernet ports that provide a fast, reliable network connection. The switching capacity shall be 48 Gbps and ensures benefit from increased bandwidth and throughput to move packets through the switch faster and more efficient • 24 x Fast Ethernet Ports • 2 x Combo mini-GBIC Slots • 48 Gbps Switching Capacity • 35.7 Mpps Forwarding Capacity • 802.3/3u/ab/z/x/af Network Standards • 128MB RAM / 128MB Flash Memory • Fanless, Rack-Mountable Design • 9216 bytes Jumbo Frame
Main Panel/ Distribution
Distribution Equipment like Electrical Distribution board, field junction boxes and luminaries' / speaker junction boxes etc. – shall be designed as per the final scheme adopted for the show – for the control as well as the distribution of power / controls to various equipment in the field / control room. These shall be indoor / outdoor type (IP 65), as applicable, and shall be painted in accordance with other equipment within the same area of mounting or painted to suit the ambience. The components inside this distribution equipment shall be of reputed make and the quantities shall be such that there is at least 10% redundancy on the main equipment. Outgoing terminals of the main distribution board shall be of heavy duty while the incoming / outgoing terminals of all other distribution equipment shall be screwing less terminals of high standard. Field junction / Distribution Boxes/ Luminaries/ Speaker Junction shall be IP 65 made from 2 mm thick MS sheet powder coated with screw less clip-+-on terminals/ or else specified and double compression glands complete as required or as specified. Cubical panel shall be fabricated out from CRCA sheet with required bracings and supports, gasket with foam rubber to make the panel dust and vermin proof, together with degreasing and applying two coats of red oxide and two coats and stove enamel paint. The panel shall include all required hardware, molded insulators and separators including cutting and making space in compartmental formation. The thickness of steel sheets shall be 16 SWG. It shall be complete as per the nomenclature mentioned in bill of quantities and as required at site.

General Technical Specifications* (indicative only)
Cables and Earthing
Cables shall be as per the approved make indicated in the annexure confirming to of makes to be approved by ITDC. Cable for the show shall be PVC insulated (1100V grade), multi-core, copper conductor, armored / un-armoured / flexible, as per the requirements, and each core shall be of multistrand.
Cable for the audio distribution shall be suitable size to minimize the voltage drop, over long runs and shall be suitably screened to eliminate noise. Cables for the controls shall be of high standard and shall be designed for the intended use. Cabling shall be done in a neat manner, and all armoured cables shall either be buried in ground or laid on structure / wall / column with suitable designed spacers / saddles / clamps, such that there is a total grip of the cable and the layout is visually appealing. The spacing of these spacers / saddles / clamps shall be at least 100 cm on horizontal run and 75 cm in the Vertical run.
Cables run on saddles-spacers shall be provided with outer cover, of suitable material and finish, to merge with the ambience - the cost of which shall be included by the bidder in the cabling costs of such lots and nothing extra shall be payable as separate item in the Schedule of Prices. However, cables laid on cable trays, tray with proper cover would be paid per running meter as per requirement.
Flexible / un-armoured cable shall be laid through steel conduits / flexible lead coated conduits and all the accessories for such layout shall be of reputed / good quality. Use of 2/3/4-way junction boxes for cable distribution and use of JB with connectors shall be made wherever there is a requirement of distribution of main circuit to multiple sub-circuits.
All cable terminations shall be done using lugs of appropriate type and reputed make and all such terminations shall be ferruled as per acceptable scheme. The cables shall be terminated in various types of distribution equipment(s) using brass double compression glands or using glands suitable for lead coated flexible conduit – as the case may be. Provision shall be made on the Inside of the front panel to fix circuit directory having the FROM – TO – VIA information pasted prominently for easy identification and diagnosis
Suitable nos. of Earth Pits as per requirement shall be provided for the Audio & Electrical circuits, near the control room. All cables laid shall have a continuous run of earth wire of suitable cross-sectional area as per requirement. Cables shall be laid as per latest CPWD specification.
Civil Works
Civil Work for Projector Mounting Specifications: • Excavation for foundation for depth from 1.0 m to 1.5 m including sorting out and stacking of useful materials and disposing off the excavated stuff upto 50 Meter lead. (B) Soft Soil • Circular Hollow Section INB 500 x16 mm diameter of 4.5-meter height with brackets • MS Base Plate of 25 mm thickness (800mm x 800 mm) and ISA 75x75x8 angles. **Civil Work for Loudspeaker Mounting Specifications:** • Excavation for foundation for depth from 1.0 m to 1.5 m including sorting out and stacking of useful materials and disposing off the excavated stuff upto 50 Meter lead. (B) Soft Soil • MS box of size 35mmx50mm through 1110 mmx1520 mm at four side with base plate of 3 mm at bottom side and MS sheet of 3mm at three side of box • MS box of size 35mmx50mm through 860 mmx1120 mm at four side with base plate of 3 mm at bottom side and MS sheet of 3mm at three side of box • ISA angle 75x75x8 at outside of box for mounting enclosure of speakers and front side of box is covered with MS dotted fencing

General Technical Specifications* (indicative only)
MS Office Cabin
Specifications: • Pre-fab M.S. Portable Cabin • Includes - 1 Main door, - 4 Led lights, - 1 Fans, - 1 window 3x3 • Electrical Points, Switch Socket, Vinyl • Flooring, 1 provision for split AC • 2 Ton Split Ac Inverter
Miscellaneous Works
12-Seater Golf Kart Executive Model Specifications: Vehicle Model: PLUS Seating Capacity: 12 Voltage: ≥ 60V Charger: ≥ 60V, 18-20 AMP Battery: (Lead Acid Minimum 1 year Warranty) 60V, 140AH Motor Peak Power: Minimum Peak Power of 7KW Loading capacity: Minimum 1000 Kg Body Make: FRP Fibre Brakes: Hydraulic/Mechanical Drum Brakes Speed: 25 km/Hr. Maximum Running Distance: Maximum 60Km Charging Time: Approx. 5 Hours

Notes

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