



PC-1

Implementation of Master Plan of Safari Zoo Lahore

ORIGINAL APPROVED COST	PKR Million. 2,453.200/-
ORIGINAL APPROVED GESTATION	24 Months Till June 2025
APPROVAL FORUM	PDWP (PDWP)

1. NAME OF THE PROJECT

Implementation of Master Plan of Safari Zoo Lahore

2. LOCATION OF THE PROJECT

2.1. DISTRICT(S)

I. LAHORE

3. AUTHORITIES RESPONSIBLE FOR

3.1. SPONSORING AGENCY

3.2. EXECUTION AGENCY

- COMMUNICATION & WORKS DEPARTMENT
- FORESTRY, WILDLIFE & FISHERIES
- PHA LAHORE
- WILDLIFE

3.3. OPERATIONS AND MAINTENANCE AGENCY

- WILDLIFE

3.4. CONCERNED FEDERAL MINISTRY

4. PLAN PROVISION

Sr #	Description
1	Source of Funding: Scheme Proposed for Next ADP
2	Proposed Allocation: 2,453.200

Comments:

The project was placed and approved by the Caretaker Standing Committee of Cabinet on Finance and Development during its 7th meeting held on 18.08.2023.

The scheme was approved in the 17th PDWP meeting held on 20.09.2023.

5. PROJECT OBJECTIVES

1. Revamping of the Safari Zoo Lahore

The contemporary tourism landscape demonstrates a growing appetite for immersive wildlife experiences that foster a deeper connection with nature. The project is strategically positioned to tap into this demand, offering a unique opportunity for visitors to engage with diverse wildlife in their natural habitats. This demand is driven by a collective desire for authentic encounters, education, and conservation awareness.

The modern era demands immersive, educational, and sustainable tourism experiences that foster connections with the natural world. The Thematic Safari Zoo project is strategically aligned with this demand, offering visitors an unparalleled opportunity to engage with wildlife in meticulously recreated habitats. This venture aims to cater to a diverse audience, from nature enthusiasts and families to researchers and students, seeking to explore the intricate tapestry of Earth's biodiversity.

2. Establishment of Thematic Safari Zones

The project recognizes the significance of creating a comfortable and informative environment for visitors. A thoughtfully designed entrance welcomes guests with ticketing and information centers. Elevated viewing platforms and enclosed walkways provide unobstructed views of animals in their habitats. Restrooms, cafeterias, and picnic areas are seamlessly integrated for visitor convenience.

The project incorporates a comprehensive transportation plan for seamless movement within the expansive

safari zones. Eco-friendly electric trams or safari vehicles transport visitors through designated routes, optimizing traffic flow. Separate tracks for day and night safaris are designed to prevent interference, enhancing the visitor experience.

3. Education and Awareness

Education and awareness are pivotal aspects of the project's goals. It seeks to educate visitors about the intrinsic value of biopiversity and wildlife conservation, fostering a sense of responsibility and nurturing the next generation of conservationists. Education is a cornerstone of the project. It integrates informative signage, interactive displays, and educational centers that shed light on animal behaviors, conservation efforts, and the importance of biopiversity. Collaborations with research institutions further the conservation and research objectives of the project.

The Thematic Safari Zoo project recognizes the critical role that education plays in fostering a culture of conservation. Interactive displays, educational centers, and informative signage weave a narrative that unveils the mysteries of animal behavior, habitat dynamics, and the delicate balance of ecosystems. This immersive approach aims to empower visitors with knowledge, deepening their appreciation for the natural world and motivating them to become stewards of biopiversity.

4. Improve Animal Display Facilities

The project envisions to improve the animal display through transforming the existing heavy infrastructure (especially fence) that obstructs the view of visitors to specifically designed enclosures / moats to improve visitor viewership and provide them an immersive experience. The project is in line with international best practices to provide animals sufficient space and fulfil their habitat requirements. The improved display at Safari would be an added attraction for the public.

5. Ex-situ Wildlife Conservation

Central to the project's foundation is its profound commitment to wildlife conservation. By replicating natural habitats, the project fosters an environment that promotes the physical and psychological well-being of the resident animals. With collaborations with esteemed research institutions, the project not only aims to contribute to the understanding of these species but also fosters an ethos of conservation consciousness among visitors. It serves as a sanctuary for threatened species, enhancing global efforts to protect and rehabilitate wildlife populations.

6. Establishment of a Wildlife Rehabilitataion Centre

The project envisages to develop a state of the art veterinary complex which would include a well-equipped hospital and rehabilitation centre. The facility would cater to the needs for wildlife rescue and rehabilitation. It would also be a great avenue to promote research on various aspects of wildlife health. As the project includes a major component of animal acquisition, it is pertinent to establish a veterinary facility which can provide the animals best care.

7. Addition / Pairing of Animal / Bird Species

A substantial component of the project is the animal procurement which would not only be crucial to ensure animal pairing at Safari, but it would also add to the variety. The massive area of Safari Zoo is sufficient to cater to a wide ranging variety of species.

6. DESCRIPTION AND JUSTIFICATION OF PROJECT

6.1 JUSTIFICATION OF PROJECT:

The Safari Zoo was established in 1996 and is one of the largest zoos in Pakistan. The Zoo operates as a centre for ex-situ conservation, while also providing a valuable source / avenue for education, awareness, and research. The interactive zoo exhibits, educational programs, and guided tours at zoos can raise awareness about biodiversity issues and inspire visitors to take action for wildlife protection. It provides a unique and immersive learning environment for people of all ages, particularly for children. It also offers an opportunity to observe and connect with a wide variety of animals up close, which can foster curiosity, understanding, and empathy towards the natural world.

Currently, Safari Zoo, Lahore is housing about 1100 wild animals belonging to 118 species. Safari Zoo is among the oldest Zoo of the Pakistan but facing problems like improper pairing and fewer variety of exhibits. Hence, under present condition objectives of Zoo particularly captive breeding and public recreation is not being achieved adequately. To address this issue procurement of exhibits for pairing of existing exhibits and addition for new variety of exhibits have been included in this project for which infrastructure / housing facilities are already available.

A detailed feasibility study was conducted and proposed by Bernard Harrison & Friends Ltd, for the revamping of Safari Zoo, Lahore. The inception of the Thematic Safari Zoo project marks a visionary endeavor to redefine wildlife experiences, conservation efforts, and responsible tourism in the region. Rooted in the ideals of environmental stewardship and educational enrichment, this project aspires to create an immersive platform where visitors can engage with the wonders of nature while contributing to the preservation of diverse ecosystems and species.

In a world increasingly distanced from the natural realm, the need for spaces that bridge the gap between humans and wildlife has become paramount. The Thematic Safari Zoo project is an answer to this call, designed to immerse visitors in the diverse habitats of captivating animals while fostering an understanding of their ecological significance. This initiative stems from a deep-seated commitment to conserve wildlife, promote sustainable practices, and offer an unparalleled opportunity for education and recreation.

The primary concern has been regarding the lack of animal pairing, diversity of bird and animals species, habitat enrichment and use of heavy infrastructure for animal display. Consequently, the honorable Chief Minister Punjab has been pleased to approve revamping of the Safari Zoo, Lahore. The proposal was placed and approved in the meeting of standing committee of cabinet on Finance and Development dated 18-08-2023. The present PC-1 scheme envisions redesigning / revamping of animal enclosures, housing and improving visitor experience by providing an immersive experience.

Thematic Zones Proposed by the Bernard Harrison

The Thematic Safari Zoo project boasts a multi-faceted set of objectives that collectively forge a path toward transformative outcomes. The project is dedicated to wildlife conservation, aiming to create scientifically designed habitats that mirror the natural conditions of indigenous species. By doing so, it promotes their overall well-being and ensures their reproductive success. During construction of thematic zones, it is estimated that over 300 trees will be cut. However, prudence will be ensured to minimize unnecessary loss of trees.

Thematic Zones:

The heart of the project lies in the creation of thematic zones, each distinctively designed to mirror the natural habitats of specific animals. These zones offer a seamless blend of artistry and authenticity, transporting visitors to the African Safari, Salt range, Desert Safari, and other captivating environments.

African Safari Thematic Zone

The African Safari Thematic Zone envelops visitors in the mesmerizing landscapes of the African continent. Diverse habitats mirror the savannah, dense jungles, and water bodies, ensuring optimal conditions for each

animal species. Lions, elephants, giraffes, and other iconic species roam freely within spacious enclosures that prioritize their natural behaviors. Thoughtfully designed viewing points and guided tours offer an immersive experience while maintaining visitor safety. The zone incorporates advanced enrichment techniques to ensure animal well-being, fostering a captivating atmosphere that blends conservation with education.

Salt Range Thematic Zone:

The Salt Range Thematic Zone captures the essence of the unique Salt Range landscape. Exposed rock formations, sedimentary strata, and salt deposits are meticulously recreated, providing animals like leopards, urials, and mouflon sheep with habitats that mimic their natural environments. Night safaris within the leopard and urial habitats offer an enchanting glimpse into nocturnal behaviors while preserving the animals' well-being. Walking tracks wind through the rugged terrain, allowing visitors to engage with the Salt Range's geological marvels and perse wildlife.

Desert Safari Thematic Zone:

The Desert Safari Thematic Zone transports visitors to arid landscapes reminiscent of deserts. Sand dunes, sparse vegetation, and rocky terrains form the backdrop for chinkara, black bucks, and desert-adapted birds. Open grasslands cater to the grazing behaviors of black bucks, while sandier areas provide a suitable environment for chinkara. Camel rides and guided desert safaris enhance the authenticity of the experience. The night safari illuminates the desert's nocturnal life with warm-toned lighting, showcasing unique behaviors and adaptations of desert wildlife.

Furthermore, an AI based sentiment analysis was conducted which provide an insight into the public perception of the Safari Zoo:

Factor	Positive sentiment (%)	Negative sentiment (%)
Animal species	40%	60%
Overall safari environment	30%	70%
Outdated ticketing and parking system	10%	90%
Recreational activities	20%	80%
Educational aspect	25%	75%
Ushering	15%	85%
Technological attractions	10%	90%
Food court	30%	70%
Number of safaris	20%	80%
Resting spots	25%	75%
Outdoor activities	20%	80%
Development of Night Safari	90%	10%

Sentiment Analysis

Factors	Sentiment Type	Sentiment	Highlighted factor in that sentiment
Animal species	Negative	Want more variety	Visitors want to see more variety of animal species, such as zebras, rhinoceroses, hippopotamuses, and a variety of birds and reptiles.
Overall safari environment	Negative	Doesn't give much look of safari	The overall safari environment does not give much of a safari look. Only the lion safari is there, and the vehicles are not modern and are outdated.
Recreational activities for safaris	Negative	Very less	There are very few recreational activities available for safaris, such as playgrounds, picnic areas, and walking trails.
Educational aspects for Lahore Safari	Negative	Poor	The educational aspects for Lahore Safari are poor. The exhibits are outdated and lack informative signage.
Ushering in safari	Negative	Lack of	There is a lack of ushering in the safari. The ushers are sometimes unhelpful and do not seem to be knowledgeable about the animals or the safari.
Technological attractions	Negative	Rare	Technological attractions are rare in the safari. There are no interactive exhibits or animal cameras.
Food court	Negative	Lack of proper food court	There is a lack of a proper food court in the safari with proper seating and environment. The food court offers poor quality food at high prices.
Number of safaris	Negative	Lack of number and no thematic safari	There is a lack of number of safaris. There should be more animal safaris, such as elephant safari, rhino safari, and giraffe safari. And safari should be in thematic structure
Resting spots	Negative	No proper or good resting spots	There are no proper or good resting spots in the safari. This leads to overcrowding and congestion.
Outdoor activities in safari	Negative	Lack of outdoor activities	There is a lack of outdoor activities in the safari, such as camping and glamping pods.
Development of	Positive	Need a Night	A night safari can increase footfall

Night Safari		Safari	in safari
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The Safari Zoo presently has various incomplete structures which were constructed under the PC-1 scheme titled "Development of Animal Safaris & Improvement of Existing Facilities at Safari Zoo, Lahore" implemented from 2014 to 2016. Due to a variety of reasons, the civil works could not be completed, while an outstanding liability of Rs. 3.905 million of the contractor exists. As per directions of the worthy Chief Minister Punjab, a complete revamping of Safari Zoo is being undertaken under the instant project. During implementation of the project, various previous incomplete structures would also be demolished, being inconsistent with the proposed theme of the Safari Zoo.

Among the components of the PC-1, the Aquarium and lighting for Night Safari will be undertaken on EPC mode. The financial provision has been provided under the project, while detailed designing will be conducted by the firm hired on EPC mode, which would then undertake the construction and procurement of the said components. The lighting of night safari is a technical and complex task which required specific set of expertise to implement lighting as per animal requirements and prevent unnecessary stress on them.

6.2 SECTORAL SPECIFIC INFORMATION:

The Thematic Safari Zoo project seamlessly aligns with the broader goals and objectives of the wildlife and tourism sectors. In the wildlife sector, the project directly addresses the need for ethical and sustainable animal care practices. By creating spacious, naturalistic habitats, the project aligns with global efforts to enhance the well-being of animals under human care. Furthermore, the project resonates with the overarching vision of promoting environmental stewardship and fostering public appreciation for the planet's rich biop diversity. By aligning with both the wildlife and tourism sectors, the Thematic Safari Zoo project offers a harmonious blend of conservation, education, and recreation – a blueprint for a sustainable and vibrant future.

7. CAPITAL COST ESTIMATES:

Financial Components: Revenue
Cost Center: OTHERS- (OTHERS)
Fund Center (Controlling): N/A

Grant Number: Development - (PC22036)
LO NO: LO000000000
A/C To be Credited: Account-I

PKR Million

Sr #	Object Code	2023-2024		2024-2025	
		Local	Foreign	Local	Foreign
1	A03807-P.O.L Charges A.Planes H.Coptors S.Car	3.000	0.000	0.000	0.000
2	A03907-Advertising and Publicity	38.000	0.000	0.000	0.000
3	A09801-Purchase of Livestock	600.000	0.000	0.000	0.000
4	A09701-Purchase of Furniture and Fixture	20.000	0.000	0.000	0.000
5	A03942-Cost of Other Stores	8.000	0.000	0.000	0.000
6	A13304-Structures	340.000	0.000	0.000	0.000
7	A03906-Uniforms and Protective Clothing	3.000	0.000	0.000	0.000
8	A03927-Purchase of Drug and Medicines	4.000	0.000	0.000	0.000
9	A13801-Maintenance of Gardens	125.000	0.000	0.000	0.000
10	A03919-Payments To Others For Service Rendere	60.000	0.000	0.000	0.000
11	A01277-Contingent Paid Staff	15.000	0.000	0.000	0.000
12	A02203-Consultant based Research and Surveys	60.000	0.000	0.000	0.000
13	A03802-Training - International	15.000	0.000	0.000	0.000
14	A01101-Basic Pay	1.309	0.000	1.524	0.000
15	A01203-Conveyance Allowance	0.160	0.000	0.093	0.000

16	A01217-Medical Allowance	0.056	0.000	0.042	0.000
17	A0124H-Special Allowance 2021	0.220	0.000	0.164	0.000
18	A0124R-A0124R - Adhoc Relief Allowance 2022	0.132	0.000	0.099	0.000
19	A0124Q-New Special Allowance 2023	0.402	0.000	0.301	0.000
20	A09601-Purchase of Plant and Machinery	54.848	0.000	0.000	0.000
21	A09501-Purchase of Transport	189.500	0.000	0.000	0.000
22	A0124T-Special Allowance - 2022	0.132	0.000	0.099	0.000
23	A03901-Stationery	1.500	0.000	0.000	0.000
24	A03303-Electricity	5.000	0.000	0.000	0.000
25	A03407-Rates and Taxes	2.025	0.000	0.000	0.000
26	A01202-House Rent Allowance	0.178	0.000	0.132	0.000
27	A01270-Other	0.391	0.000	0.293	0.000
28	A01106-Pay of Contract Staff	21.296	0.000	17.051	0.000
Total		1,568.149	0.000	19.798	0.000

Financial Components: Capital
Cost Center:OTHERS- (OTHERS)
Fund Center (Controlling):N/A

Grant Number:Government Buildings - (PC12042)
LO NO:LO00000000
A/C To be Credited:N/A

PKR Million					
Sr #	Object Code	2023-2024		2024-2025	
		Local	Foreign	Local	Foreign
1	A12403-Other Buildings	865.253	0.000	0.000	0.000
Total		865.253	0.000	0.000	0.000

8. ANNUAL OPERATING COST (POST COMPLETION)

Financial Components: Revenue
Cost Center:OTHERS- (OTHERS)
Fund Center (Controlling):N/A

Grant Number:Development - (PC22036)
LO NO:LO00000000
A/C To be Credited:Account-I

PKR Million

Sr #	Object Code
Total	

Financial Components: Capital
Cost Center:OTHERS- (OTHERS)
Fund Center (Controlling):N/A

Grant Number:Government Buildings - (PC12042)
LO NO:LO00000000
A/C To be Credited:N/A

PKR Million

Sr #	Object Code	2025-2026		2026-2027		2027-2028		2028-2029		2029-2030	
		Local	Foreign	Local	Foreign	Local	Foreign	Local	Foreign	Local	Foreign
1	A12403-Other Buildings	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

ANNUAL RECURRING COST AFTER COMPLETION OF PROJECT

(Rs. in million)				
Sr. No.	Item	1st year	2nd year	3rd year
1	Maintenance of Infrastructure as B&R Code.	17.305	19.035	20.938
2	Cost of Establishment	5.984	6.582	7.240
3	POL Charges	4.000	5.500	6.000
4	Cost of Other Store (Feed) for animals / birds	9.000	10.500	11.000
5	Electricity Charges, Electric Installation / maintenance charges.	5.500	6.500	7.500
6	Cost of Chemical & Medicines	5.000	6.000	7.000
7	Others	5.000	5.000	5.000
8	Contingent Paid Staff	15.000	16.500	17.500
9	Services Rendered	15.000	16.500	17.500
Total		81.789	92.117	99.678

9. Demand and Supply Analysis:

To meet the burgeoning demand for immersive wildlife experiences, the project has undertaken meticulous planning to ensure a continuous supply of engaging attractions and top-notch visitor amenities. This involves the establishment of robust animal care protocols, habitat maintenance practices, and innovative educational initiatives. By maintaining a high standard of quality and variety, the project aims to consistently attract and satisfy a wide range of visitors.

10. FINANCIAL PLAN AND MODE OF FINANCING

10.1 FINANCIAL PLAN EQUITY INFORMATION:

The project will be financed through ADP of Government of Punjab

10.2 FINANCIAL PLAN DEBT INFORMATION:

Not applicable

10.3 FINANCIAL PLAN GRANT INFORMATION:

Not applicable

10.4 WEIGHT COST OF CAPITAL INFORMATION:

Not applicable

11. PROJECT BENEFITS AND ANALYSIS

11.1 PROJECT BENEFIT ANALYSIS INFORMATION:

-Employment Generation:

One of the primary social benefits of the project lies in its potential to generate employment opportunities across a spectrum of roles. From skilled positions such as animal care specialists, veterinarians, and conservation researchers to service-oriented roles within visitor facilities and administration, the project envisions creating a wide range of jobs. These opportunities extend beyond the project site, contributing to regional economic development by fostering a web of interconnected livelihoods.

-Skilled Personnel and Local Communities

The project places a strong emphasis on recruiting skilled personnel from both local communities and broader regions. By leveraging the expertise of local individuals, the project not only supports the community but also enriches the project's authenticity and cultural sensitivity. Engaging local communities in operational roles enhances the project's immersive experience, as visitors interact with individuals who possess an intimate understanding of the ecosystem.

-Collaborative Conservation Initiatives:

A central tenet of the project's social benefits is its collaborative approach to conservation. Engaging local communities in the conservation of native flora and fauna fosters a sense of ownership and responsibility. The project establishes partnerships with local stakeholders, indigenous communities, and conservation organizations to promote community-led conservation efforts. By fostering a deep connection between communities and the environment, the project amplifies its conservation impact.

-Health and Well-Being

The project extends its positive impact to health and well-being by fostering a sense of tranquility and connection with nature. The serene surroundings and engagement with wildlife provide visitors and local

communities with a reprieve from urban stressors, contributing to holistic well-being. The project also promotes healthy living through recreational activities and outdoor experiences.

The project's social benefits extend far beyond mere economic gains. By generating employment, nurturing local talent, empowering communities, and fostering conservation awareness, the project becomes a catalyst for positive change. Through its inclusive approach, the project empowers individuals, uplifts communities, and contributes to the holistic well-being of society while advancing its conservation and educational mission.

11.2 ENVIRONMENTAL IMPACT ANALYSIS:

A hallmark of the project is its commitment to environmental conservation and sustainability. By creating carefully designed habitats, promoting native flora, and integrating eco-friendly infrastructure, the project mitigates negative environmental impacts. The project's benefits transcend economic gains, encompassing profound social and environmental impacts. Its financial viability is underscored by well-calculated return on investment projections, while its social benefits are measured through educational indicators, employment generation, and community empowerment. The project's environmental impact aligns with sustainability goals, emphasizing conservation and restoration efforts. Collectively, these dimensions converge to position the project as a transformative force that not only entertains and educates but also enriches communities, fosters conservation ethics, and upholds environmental integrity.

11.3 ECONOMIC ANALYSIS:

The project serves as a catalyst for substantial employment generation across various sectors. Direct employment opportunities arise within the project, encompassing roles in animal care, research, visitor services, hospitality, and management. Indirectly, the project's ripple effect generates employment opportunities for local suppliers, artisans, and service providers. The infusion of job opportunities contributes to regional socio-economic development, addressing unemployment challenges and elevating the quality of life for neighboring communities.

11.4 FINANCIAL ANALYSIS:

Not applicable

12. IMPLEMENTATION SCHEDULE

12.1 IMPLEMENTATION SCHEDULE/GANTT CHART:

The project will be implemented during the FY 2023-24.

12.2 RESULT BASED MONITORING (RBM) INDICATORS:

Enclosed as relevant annexure.

12.3 IMPLEMENTATION PLAN:

All project components will be implemented during the current financial year.

12.4 M&E PLAN:

The regular monitoring of the project during the implementation phase will be conducted by the PM&E wing of the wildlife department and DG M&E, while the evaluation of the project will be done by the Directorate General Monitoring & Evaluation, Planning & Development Department

12.5 RISK MITIGATION PLAN:

Enclosed as relevant annexure.

12.6 PROCUREMENT PLAN:

All procurements will be undertaken during FY 2023-24

13. MANAGEMENT STRUCTURE AND MANPOWER REQUIREMENTS

Enclosed in relevant annexures.

14. ADDITIONAL PROJECTS / DECISIONS REQUIRED

N/A

15. CERTIFICATE

Focal Person Name:Ghulam Rasool

Designation:Deputy Director Wildlife Safari Zoo
Lahore

Email:safarizoolahore@gmail.com

Tel. No.:

Fax No:

Address:11 km Thokar Niaz Baig, Raiwind Road, Lahore, Punjab

15. Certificate

It is certified that the project has been prepared as per instructions issued by the Planning Commission for the preparation of PC-I Project.

PREPARED BY:


(GHULAM RASOOL)
DEPUTY DIRECTOR WILDLIFE
SAFARI ZOO, LAHORE

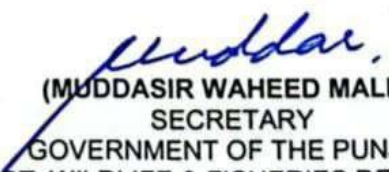
CHECKED BY:


(JUNAID NADEEM)
MONITORING & EVALUATION OFFICER
WILDLIFE & PARKS, PUNJAB
2-SANDA ROAD, LAHORE
(042-99212369)

COUNTERSIGNED BY:


(MUBEEN ILLAHI)
DIRECTOR GENERAL
WILDLIFE & PARKS, PUNJAB
2-SANDA ROAD, LAHORE
(042-99212367)

SUBMITTED BY:


(MUDDASIR WAHEED MALIK)
SECRETARY
GOVERNMENT OF THE PUNJAB
FOREST, WILDLIFE & FISHERIES DEPARTMENT
(042-99211695, 99212361)

18. RELATION WITH OTHER PROJECTS

Scheme ID	Scheme Name
	Implementation of Master Plan of Safari Zoo Lahore

20. FOCUS ON MARGINALISATION

SR.NO.	CRITERIA	YES/NO	ACTION	COMMENTS
Description & Objectives				
1	Do the description / Objectives of the PC-I specify link / alignment with provincial strategies and sectoral policies?	YES	SDGs	
Use of Gender Disaggregated Data				
1	Was gender disaggregated data used to determine rationale / need of the project for select beneficiaries?	NO		
Social Impact				
1	Do project objectives/justification include focus on marginalised groups (women, PWDs, minorities, transgender, poor etc.)?	NO		
1a	Have marginalised groups (Women, PWDs, Minorities, Transgender Persons, Poor etc.) been included in project objectives / justification and / or as beneficiaries of the project?	NO		
2	Does the PC-1 include specific provisions for capacity building / training of marginalised group (if applicable)?	NO		
Results Based Monitoring				
1a	Does the PC-I include a Results Based Monitoring Framework (RBMF)/Logical Framework?	YES		
1b	Does the Framework include measurable targets / indicators relating to impact on marginalised groups?	NO		

2	Were SDG indicators used for determining targets included in the PC-I?	NO		
Inclusion/Participation				
1	Did the Stakeholder consultation(s) held during ADP Formulation and / or PC-I development include experts and representatives of marginalised groups and CSOs?	NO		
Monitoring & Evaluation				
1	Does the project provide a role to communities in project monitoring and/or implementation (if relevant)?	NO		no local / indigenous communities are involved in the project area.
2a	Does the project include formation of a Steering Committee and/or Project Implementation Committees?	NO		
2b	Is there a provision to ensure representation of women in these committees?	YES		

CONSERVANCY AND WORKS

Bill No.	Description	Quantity	Rate	2023-24	Total
1	Lion House	5438 Sft	4297.35 / Sft	23.369	23.369
2	Tiger House	5438 Sft	5595.07 / Sft	30.426	30.426
3	Leopard House	3120 Sft	16878.52 / Sft	52.661	52.661
4	Girrafe House	4448 Sft	6318.57 / Sft	28.105	28.105
5	Rhino House	8053 Sft	5820.31 / Sft	46.871	46.871
6	Elephant House	8053 Sft	4188.00 / Sft	33.726	33.726
7	Ungulates House (5x283)	1415 Sft	25885.51 / Sft	36.628	36.628
8	Ostrich House (3x283)	849 Sft	28716.13 / Sft	24.380	24.380
9	Zebra House (3x283)	849 Sft	23180.21 / Sft	19.680	19.680
10	Hospital Building	2275 Sft	4920.00 / Sft	11.193	11.193
11	Office Building	2680 Sft	18007.46 / Sft	48.260	48.260
12	Kitchen / Slaughter House	2250 Sft	12826.66 / Sft	28.860	28.860
13	View Points (10'x10'x15')	10150 Sft	3100.78 / Sft	31.473	31.473
14	Sick Cages	466 Sft	14326.18 / Sft	6.676	6.676
15	Information Center 2x4500	9000 Sft	7197.77 / Sft	64.780	64.780
16	Camping Pod (2x1792)	3584 Sft	10051.89 / Sft	36.026	36.026
17	Food Court	15746 Sft	1480.24 / Sft	23.308	23.308
18	Parking Area	190062 Sft	418.15 / Sft	79.476	79.476
19	Ghazebo Area	1200 Sft	2675.83 / Sft	3.211	3.211
20	Desert	189242 Sft	26.83 / Sft	5.079	5.079
21	Salt Range (1 Hill=40', Dia=150')	1 job		54.259	54.259
22	Salt Range (1 Hill=50', Dia=150') with water fall	1 job			
23	1st Main Gate	1 No.	16000000 Each	16.000	16.000
24	2nd Main Gate	1 No.	10000000 Each	10.000	10.000
25	Raiwind Road Gate	1 No.	10000000 Each	10.000	10.000
26	Asphalt Road	1 No.	658658 Each	22.658	22.658
27	Design of Fairways	1 No.	35881881 Each	35.881	35.881
Play Area		1 No.	566566 Each	0.566	0.566
	Total Cost:	-		793.574	793.574
	Add 2% Consultancy Charges (Detailed Engineering Design & Detailed Resident Construction Supervision)	-		16.000	16.000
	Add 2% Contingency	-		16.000	16.000
	Grand Total Cost:	-		825.574	825.574
	5% PST	-		39.679	39.679
	Total Cost: in Million	-		865.253	865.253

MACHINERY STORES & EQUIPMENTS**(Rs. in Million)**

Sr. No.	PC-I SCHEME				
	Items of Work	Qty	Rate/Unit	2023-24	Total
1	Procurement of Wireless set	12	0.064	0.768	0.768
2	Procurement of Walk Through Gate	5	0.800	4.000	4.000
3	Procurement of Dustbins	30	0.018	0.540	0.540
4	Procurement of Sound System (public address system)	1	2.000	2.000	2.000
5	Procurement of Sound System	1	0.800	0.800	0.800
6	Transportation/Shifting Cages of Animals	6	0.200	1.200	1.200
7	Procurement of Mist Fan (24 inch)	10	0.035	0.350	0.350
8	Procurement of Bracket Fan (18 inch)	30	0.016	0.480	0.480
9	Medical Equipment for Rehabilitation Centre (Annexed)	L.S	26.000	26.000	26.000
10	Procurement of Inverter Air Conditioner (1.5 ton, heat & cool)	6	0.250	1.500	1.500
11	Procurement of Inverter Standing AC (8 ton)	4	1.700	6.800	6.800
12	Purchase of Water Bowser	1	1.500	1.500	1.500
13	Purchase of Single Cabin Pick-up 4x4 with Fabrication	6	11.000	66.000	66.000
14	23 Seater Electric Vehicles (Soft Trams)	12	10.000	120.000	120.000
15	Purchase of Motorcycle 100 CC	4	0.250	1.000	1.000
16	Bicycles with QR Code Locks (Adult and Kids)	50	0.050	2.500	2.500
17	Purchase of printers	2	0.080	0.160	0.160
18	Purchase of Desktop Computer, 12TH GEN, i-3 or higher, 4 gb RAM, 1 TB hard drive, with LCD screen and accessories.	2	0.300	0.600	0.600
19	Procurement and installation of Projector (Minimum loops 2800-3000)	1	0.300	0.300	0.300
20	Generator 5KVA 1 Nos., 3 Nos. 20KVA (non-chinese)	4	0.5 2	6.500	6.500
21	LED TV 65', 4K UHD (02 for surveillance room and 01 for committee room)	3	0.450	1.350	1.350
	Total			244.348	244.348

COST OF ESTABLISHMENT**(Rs. in Million)**

Sr. No.	Name of Post	Scale	No. of Post	2023-24 (8 months)	2024-25 (6 months)	Total
1	Project Director	PPS 10	1	4.550	3.584	8.134
2	Director Marketing and Communication	PPS 10	1	4.550	3.584	8.134
3	Wildlife Rehabilitation and Behaviour Expert	PPS 9	1	3.234	2.905	6.139
4	Diagnostic Expert	PPS 8	1	2.310	1.873	4.183
5	Wildlife Husbandry Expert	PPS 7	1	1.663	1.348	3.011
6	Safari Zone Manager	PPS 7	3	4.989	4.044	9.033
7	Education Officer	BPS 17	2	1.628	1.344	2.972
8	Medical Laboratory Technologist	BPS 17	1	0.814	0.672	1.486
9	Assistant	BPS 16	1	0.538	0.444	0.982
Total:-			12	24.276	19.798	44.074

COMMODITIES & SERVICES

(Rs. in Million)			
Sr.No.	Item	2023-24	Total
1	Purchase of Zoo Exhibits	600.000	600.000
2	Purchase of Furniture and Fixture	20.000	20.000
3	Procurement of Sculpture	40.000	40.000
4	POL Charges	3.000	3.000
5	Cost of other store (feed medicine & store)	8.000	8.000
6	Publicity & Advertisement Charges	38.000	38.000
7	Cost of Chemical and Medicines	4.000	4.000
8	Maintenance of Garden (Landscaping, Plantation, Tracks)	125.000	125.000
9	Uniform	3.000	3.000
10	Services Rendered (Security Staff, & IT equipment for ticketing, surveillance system, information centre and data centre) (Annexed)	60.000	60.000
11	Contingent Paid Staff	15.000	15.000
12	Consultancy	60.000	60.000
14	Foreign / Exposure Visits for Animal Procurement (on site / off site inspection)	15.000	15.000
15	Rate and Taxes	2.025	2.025
16	Stationary	1.500	1.500
17	Electricity	5.000	5.000
Total		999.525	999.525

SUMMARY OF COST

(Rs. in Million)				
Sr. No.	Items	2023-24	2024-25	Total
1	Conservancy & Works	865.253	0.000	865.253
2	Machinery, Tools, Stores & Equipment	244.348	0.000	244.348
3	Establishment	24.276	19.798	44.074
4	Commodities & Services	999.525	0.000	999.525
5	EPC (Aquarium and Lighting)	300.000	0.000	300.000
Total:-		2433.402	19.798	2453.200

PROJECT STEERING COMMITTEE: -

1	Secretary, Government of Punjab, Forestry, Wildlife & Fisheries Department	Chairman
2	Secretary Livestock and Dairy Development	Member
3	Member PSW Planning and Development Board, Punjab	Member
4	Additional Secretary (Technical) Forestry, Wildlife & Fisheries Department	Member
5	Director General Wildlife & Parks Punjab	Member
6	Project Director	Member / Secretary
7	03 members from private sector having expertise in zoo management and best practices to be notified by the Administrative Department	Member

Term of References

- i. To oversee the implementation of the Project towards achieving desired objectives.
- ii. Provide policy guidance for issues identified during implementation phase.
- iii. Review the quarterly physical and financial progress.
- iv. Review the periodic monitoring and evaluation reports.
- v. Approve financial and physical readjustments during implementation process.
- vi. Approve change in number or variety of species to be procured as per its availability and while considering the suitability of housing facility.

**SECRETARY
FW&F DEPARTMENT**

ANIMAL PROCUREMENT COMMITTEE: -

1	Project Director	Chairman
2	Director Lahore Zoo	Member
4	Director, Wildlife and Parks Department.	Member
5	Director Livestock and Dairy Development	Member
6	Director Budget & Accounts (FWF), Punjab, Lahore	Member

Term of References

- i. Reviewing and approving animal acquisition proposals.
- ii. Ensure that all animal acquisitions comply with local, national, and international laws and regulations related to wildlife protection, trade, and transportation.
- iii. Evaluating the suitability of animal sources, including ethical considerations and animal welfare standards.
- iv. Assessing the zoo's capacity to provide proper care, housing, and medical support for acquired animals.
- v. Assess the feasibility of acquiring and maintaining the animal, taking into account habitat requirements.
- vi. Review the health status of the animal, including any quarantine measures needed to prevent the introduction of diseases to the existing animal population.
- vii. Evaluate the source of the animal, avoiding animals acquired from the wild whenever possible.

**SECRETARY
FW&F DEPARTMENT**

GRIEVANCE REDRESSAL COMMITTEE FOR PURCHASE OF ANIMALS / BIRDS:-

1	Additional Secretary, PM&E, FWF Department	Chairman
2	Chief Conservator Forest, Central Zone	Member
3	One member to be notified by the Planning and Development Board	Member
4	One member to be notified by the Punjab Public Procurement Authority	Member
5	One member to be notified by the Finance Department	Member

Term of References

The committee shall act as per provision of PPRA Rules to review and redress grievances reported to the committee regarding the procurement process of animals / birds.

**SECRETARY
FW&F DEPARTMENT**

Result-Based Monitoring (RBM) Indicators

Sr. No.	Input	Output	Outcome		Targeted Impact
			Baseline Indicator	Targets after Completion of Project	
1	Establishment of Thematic Zones	Improved zoo exhibit viewership	Presently only lion safari is providing limited experience	Establishment of Desert Safari, Salt Range Safari and African Safari.	Improved zoo exhibit viewership. Immersive visitor experience.
2.	Development of Information Centers.	Awareness and education for public.	Presently no education / information centers are available at Safari Zoo.	Establishment of 02 information centers.	Increased public awareness and education. Immersive visitor experience.
3.	Establishment of glamping pods	Provision of camping / glamping opportunity for visitors at safari	No glamping pods are present at Safari or even Lahore	Establishment of 04 – 06 glamping pods.	Provision of glamping facility to visitors. Outdoor experience.
4.	Establishment of state of the art wildlife rehabilitation centre	Rescue and rehabilitation centre for wildlife in adjacent areas.	No wildlife rescue centre (govt or private) are available.	Establishment of state of the art veterinary facility and rehabilitation centre.	Wildlife. Wildlife enthusiasts etc.

Risk Mitigation Plan

Sr. No.	Risks	Causes / Factors	Effects	Risk Mitigation Plan	Institution/s Responsible to take corrective measures to mitigate risks	Nature of Risk
1.	Lack of funds for timely execution of the project.	No funds released by provincial Government.	Delay results in increase in project cost.	Government may prioritize funding for the project considering its impact / importance.	P&D Department, Finance Department	High
2.	Insufficient funding for the execution of the project.	Short funding of project.	Delay results in increase in project cost.	Government may prioritize funding for the project considering its impact / importance.	P&D Department, Finance Department	
3.	Non-timely release of funds for the execution of the project.	Delay in release of funds due to approval / procedural matters.	Delay results in increase in project cost.	Timely initiation of approval procedure to ensure early processing of case for release of funds.	Wildlife & Parks Department	
4.	Delay / failure to undertake procurement of animals / birds	Uncertain economic situation may result in delay in delivery of hardware. Uncertain economic situation may result in price escalation of hardware. Ban on import of animals by High Court / MoCC prolongs.	Hindrance in implementation of project.	Reference may timely be initiated to MoCC for issuance of import permits.	Wildlife & Parks Department	

RECRUITMENT ELIGIBILITY CRITERIA & TERMS OF REFERENCE OF PROJECT DIRECTOR PPS-10

Duties and Responsibilities:

i. The Project Director shall ensure proper management of project, periodic and timely monitoring & evaluation for accomplishment of various components and preparation of progress reports for onward submission to relevant quarter. Following progress reports shall be prepared:

- Monthly Progress Reports
- Half Yearly Monitoring Reports
- Annual Evaluation Reports
- Project Termination Report
- Post project completion impact assessment report

ii. Lead the project implementation under the overall supervision of Director General, Wildlife & Parks Department & act as DDO for relevant components of the project.

iii. Ensure implementation, monitoring of project interventions through proper coordination with a team of Regional Implementation Agencies.

iv. Prepare, compile monthly ADP Progress Reports and participate in ADP Progress Review Meetings.

v. Additional duties of Project Director (if any) assigned to run the project during implementation phase shall stand regularized.

vi. Oversee the implementation of the project to ensure smooth implementation of the project interventions.

Required Qualification and Experience:

i. Master in Zoology / Wildlife Management / Project Management or Higher Qualification in relevant field.

ii. Minimum 10 years of experience in Zoo / Wildlife Management.

iii. 20% weightage will be given for requisite qualification and experience.

iv. 50% weightage will be given for interview on domain knowledge and project management.

v. 10% weightage will be given to candidates with prior experience of Animal Acquisition / ZIMS / Zootrition / Project Management in private and public sector.

vi. 10% weightage will be given to candidates with prior international exposure to Zoos.

vii. 10% weightage will be given to candidates with national or international zoo management trainings or project management certifications like PMP, PRINCE2, etc.

- viii. Business acumen and financial management skills will be preferred for overseeing budgets and financial operations.

Maximum age limit: 50 years.

If none available, an officer of BS-19/20 from the S&GAD or BS-18/19 from the Administrative Department may be posted as Project Director till recruitment of regular incumbent.

RECRUITMENT ELIGIBILITY CRITERIA & TERMS OF REFERENCE OF DIRECTOR MARKETING AND COMMUNICATION PPS-10

Duties and Responsibilities:

- Create informative and interesting press releases, press kits, newsletters, and related marketing materials.
- Develop and implement effective communication strategies that build customer loyalty programs, brand awareness, and customer satisfaction.
- Prepare detailed media activity reports.
- Plan and manage the design, content, and production of all marketing materials including website.
- Work with different marketing departments to generate new ideas and strategies.
- Supervise projects to guarantee all content is publication-ready.
- Create communication and marketing strategies for new products, launches, events, and promotions.
- Lead the marketing and public relations staff. Respond to communication-related issues in a timely manner.

Required Qualifications: Masters in Humanities

Required Experience: A minimum of 10 year of experience in communication field, having led teams in communication management and communication strategy.

10% additional weightage shall be given to a candidate having demonstrated work experience in international organization working abroad or in Pakistan.

10% additional weightage shall be given to a candidate having demonstrated brand advertisement for multi-national clients.

10% additional weightage shall be given to a candidate having demonstrated professional engagement in matters relating to communication of wildlife conservancy and preservation.

Maximum age limit is 45 years.

Language Requirements: Excellent communication skills. Speak, read and write English and Urdu.

RECRUITMENT ELIGIBILITY CRITERIA & TERMS OF REFERENCE OF REHABILITATION AND BEHAVIOUR EXPERT PPS-09

Duties and Responsibilities:

The Rehabilitation Expert shall ensure proper rehabilitation of wild animal and birds procured in this project. The officer will also ensure the management of exotic and endemic bird and animals, their periodic and timely monitoring & health assessment. Rehabilitation of animals/birds are per their natural requirement. Following tasks will be performed by the Rehabilitation Expert:

- Rehabilitation plan of the animals exhibits
- Present Habitat Assessment
- Habitat Needs by each Species.
- Enrichment of Wildlife Species.
- Any relevant task assigned

Ensure the rehabilitation of wildlife species under the overall supervision of Project Director & act as rehabilitation expert of the project.

Prepare, compile wildlife rehabilitation study/reports and participate in project meetings.

Oversee the civil work of each wildlife enclosure/moat as per the animal wildlife need/habitat.

Required Qualification and Experience:

- i. M. Phil in Zoology/DVM
- ii. Total 05 years of experience in animal / wildlife rehabilitation. Weightage will be given to candidates having worked at wildlife rehabilitation / animal rescue centres / veterinary clinics or public / private organizations dedicated to wildlife rehabilitation.
- iii. Maximum age limit is 50 years.
- iv. If none available, the Wildlife Rehabilitation Expert may be posted from Veterinary Officers of Punjab Wildlife & Parks Department

RECRUITMENT ELIGIBILITY CRITERIA & TERMS OF REFERENCE OF DIAGNOSTIC EXPERT PPS-08

Duties and Responsibilities:

The Diagnostic Expert shall ensure health care of wild animal and birds procured or present in Safari Zoo, Lahore. The officer will also ensure the health care, wellbeing of exotic and endemic bird and animals, their periodic and timely checkups, monitoring, health assessment and treatments. Diagnosis of animals/birds for disease and long term management. Following tasks will be performed by the Diagnostic Expert:

- Diagnosis/Treatment of the animals/birds
- Health Assessment/Monitoring
- Nutrition Needs by each Species.
- Prevention of diseases/epidemics in Wildlife Species.
- Any relevant task assigned

Ensure the health care of wildlife species under the overall supervision of Project Director & act as diagnostic expert of the project.

Prepare, compile, record keeping of health care of animals/birds and participate in Project Meetings.

Oversee the health care of each wild animal/bird as per the animal/bird need/diseases.

Required Qualification and Experience:

- i. DVM Doctor of Veterinary Medicine
- ii. At least 10 years of experience of working in government / private animal health care facility.
- iii. Preference will given to candidates with prior work experience of Zoo/Safari/Wildlife Breeding Centres/Farm.
- iv. Maximum age limit is 45 years.

If none available, the Wildlife Diagnostic Expert may be posted from the Senior Veterinary Officers in Punjab Wildlife & Parks Department.

RECRUITMENT ELIGIBILITY CRITERIA & TERMS OF REFERENCE OF SAFARI ZONE MANAGER PPS-07

Duties and Responsibilities:

As per Master Plan of the Safari Zoo, it is envisioned that three thematic zones will be developed i.e., African Safari, Desert Safari and Salt Range Safari. Each zone will have a unique theme and animal exhibits to provide an immersive experience to the visitors of wildlife in nature. A Safari Zone Manager will be responsible for all affairs of the zone, which may range from the overall maintenance of enclosure and landscaping, animal health, feed, visitor facilitation and overall smooth functioning of the safari zone. The Zone Manager will assist the Zoo Manager in ensuring overall smooth functioning of zoo operations.

Required Qualification and Experience:

- i. Minimum 16 years of education in Zoology
- ii. Preference will be given to candidates who demonstrate administrative experience and an understanding of zoo exhibits and their welfare requirements.
- iii. Minimum 02 years of experience working at a wildlife facility or a national / international wildlife conservation organization.
- iv. Maximum age limit is 45 years.

If none available, the Zoo Manager may be posted from the Assistant Directors / Deputy Directors Wildlife in Punjab Wildlife & Parks Department.

RECRUITMENT ELIGIBILITY CRITERIA & TERMS OF WILDLIFE HUSBANDRY EXPERT PPS-07

Duties and Responsibilities:

The Wildlife Husbandry Expert shall ensure proper pairing and breeding of wild animal and birds procured or present in Safari Zoo, Lahore. The officer will also ensure the proper pairing, fulfill the requisite needed for reproduction of exotic and endemic bird and animals, their periodic and timely checkups for genetic makeup and prevention of inbreeding.

Following tasks will be performed by the Wildlife Breeding Expert:

- Pairing of the animals/birds
- Prevention of Inbreeding
- Selection of healthy parent stock
- Management of Hatchery Section
- Any relevant task assigned

Ensure the proper pairing of wildlife species under the overall supervision of Project Director & act as wildlife reproduction expert of the project.

Prepare, compile, record keeping of pairing/breeding of animals/birds and participate in Project Meetings.

Oversee the each and every aspect of the reproduction of wild animal/bird as per the animal/bird need/diseases.

Required Qualification and Experience:

- i. DVM Doctor of Veterinary Medicine
- ii. Total 02 years of experience of working in government registered animal health care facility.
- iii. Experience of Zoo/Safari/Wildlife Breeding Centre/Farm will be preferred.
- iv. Maximum age limit is 45 years.

If none available, the Wildlife Breeding Expert may be posted from the Senior Veterinary Officers in Punjab Wildlife & Parks Department.

RECRUITMENT CRITERIA FOR EDUCATION OFFICER

The recruitment criteria and job description of education officer at Lahore Zoo shall be applicable for the project.

RECRUITMENT ELIGIBILITY CRITERIA & TERMS OF REFERENCE OF MEDICAL LABORATORY TECHNOLOGIST BPS-17

Duties and Responsibilities:

The Medical Laboratory Technologist shall be the overall incharge of the diagnostic facility at the Rehabilitation Centre. The officer will be responsible for calibration of laboratory equipment, collection of samples, analysis, and interpretation of data. He shall also prepare, compile, and keep a record of species wise diagnostic work. The officer shall assist the Diagnostic Expert.

Required Qualification and Experience:

- i. BS/MSc in Medical Laboratory Technology (MLT) or an equivalent qualification such as BS/MSc in Microbiology, Biochemistry, Genetics, Physiology or a relevant degree in clinical diagnostics.
- ii. Minimum 02 years of experience of working in Government or a registered private animal diagnostic facility.
- iii. Maximum age limit is 40 years.

FEASIBILITY STUDY REPORT

SEPTEMBER-2023



PUNJAB WILDLIFE DEPARTMENT

IMPLEMENTATION OF SAFARI PARK MASTER PLAN AND PROCUREMENT OF ANIMAL



Boundary

0 0.075 0.15 0.3 0.45 0.6 Kilometers

ENGINEERING CONSULTANCY SERVICES PUNJAB (PVT) LTD.

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Punjab Wildlife Department
Sardar Rd, Islamabad, Lahore
Tel: (042) 99212428



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Tel: (042) 35717681-84, 0333-4342777
Fax: (042) 35717685
www.ecsp.com.pk

EXECUTIVE SUMMARY

This deliverable NO 1: Feasibility Study of the Procurement Strategy covers a comprehensive feasibility study to (i) determine the suitability of execution under various modes, including EPC and BOQ models, (ii) assess the feasibility of international bidding versus local purchase for animal procurement, (iii) evaluate factors encompassing project complexity, budget constraints, timeline considerations, local supplier capabilities, international consultancy needs, mapping of international consultants, associated costs, and inclusion of day and night safari components, and (iv) present well-substantiated recommendations for the most suitable execution mode, procurement strategy, and potential engagement of international consultants of the procurement strategy.

This report has been prepared to cover the aforementioned scope in following order:

- ❖ *Procurement Strategy for Procurement of Implementation of Master Plan and Procurement of Animals [This component covers the feasibility study of procurement strategy of Infrastructure Development Works independently from the procurement of animals]*
- ❖ *Procurement Strategy for Procurement Mode (EPC/BOQ) For Implementation of Master Plan Including Procurement of Animals [This component covers the feasibility study of procurement strategy of entire project under EPC mode with respect to BOQ mode of contract]*
- ❖ *Procurement Strategy for Procurement of Works for Infrastructure Development [This component covers the feasibility study of procurement strategy of Infrastructure Development Works through National Competitive Bidding in comparison with International Competitive Bidding]*
- ❖ *Procurement Strategy for Procurement of Animals for Safari Park [This component covers the feasibility study of procurement strategy of domestically breed animal and animals to be imported]*
- ❖ *Procurement Strategy for Procurement of Consultancy Services of International Consultant for Infrastructure Development & Procurement of Animals [This component covers the feasibility study of procurement strategy of consultancy Services for the design stage and pre-shipment & post-shipment inspection of animals.]*
- ❖ *Conclusion [This component covers overall summary of the comprehensive feasibility study]*
- ❖ *Recommendations [This component covers the recommendation the consultant may suggest after undertaking a comprehensive feasibility study of procurement strategy]*

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1 INTRODUCTION:

Punjab Wildlife Department is entrusted with the management of Zoological Gardens and wildlife parks across Punjab as per provisions of Punjab Government Rules of business 2011 and Punjab Zoos and Safari Rules 2012.

The Punjab Wildlife and Parks Department is embarking on an ambitious and forward-looking endeavour: the development of a cutting-edge day and night safari and aquarium in Lahore. This initiative is in line with the vision and directives of Chief Minister Punjab to rejuvenate the existing zoos in Lahore and establish new, world-class zoological parks across Punjab.

At its core, this project signifies the department's commitment to creating contemporary and sustainable facilities. These facilities not only place a high priority on animal welfare and conservation but also function as hubs for education and recreation for the public. It's a testament to departments dedication to advancing wildlife conservation, enriching biodiversity, and providing an immersive experience for visitors while upholding the highest standards of engineering and architectural excellence.

Lahore Safari Park was established on 242 acres of land on main Raiwind Road at a distance of 13 KM from Thokar Niaz Baig in 1982; however, currently the park is totally neglected and underutilized even after several initiatives and projects to improve its utilization.

The project titled "Implementation of Lahore Safari Master Plan" on Raiwind Road represents a comprehensive study aimed at creating an internationally recognized facility. This facility is designed to meet the diverse needs of recreation, education, research, and the preservation of wildlife species within Lahore district. This endeavour is in accordance with the Punjab Wildlife (Protection, Preservation, Conservation, and Management) Act of 1974, which empowers the Wildlife Department to re-introduce and supplement wildlife species that are endangered within their natural habitats.

The primary objective of this project is to develop a Safari Park that aligns with global standards. This park aims to provide social, economic, scientific, recreational, and educational benefits to the local communities, scientists, and visitors/tourists from across the globe. It achieves this by incorporating a modern, visitor-friendly zoo facility along with drive-through safari experiences and walking trails. This transformative project aims to seamlessly blend conservation, education, and entertainment, offering an unparalleled experience for the public.

It invites individuals to witness wildlife in both daytime and nighttime environments while exploring the wonders of aquatic life.

This feasibility report is first step of focusing Procurement Strategies that will pave way for tasks needed to successfully complete the mega project. The focus of the evaluation report is on all factors that have a bearing on the preparation of PC-I of the scheme keeping in view the specific intentions for creating this facility as well as to use the existing facilities available at site in the most productive way to avoid the wastages.

2 BACKGROUND:

Wildlife has always been an influential factor in rangeland health. It refers to all non-domesticated plants, animals, and other organisms. Domesticated organisms are those that have adapted to survival with the help of (or under the control of) humans, after many generations. Domesticating wild plant and animal species for human benefit has occurred many times all over the planet, and has had a major impact on the environment, both positive and negative. Wildlife can be found in all ecosystems, deserts, rainforests, plains, and other areas—including the most built-up urban sites—all have distinct forms of wildlife. While, the term usually refers to animals that are untouched by human factors. Wildlife preservation depends on type, scale, purpose, and location. It includes key habitat areas in various ecosystems, environmental resource areas, flora and fauna, habitat for threatened/endangered species, breeding, shelter, migration corridors, rare landscape elements, areas of cultural significance, water-related ecosystems, opportunities for education & research, and is beneficial to Bio-diversity etc.

Wildlife plays a crucial role in maintaining the health of rangelands and ecosystems. It encompasses all non-domesticated plants, animals, and other organisms. Domesticated organisms, on the other hand, have adapted to coexist with or be controlled by humans over generations. The process of domesticating wild plant and animal species for human benefit has occurred worldwide and has had significant environmental impacts, both positive and negative.

Wildlife can be found across diverse ecosystems, ranging from deserts and rainforests to plains and even heavily urbanized areas. However, the term "wildlife" typically refers to animals that exist independently of direct human influence.

The preservation of wildlife depends on various factors, including the type of species, the scale of conservation efforts, their purpose, and their geographical location. It involves protecting key habitat areas in various ecosystems, conserving environmental resources, safeguarding

flora and fauna, preserving habitats for threatened or endangered species, supporting breeding and sheltering sites, establishing migration corridors, preserving rare landscape features, protecting areas of cultural significance, conserving water-related ecosystems, creating opportunities for education and research, and contributing to biodiversity conservation, among other objectives.

In essence, wildlife preservation is a multifaceted effort that seeks to safeguard the intricate web of life on our planet, recognizing the value of every species and the vital role they play in maintaining the health and balance of ecosystems.

Wildlife Park, Lahore represents ecology in the region of the central Punjab. The population of Punjab has increased; consequently, pressure has increased on Lahore more because of mass migration of rural population to the region. But mega city has limited space for expansion towards east because of close proximity of border; however, the population of the city is rapidly expanding between Multan Road and Raiwind road, south & southeast.

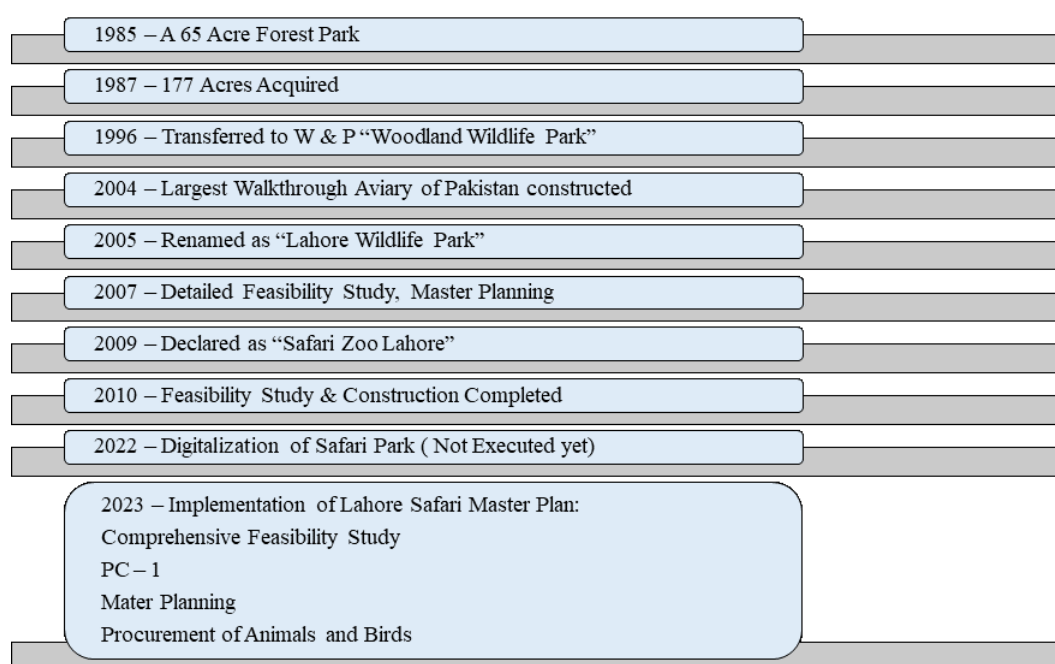


Figure 1: LAHORE Safari Park Timeline

Timeline of Lahore Safari Park development is shown in Figure 1. The Punjab Wildlife & Parks Department has implemented various schemes for the conservation of wildlife in the province of Punjab. Several projects are under implementation which envisage protection and conservation of wildlife in nature, propagation of wildlife in captivity, training of staff in wildlife management, research in different aspects of wildlife ecology and biology.

Wildlife stands as our most valuable natural resource, offering both environmental benefits and recreational opportunities. Unfortunately, the wildlife in our province has faced a decline due to human activities such as excessive hunting, environmental degradation, the conversion of flood plains into agriculture, and the rapid growth of the human population. To counter this decline, our department has undertaken various initiatives aimed at preserving biodiversity and wildlife, both in their natural habitats and in captivity, with the ultimate goal of reintroducing them to their original environments.

In line with a 2010 feasibility study, there are some minor yet crucial enhancements required to meet international standards. These improvements include the addition of an aquarium for aquatic species and the creation of a desert habitat that serves the community and offers a world-class entertainment experience.

Introducing a desert habitat within a safari park holds numerous benefits and educational opportunities for both visitors and the animals involved. This habitat allows the park to showcase the unique biodiversity of deserts, educating visitors about the remarkable adaptations and survival strategies of desert-dwelling creatures. Additionally, well-designed desert areas provide a peaceful and tranquil environment for visitors to enjoy.

Implementation of Safari Park would serve the purposes of recreation, education, and the reproduction of significant wildlife species. Diverse wildlife species, including Asiatic Lions, Bears, Leopards, Elephants, Crocodiles, Apes, and birds, will be raised in captivity in the park before being released or returned into their natural habitats for reproduction. Elephant, Rhinoceros, Giraffe, Red Kangaroo, Black Jaguar, and Hippopotamus would also be on the list of international domains/purchases, in addition to these. As local animals, Oryx, Addax, Zebra, Urial, Chinkara, Ostrich, a variety of parakeets, Pheasant, and Peafowl would be given importance. It would give the chance to observe wild domestic, foreign, and local animals and birds in their native habitats while providing the sense of being a part of the ecosystem.

3 PROJECT LOCATION

Lahore Zoo Safari Woodland Wildlife Park is an adventurous spot, located in Wildlife Park Road, Safari Road, 11-km Raiwind Road LHR Punjab, Pakistan. It was established in 1982, under the supervision of Punjab Wildlife and Parks Department (PWPD). It spread on an area around 242 Acre on land approximately.

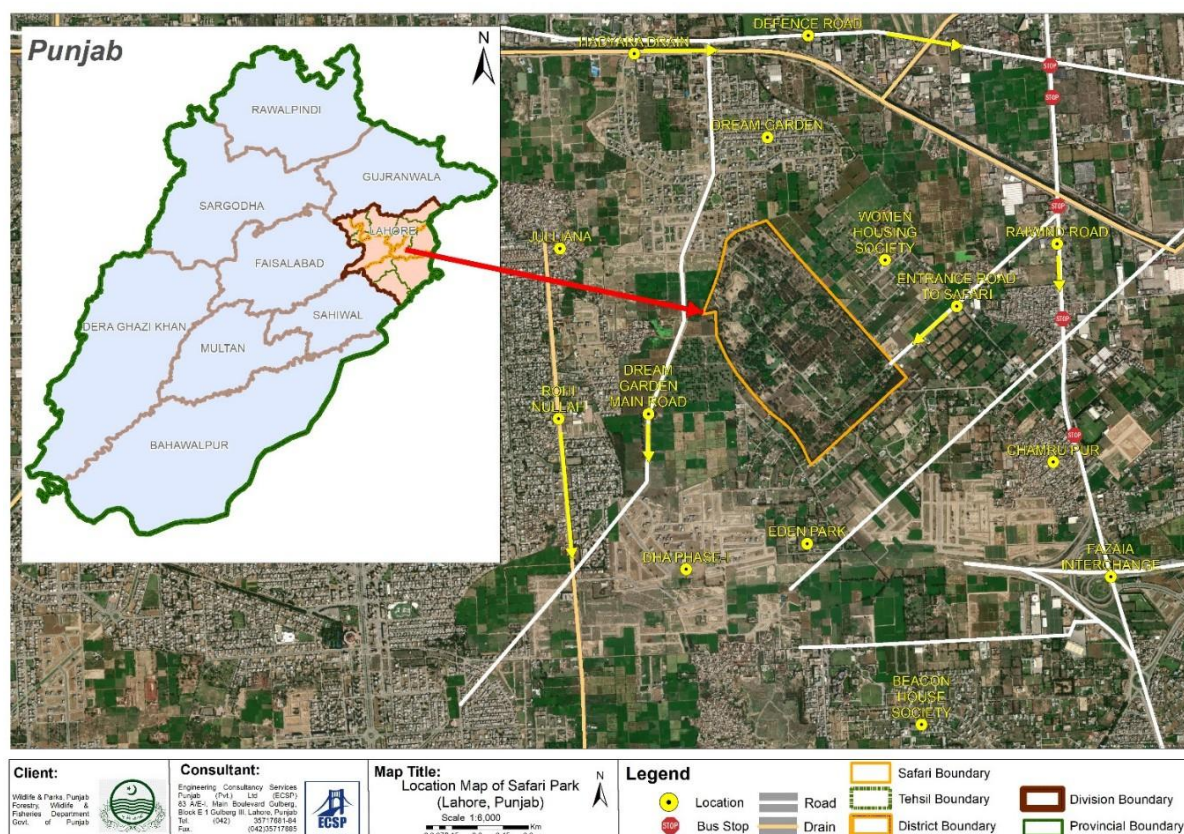


Figure 2: LOCATION MAP OF LAHORE SAFARI PARK

PROJECT DESCRIPTION:

Lahore Zoo Safari Park is a prominent zoological and recreational facility situated in Lahore, Pakistan. Safari Park Lahore is an ambitious and innovative project aimed at providing a unique wildlife experience to visitors while promoting conservation, education, and sustainable tourism. Located on the outskirts of Lahore, this safari park aims to create a harmonious environment where animals can thrive in settings closely resembling their natural habitats.

The park features traditional zoo exhibits with a wide array of animals, including mammals, birds, reptiles, and more. Lahore Zoo Safari Park places a strong emphasis on conservation and education. Informational signs, guided tours, and interactive exhibits are strategically placed throughout the park to educate visitors about various species, their habitats, and the importance of conservation efforts.

The management of Lahore Zoo Safari Park continually works to enhance the facilities and experiences offered to visitors. This might include improvements to animal enclosures, the addition of new exhibits, and the incorporation of innovative technologies for education and conservation purposes.

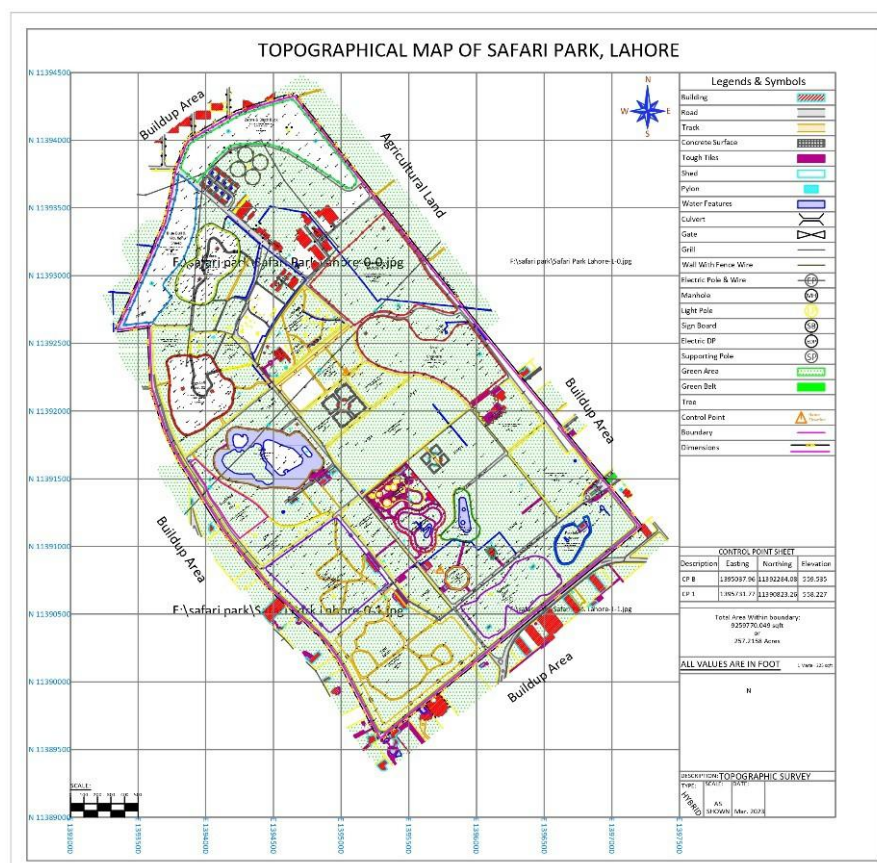


Figure 3: EXISTING TOPOGRAPHICAL MAP OF SAFARI PARK, LAHORE

The projected area is (242 acres) and will be used for renewal and reconstruction. This project aims to build a top-notch animal facility that achieves the main goals of conservation, research, and public awareness in order to make it economically viable and environmentally friendly. The project is being remodelled as a result of the addition of key features to the existing master plan, such as Entry Plaza, the African Zone, which would include a tram ride and a walking trail, and the South Asian Zone, which would also include a boat ride. Designed inside the Off-Exhibit Service Area are the Nocturnal Trail, Children Park, Plant Nursery, Workshops, Staff Quarters, and Tram Parking. Nocturnal Trail, Children Park, Plant Nursery, and Off-Exhibit Service Area in which Hospital, Commissary, Workshops, Staff Quarters and Tram Parking is designed. Safari Park Lahore stands as a testament to the convergence of entertainment, education, and conservation. By providing an immersive safari experience, promoting wildlife awareness, and contributing to the protection of endangered species, the park aims to inspire visitors to become advocates for a more harmonious relationship between humans and the natural world.

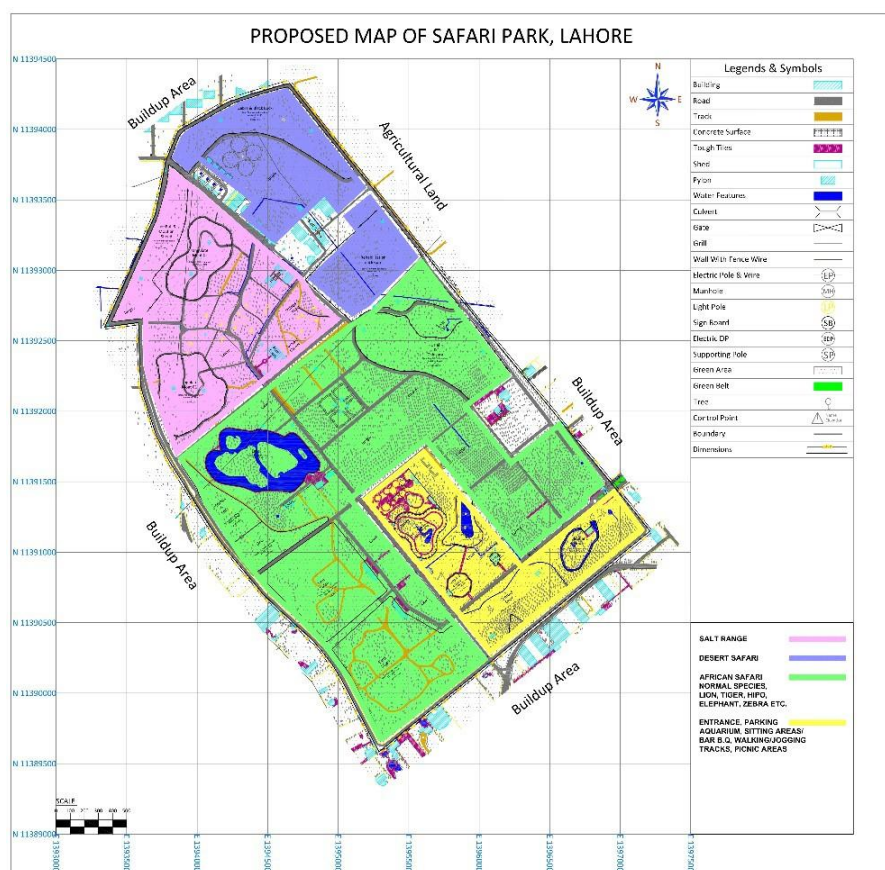


Figure:4 PROPOSED MASTER PLAN OF SAFARI PARK, ALHORE

African Safari Zone

At Lahore Safari, marked in green on Figure 3, we're planning to introduce the African Safari zone. This will be the largest zone in our proposed Lahore Safari. Here, visitors will have the incredible opportunity to get up close and personal with a variety of magnificent animals. They will encounter roaring tigers and lions, graceful giraffes, dazzling zebras, and lumbering rhinoceroses, among others, all freely roaming in their natural habitats just outside designated Safari vehicles. The adventure doesn't end there. After your safari vehicle experience, you can step out and explore Safari World walk-through areas. To ensure visitor safety, we've carefully designed viewing points and guided tours, prioritizing your enjoyment and well-being throughout your visit.

Salt Range Zone

The Salt Range Zone, highlighted in blue in Figure 3, would recreate the unique Salt Range landscape, including rock formations, sedimentary layers, and salt deposits. It will in detail provide habitats that mimic the natural environments of animals like leopards, urials, and mouflon sheep

Visitors can enjoy night safaris planned within the leopard and urial habitats, offering glimpses into the real behaviours of these wild animals while ensuring their well-being. For those who prefer a closer connection to nature, walking tracks wind through the rugged terrain, allowing visitors to engage with the geological marvels and diverse wildlife of the Salt Range. In this zone, you can experience the terrain and wildlife of the Salt Range in a more immersive way, as if you were right there in the heart of it all.

Desert Safari Zone

The Desert Safari Zone, highlighted in pink in Figure 3, offers visitors a journey through mesmerizing arid landscapes. Here, one can explore a world of sand dunes, sparse vegetation, and rugged terrains that serve as the canvas for a diverse array of wildlife, including chinkara, black bucks, and desert-adapted birds.

In this zone, open grasslands cater to the grazing habits of black bucks, while sandier areas provide the perfect habitat for chinkara. For an authentic experience, visitors can embark on camel rides and join guided desert safaris, immersing themselves in the unique ambiance of this environment.

At night, the night safari will come to alive, casting a gentle, warm-toned illumination that reveals the enigmatic secrets of the desert's nocturnal realm. This enchanting experience invites guests to observe the remarkable behaviours and unique adaptations of desert wildlife, all bathed in the captivating glow of the desert moonlight.

4 DATA COLLECTION METHODS

Information has been collected through multiple means where findings are triangulated to assess the situations. Focus group discussions and interviews are done to obtain data. The focus

groups included representatives from the wildlife department. In order to have a better understanding of the shortcomings of the current system, interviews with employees and staff were also undertaken. Local sanitary workers, sweepers, managers, and other staff members were included in this. Numerous telephone interviews were performed to gather information about the methods used to procure animals and birds. Online sources were also employed in order to compile the preceding information regarding the project's redesign.

DATA TOOLS & INSTRUMENTS

The data was collected through use of multiple tools. As a preliminary guide following data collection tools were designed and used for data collection:

- a) Visits to Project Site.
- b) Interviews, Focus Group Discussions and Q &A with stakeholders
- c) Review of official record.
- d) Semi-Structured Interview Questionnaire
- e) A series of interviews and telephonic conversation with the procurement and breeding firms in Pakistan.

6. PROCUREMENT STRATEGY FOR PROCUREMENT OF IMPLEMENTATION OF MASTER PLAN AND PROCUREMENT OF ANIMALS:

As stated in the TORs of the Consultants, it has been proposed by the Client to execute the complete project including implementation of Lahore Safari Master Plan and supply of the Animals under single contract for Engineering, Procurement & Construction of Works.

The basis behind the idea to engage single contractor for complete project is to engage an entity that shall have single responsibility to develop the infrastructure including the confinements of the animals considering the specific nature of the animal to be procured.

This option of single contract, on one side provides flexibility to the Employer to hire single entity responsible for all the obligations under entire project. However, this option carries certain limitations as described below due to which implementation of such procurement strategy may not be recommended:

- 1) Hiring of single entity to execute complete project having two entirely different field of expertise un-related to each other i.e. execution of infrastructure facility and supply of animals. In case of single procurement, a Joint Venture of an entity of construction sector

and supplier of animals must be established. Whereas probability of establishment of such Joint Venture are low due to the reason that Joint Venture formation creates joint and several liability of all the members of the JV. Eventually, the supplier has to take the liability of the Works' contractor and vice versa. Thus, lack of competition may be expected at the time of bidding under single procurement.

- 2) Further, in single procurement one part pertains to Works (Infrastructure Development) and other considerable part pertain to Goods (supply of animals). Whereas procurement procedure related to the Works shall be followed. Though procurement of goods and Works follow same procurement process however procurement of Goods require mandatory prequalification for value exceeding PKR 100 million. Whereas, the intent of the Client is to seek proposals without prior prequalification. Moreover, merger of Works with supply of animals may causes complexities as goods that can be supplied under Works Contract are limited to "Contractors' equipment, materials, Plant and temporary works".

Therefore, better option may be to undertake separate procurement for Works for Infrastructure Development and separate for procurement of animals for smooth implementation and to enhance the probable competition at the bidding stage.

PROCUREMENT STRATEGY FOR PROCUREMENT MODE (EPC/BOQ) FOR IMPLEMENTATION OF MASTER PLAN INCLUDING PROCUREMENT OF ANIMALS:

The Consultants scope include assessment of procurement mode that is suitable for implementation of the project including Engineering, Procurement & Construction of Works (EPC) or Works designed by the Employer (BOQ).

In this regard the aspect that require critical consideration is to decide the party that will be responsible for the design of the facility. Under BOQ mode of Contract, the Employer shall be responsible of the design of the facility and accordingly the fitness of purpose of the constructed Works. The contractor's obligation shall be limited to execute the Works in accordance with the designed and specifications provided by the Employer. The BOQ mode of Contract shall be suitable under the circumstances where the Employer intends to have better control over the design of the facility and can assess the scope of works with more certainty.

Whereas, in case of EPC Contract, the Contractor mainly controls the design of the facility and the Employer lacks control over the design. Accordingly, fitness of the constructed facility

becomes the responsibility of the Contractor. If the Contractor is responsible for the design, he will wish to develop it in his own interests, subject to any constraints in the Contract.

Moreover, under BOQ mode, the risk share between the Employer and the Contractor is relatively balanced accordingly the cost of the execution of works under BOQ mode are more competitive. However, the final cost and time for the execution of the Works are less certain under BOQ mode as number of events providing entitlement to the Contractor for Extension of time and additional cost are more.

Whereas, under EPC mode the risk is shifted towards the Contractor thus the cost of the execution of works under EPC mode shall be relatively on higher side. However, the final cost and time for the execution of the Works are more certain under EPC mode as number of events providing entitlement to the Contractor for Extension of time and additional cost are less.

So, both mode of contract i.e., EPC and BOQ have their respective pros and cons where selection of the suitable mode depends upon the specific nature of the project, resources available to the Employer, project timelines and Employer's requirements.

The salient aspects that are affecting the selection of contract mode under the project for implementation of Safari Park Master Plan are summarized below:

- (i) The Master Plan that has been developed by the Client is of preliminary nature which provides baseline for the detailed planning and design and does not cover details.
- (ii) The Master Plan is a tentative layout and Client does not intent to restrict the actual master plan to be fixed by the Employer.
- (iii) The Employer intends the Contractor to take sole liability for the fitness of the purpose for which Safari Park is to be remodelled.
- (iv) The Project timelines are stringent and the Client intends earliest commencement and completion of the Works
- (v) The procurement process must adhere to the principles of procurement.

A. The Master Plan that has been developed by the Client is of preliminary nature which provides baseline for the detailed planning and design and does not cover details

The Master Plan developed by the Client is providing a layout the entire infrastructure facility to be established without specifying the details and hence cannot provide construction drawings for the execution of the Works by the Contractor. Therefore, under this scenario where the design is not available, the Employer cannot proceed with BOQ mode of the Contract unless the Employer under take detailed master planning and detailed design of the facility to be constructed. Whereas, to undertake the detailed design and master planning, the Employer either have in-house capacity or must engage an experienced specialized consultant to carryout detailed design and master planning of safari park.

Otherwise, the Employer may proceed with EPC mode of contract as an EPC contract provides flexibility to the Employer to provide baseline design information to the Contractor. Accordingly, under this scenario where the current design data and information available to the Employer are limited, the option of EPC mode may be preferred over the BOQ mode. However, due the non-complex nature of the Works to be designed under the subject Project, the Employer may consider the option of BOQ mode by engaging resources to undertake the detailed master planning and design.

B. The Master Plan is a tentative layout and Client intent to evaluate multiple viable options for the actual master plan to be fixed

As communicated by the Client, the proposed master plan does provide the basic employer's requirements regarding the layout of the infrastructure facility. However, the Employer intends to evaluate multiple options to arrive at best possible solution.

In case the Employer proceed with the BOQ mode of Contract, the Employer have the opportunity to assess multiple options for the most suitable design with better control on each aspect of the design. The design consultant may evaluate all feasible options for detailed master planning in conformity with the requirement and desire of the Employer. Accordingly, the Employer will be in better position to select most viable option.

Whereas, in case the Employer does not fix the proposed master plan then the developer of the facility i.e. the EPC Contractor will provide a solution that fits the Employer's Requirement. The design that will be proposed by the Contractor under EPC mode may results in more viable solution as more stakeholder shall be involved during the detailed design phase of the Works subject to the condition that the Employer ensures better hold of the design under the EPC

Contract. However, such control under EPC contract is less probable as the Contractor intends to provide the solution with the minimum construction cost to gain maximum advantage thus involving the risk that the finally executed solution may not be the best available one.

Accordingly, under this scenario, wherein multiple solutions can be evaluated under the Employer's requirements, the option of BOQ mode may be preferred over the EPC mode.

C. The Employer intends the Contractor to take sole liability for the fitness of the purpose for which Safari Park is to be remodelled

The fitness of purpose for which the facility is to be established is major parameter in selection of the mode of the Contract. Considering the nature of the infrastructure to be established, the Employer does not intend to take the liability of the fitness of purpose.

Accordingly, under this scenario where Employer intend to avoid the risk of fitness of the facility, the option of EPC mode may be preferred over the BOQ mode. However, in case the experienced experts may be engaged by the Employer to undertake the detailed master planning and design, then considering the non-complex nature of the Works to be designed, the Employer may be in better position to take the risk of fitness of purpose with benefits in form of more competitive financial offer. Therefore, the Employer may consider the option of BOQ mode due to non-complex nature of the Works and higher probability of more competitive financial offer from bidders.

D. The Project timelines are stringent and the Client intends earliest commencement and completion of the Works

The Employer intends to commence the execution of the Works at earliest to meet timely completion targeted date. i.e. before June 30, 2024. In case the employer proceeds with BOQ mode of Contract, the Employer has to either engage the international expert to prepare the detailed master planning and design of the Works including construction drawings. Subsequent to the engage of the international expert which may consume around 3 months, the international consultant shall require reasonable time to mobilize and prepare detailed design, specification and drawings to issue bidding documents for procurement of Works under BOQ mode. This activity may consume minimum 02 months. So collectively, the procurement process of Works under BOQ may commence after 5 months. Else, the Employer may engage the expert resources available locally to undertake the detailed design. Such process of engagement of local experts and to undertake detailed design may be performed within two and half months

due to less time required for engagement and mobilization of local resources. Thus, by engaging the local resources, if available, the Employer may proceed with the procurement of the Contractor within two and half months under BOQ mode.

Whereas, in case of EPC mode, the preparation of RFP document can be initiated immediately which may require two weeks' time to issue invitation for bids. Although the EPC contractor has to prepare design in the first stage before the commencement, however, as the Contractor may submit its design in parts, therefore the Works can commence for that part of the design.

Moreover, the time for completion in BOQ mode contract may be less than the time for completion under EPC contract as the Contractor under BOQ mode of Contract shall not be required to undertake the design activity.

Accordingly, under this scenario where Employer intends earliest completion of the Works, the option of BOQ mode may be preferred over the EPC mode in case local resources are available to undertake the detailed design. Whereas, in case of engagement of international consultant them due to the longer procurement procedure and mobilization activity, the option of EPC mode may be preferred over the BOQ mode.

E. The Procurement Process Must Adhere to the Principles of Procurement

The Client desires that the procurement process must be efficient and economical with objective to obtain value for money.

The procurement for EPC mode and BOQ mode, both are consistent with the principle of procurement. However, for selection of appropriate procurement mode for execution of infrastructure work for safari park the following factors are critical:

- (i) Simplicity of procurement process
- (ii) Availability of expertise in local market
- (iii) Foreign currency requirement

F. Simplicity of Procurement Process

The procurement process should be straightforward and easy to conduct. The procurement of Works under BOQ mode is relatively straightforward and easy as it involves simple criteria for eligibility and qualification evaluation of the entities and the obligation of the contractor are of such nature that formation of complex joint venture or specialized sub-contractors are not necessary specifically for the execution of infrastructure work for safari park. Therefore, more participants may be expected in case of procurement of Works under BOQ mode.

Whereas, in case of procurement of Works under EPC mode, the contractor is required to design as well as execute the infrastructure work for safari park therefore the selected contractor must have prior expertise to perform both i.e design as well as construction of Works of similar nature. Accordingly, the eligibility and qualification requirement shall be relatively complex for procurement of Works under EPC mode. Moreover, the obligation of the contractor are of such nature that formation of complex joint venture or specialized sub-contractors may be necessary for the execution of infrastructure work for safari park. Therefore, less participants may be expected in case of procurement of Works under EPC mode due to relatively complex nature.

G. Availability of expertise in local market

Availability of required expertise in local market is crucial in deciding the mode of procurement for the execution of infrastructure work for safari Park. As far as construction of infrastructure work for safari park are concerned, it is expected that several local/ Pakistani constructors have capacity to execute infrastructure development works. Therefore, for procurement of Works under BOQ mode, it may be expected that eligibility and qualification requirements for the construction of infrastructure work for safari park may be complied by the Pakistani constructors. Though exact similar experience of infrastructure work for safari park may not be furnished by the participants however, relatively similar nature of works may be provided by the Pakistani constructors such as infrastructure works including roads, wet and dry utilities, parks, buildings, landscaping and artificial structures etc.

Whereas, in case of procurement of Works under EPC mode, the contractor must have prior experience to design the facility to be constructed. As the project for execution of infrastructure work for safari park involve expertise of a design firms having prior experience for the design of such safari parks which is a specialized expertise. Thus, the design experience requirement of zoo/ safari park cannot be generalized with other design experience of infrastructure

facilities. Therefore, the Contractor to be engaged for execution of infrastructure work for safari park must have prior experience of design of infrastructure facilities for zoo/safari park. Such design experience may not be available competitively in local market. Accordingly, the engagement of EPC contractor may involve a foreign firm participation in procurement process.

H. Foreign Currency Requirement

One of the critical aspects, which requires careful consideration is the Foreign Currency Requirement for the execution of the Project. As procurement of Works under BOQ mode brings higher tendency of local firm's participation and expected to not involve resources such as material, human resources, plants and goods from outside Pakistan therefore requirement of foreign currency payment is not expected.

However, in case of procurement of Works under EPC mode, as the design firm at least is expected from outside Pakistan therefore the contractor is expected to incur cost in foreign currency as well. This situation gives rise to following scenario:

- (i) Foreign currency payment is permitted
- (ii) Foreign currency payment is not permitted

I. Foreign Currency Payment is Permitted

In case the foreign currency payment is permitted then it is expected that the foreign entities may express interest in the project. However, due to current financial crisis, permitting foreign currency payment seems difficult. The Employer has to obtain all necessary approvals to permit and release foreign currency payment.

J. Foreign currency payment is not permitted

If foreign currency payment is not permitted, then the foreign entities may not express interest in the project in large numbers. This may impact the competition in the procurement process.

It is important to note that for procurement of Works under BOQ mode, the Employer may have to engage a foreign consultant by himself to undertake details design of the facility and preparation of Employer's requirement/ Specifications, unless if such design expertise are procured from the local market. Therefore, foreign currency requirement may also involve in the project despite procurement of Works under BOQ mode.

Therefore, in consideration of salient aspects that are affecting the selection of contract mode under the project for implementation of Safari Park Master Plan, better option may be to undertake the procurement of the Works under BOQ mode of contract.

7. PROCUREMENT STRATEGY FOR PROCUREMENT OF WORKS FOR INFRASTRUCTURE DEVELOPMENT

The Competitive Bidding Process to be conducted nationally or internationally to procure the Works for execution of Infrastructure facility in safari park under EPC mode depends upon the availability of qualified expertise in local market. In this regard, three scenarios may be evaluated as under:

- (i) National Competitive Bidding with entire local expertise involvement
- (ii) National Competitive Bidding with certain foreign expertise involvement
- (iii) International Competitive Bidding

i. National Competitive Bidding with entire local expertise involvement

National Competitive Bidding is a process wherein the procurement advertisement shall be published locally with the intent that local participation shall be available including possibility of certain expertise from foreign entities if desired by the participants. The probable involvement of foreign entities in procurement process under National Competitive Bidding shall be discussed in next scenario. Whereas, under this scenario only situation is discussed wherein local forms participation is involved.

If the Employer proceed with the procurement of Works under EPC mode, then the National Competitive Bidding with entire local expertise involvement is less probable as already discussed above due to the reason that design expertise specialized in master planning and detailed designing of Safari Parks/Zoo may not be competitively available in local market and thus desired competition under procurement process may not be achieved. Therefore, this scenario of National Competitive Bidding with entire local expertise involvement may not be recommended.

Whereas, in case the Employer decide to proceed with procurement of Works under BOQ mode, then the construction may be executed through expertise available in local market and no foreign expertise requirement may be required. However, National Competitive bidding

does not restrict participation of foreign entities. Therefore, if the Contractor deem necessary, they may engage the foreign expertise.

ii. National Competitive Bidding with certain foreign expertise involvement

This scenario involves National Competitive Bidding wherein participation of foreign firms shall be permitted. The interested local entities will collaborate themselves with international firms to form joint venture for the participation in the procurement process.

If the Employer proceed with the procurement of Works under EPC mode, then considering the nature of the works to be procured under EPC mode, it is expected that design services is the component which will require involvement of international firm. Whereas, the construction part may be executed through expertise available in local market. Therefore, the Pakistani Contractors are expected to directly seek the foreign design firms for collaboration jointly in the procurement process. Considering the foreign input, it may be estimated that around 10 to 15 % of the Contract Price may be shared by such foreign design firm. Whereas remaining component of around 85 % will be executed by local experts. This scenario of National Competitive Bidding with certain foreign expertise involvement may be recommended to achieve the desired results.

Whereas, in case the Employer decide to proceed with procurement of Works under BOQ mode, then the construction may be executed through expertise available in local market and no foreign expertise requirement may be required. However, if the Contractor deem necessary, they may engage the foreign expertise.

iii. International Competitive Bidding

The International Competitive Bidding shall involve advertisements to be made in international publication as well with minimum response time of 30 days. This process may be recommended wherein it is expected that local expertise is not available or in-sufficient to result in a competitive bidding process. Accordingly, foreign expertise is expected to perform the Works.

If the Employer proceed with procurement of Works for execution of Infrastructure facility in Safari Park under EPC mode through international competitive bidding, then only benefit may be to the extent that the international publication may get the attention of international contractors. Therefore, international contractor may also express interest in the construction of

infrastructure works and the Employer may be able to engage the contractor who have prior experience of exactly similar nature of the Works which may not be possible in scenario two discussed above.

However, under this scenario whether the eligibility and qualification criteria is to be generalized for the construction component or to be make exact similar to the nature of the Works will greatly affect participation of local entities as lead constructor. In case if the eligibility and qualification criteria is to be generalized, then the probability for international contractor to be awarded the project shall be less due to low price expected from local contractors. Thus, the purpose of international procurement shall not be achieved.

Whereas, in case the eligibility and qualification criteria are to be made exact similar, then local constructor participation in lead role may not be expected thus resulting into (i) engagement of contractor with exact similar desired expertise, (ii) relatively high bid price, (iii) larger portion of foreign currency involvement, if permitted, (iv) higher risk of un-successful procurement process.

This scenario of International Competitive Bidding for procurement of Works for execution of Infrastructure facility in Safari Park under EPC mode may not be recommended to achieve the desired results.

Whereas, in case the Employer decide to proceed with procurement of Works under BOQ mode, then the construction may be executed through expertise available in local market having generalized experience of similar nature of the Works and no foreign expertise requirement may be required. Whereas, if the Contractor deem necessary, they may engage the foreign expertise under National Competitive Bidding.

However, if the International Competitive Bidding Process is to be conducted then the eligibility and qualification criteria is to be made exact similar to the nature of the Works that will greatly affect participation of local entities as lead constructor. Such exclusion of local entities may result in high bid price with relatively less benefit expected due to the consideration that the local expertise with relevant generalized similar expertise may execute the Works. Thus, under BOQ mode of Contract, the International Competitive Bidding may not offer the desired benefits.

8. PROCUREMENT STRATEGY FOR PROCUREMENT OF ANIMALS FOR SAFARI PARK

The animals that are to be incorporated in the Safari Park may be categorized in following two classifications:

- i. Animals to be supplied from within Pakistan
- ii. Animals to be supplied from outside Pakistan

i. Animals to be Supplied from within Pakistan

The list of the wildlife animals that has been shared by the Employer involve certain animals that are breed in Pakistan and availably locally. Supply of such animals is relatively straightforward and simple. Therefore, it may not be rational to engage supplier collectively for local as well as imported animals. Accordingly, separate procurement process may be conducted for the engagement of supplier for local animals. Multiple procurement may have already been conducted in Pakistan for supply of animals from the local market therefore achieving this task through separate procurement may prove less costly then combined procurement. This procurement may be accomplished through national competitive bidding with availability of multiple suppliers locally. *Annex 2* provides list of animals to be procured locally as well as their tentative prices as obtained from a multiple local firms and contacts. Consultant did analysis for the prices of animals as per market survey which includes online consultation for international animals and market survey from different suppliers and stakeholders for local animals.

Further the task of inspection at breeding site and at destination can be achieved through local expertise and therefore foreign expertise may not be required. A committee of local experts as well as officials of Wildlife Department may be constituted to inspect and approve locally procured animals. Details of standards will be put in detail in RFP of bidding documents.

ii. Animals to be Supplied from Outside Pakistan

The major part of this project is supply of wildlife animals from outside Pakistan. The procurement strategy is crucial to ensure supply of such animals in timely manner. Such strategy must be consistent with completion of construction activity and availability of foreign expert to undertake pre-shipment and post-shipment inspection of the animals. Moreover, the

procurement strategy for hiring of supplier nationally or internationally require careful consideration of (i) capacity of local market, (ii) foreign currency requirement and (iii) risks associated with local supplier

Annex 2 provides list of animals to be procured from abroad as well as their tentative prices as obtained from a multiple local firms and contacts.

Further the task of inspection at breeding site and at destination can be achieved through local expertise as well as foreign expertise may be required. A committee of local experts as well as officials of Wildlife Department and international expert (s) may be constituted to inspect and approve imported animals. Details of standards will be put in detail in RFP of bidding documents.

i. Capacity of Local Market

The local suppliers in Pakistan have the experience of supply of import of animals from outside Pakistan for mostly to private parties. Therefore, the qualification criteria may be devised for procurement of animals from outside Pakistan through National Competitive Bidding. However, in most recent time, no such procurement of animals for outside Pakistan has been conducted due to ban imposed by the Government of Pakistan. Hence, the desired competition in local market may not be achieved due to limited experience unless the qualification requirements may be relaxed to enable participation of local suppliers. However, the financial capacity of the supplier and history of procurement of goods of such cost may be the factors that may result in limited competition.

ii. Foreign Currency Requirement

Foreign currency availability is another parameter which may impact the procurement of animals from outside Pakistan. As foreign supplier may not be interested to be paid in Pakistani Rupee and may desire payment in foreign currency as a condition for participation in the procurement process. Whereas, in case of local suppliers the probability of acceptance of payment in Pakistani Rupee by the local supplier is relatively higher.

iii. Risks Associated with Local Supplier

The local supplier carries more risk with respect to handling of procurement of such high cost and lack of skills to deal with the specific breed of the animals to be procured from outside

Pakistan. Whereas such risks may be mild in case the foreign supplier are engaged who have dealt previously in procurement of such value and breed of animals. However, regarding the risk to manage disputes with international supplier involve higher risks of associated cost as well as lack of control is holding responsible. This aspect however may be covered by mandatory engaged of local supplier in collaboration with foreign supplier to ensure that supplier may be held responsible through its local partner if required.

Whereas in contrary, the risk of probable delay on part of the Employer to obtain any NOC or approvals may delay the procurement of animals from outside Pakistan. Under such scenario, the international supplier may generate claims or the entire contract may be suspended thus increasing the risk of unsuccessful completion of supply contract or incurring additional cost. However, such risk is less in case of local suppliers.

In consideration of the above factors, the International Competitive Bidding may offer better opportunity for supply of animals from outside Pakistan however the risks associated with International Supplier may impact the project cost or successful procurement of the animals under certain circumstances. Whereas, the engagement of local supplier through National Competitive Bidding may limit the competition however, may provide flexibility to the Employer in contract terms and conditions thus reducing the risk of additional cost or unsuccessful procurement.

In view of the above, more viable option may be International Competitive Bidding by permitting local as well as international supplier to enhance the probable competition. However, success of such supply contract shall depend upon the timely performance of the reciprocal obligations of the Employer such as obtaining NOC/ Approval and release of payment etc.

9. PROCUREMENT STRATEGY FOR PROCUREMENT OF CONSULTANCY SERVICES OF INTERNATIONAL CONSULTANT FOR INFRASTRUCTURE DEVELOPMENT & PROCUREMENT OF ANIMALS

The Consultancy Services that are required for the entire project may be categorized into following:

- (i) Master Planning and detailed designing of Infrastructure facility and preparation of Specifications (Under BOQ mode of Works Contract)

- (ii) Review of Contractor's design of Infrastructure facility (Under EPC mode of Works Contract)
- (iii) Construction Supervision of Works
- (iv) Consultancy in preparing RFP for the supplier of animals
- (v) Consultancy in Pre-shipment and post shipment inspection of animals
- (vi) Bid Evaluation Reports
 - a. For Infrastructure Development Works
 - b. For supply of animals
- (vii) Contract Documents
 - a. For Infrastructure Development Works
 - b. For supply of animals

i. Master Planning and detailed designing of Infrastructure facility and preparation of Specifications (Under BOQ mode of Works Contract)

If the Employer decide to proceed with the procurement of Works designed by the Employer the Consultancy Services shall be required to undertake master planning and detailed design of the facility including preparation of technical specifications for preparation of bidding document for procurement of Works under BOQ mode. As such design expertise specific to safari park/ zoo are essential to ensure fitness of purpose for which the facility is to be established. Whereas, local expertise may be limited and hence engagement of consultant to undertake the detailed master planning and design through National Competitive Bidding may result in limited competition. Therefore, hiring of an international consultancy firm may be required to perform the desired assignment. Such procurement shall require a period of three months to engage whereas further two months may be required by the consultant to perform the assignment before inviting bids from the constructors. Else, the Employer may proceed with limited competition to invite local experts with relevant experience to under the detailed design in order to minimize the cost associated with engagement of foreign experts.

ii. Review of Contractor's design of Infrastructure facility (Under EPC mode of Works Contract)

If the Employer decide to proceed with the procurement of Works designed by the Contractor, the Consultancy Services shall be required to undertake review of the design prepared by the

Contractor at the design phase of the EPC Contract. Therefore, the role of design consultancy firm shall be commenced once the EPC Contractor has been mobilized and commenced the design activity. In this situation, the Employer has to initiate the procurement process of EPC Contractor and Consultancy Firm for design review in parallel so that EPC contractor design review is not delayed. However, the scope of design firm shall be limited to the extent of review of design however, its engagement may be required for longer period in comparison with the design consultancy firm required under BOQ mode as the design activity may be performed by the contractor in multiple intervals.

As such design expertise specific to safari park/ zoo are essential to ensure fitness of purpose for which the facility is to be established. Whereas, local expertise may be limited and hence engagement of consultant to undertake the design review through National Competitive Bidding may result in limited competition. Therefore, hiring of an international consultancy firm may be required to perform the desired assignment. Such procurement shall require a period of three months to engage. Else, the Employer may proceed with limited competition to invite local experts with relevant experience to under the design review in order to minimize the cost associated with engagement of foreign experts.

iii. Construction Supervision of Works

The Construction Activity expected to be performed under this project does not seem to be of complex nature for which the resident supervision consultant of international expertise in field of establishment of safari parks/zoo are necessary required. The local expertise are sufficient enough to undertake resident supervision assignment. Whereas, the design consultant to be engaged for the detailed design or the design review, as the case may be, may be assigned task to provide limited input during implementation stage for need basis so that any impediment if arises may be dealt properly by such consultancy firm.

iv. Consultancy in Preparing RFP for the Supplier of Animals

The procurement of animal is critical part as far as the wildlife animal to be imported from outside Pakistan. However, the local expertise are qualified enough to draft specific requirement for (i) the eligibility and the qualification of the suppliers, (ii) animals to be procured and (iii) requirements for their safe and proper transportation to the destination.

Therefore, input of a specialized consultancy expertise of international firm may not be necessary to undertake procurement process for engagement of suppliers of imported wildlife animals.

v. Consultancy in Pre-shipment and Post Shipment Inspection of Animals

The scenario under which input of foreign expert are requisite is to undertake pre-shipment and post shipment inspection of the animals and their safe inclusion in the constructed infrastructure of safari park. The proper pre-shipment and post shipment inspection of the animals cannot be achieved in the absence of such expert.

This expertise may be required once the supplier for imported animals has been engaged and the wildlife animal are ready to bring to the safari park. Therefore, the expert input of international consultant for this task shall commence once the construction is completed and animals can be safely incorporated in the safari park facility. However, limited number of such experts will be required so this assignment can be either accomplished through (i) individual experts or (ii) key personnel of consultancy firm to be engaged for the design build phase.

i. Individual experts

If the Employer decides to engage individual foreign expert to undertake the assignment, then separate procurement process shall be required to be conducted for hiring of such expert. This will require International competitive bidding explicitly for hiring of foreign individual expert that may result costly procedure in comparison with the benefit that such procurement may offer.

ii. Key personnel of consultancy firm to be engaged for the design build phase

The engagement of experts to undertake pre-shipment and post shipment inspection of animal can be achieved through provision of key personnel to be provided by International Consultancy Firm for the design build phase, in case the Employer decides to procure the Services of International Consultancy Firm. Specific positions of such wildlife experts may be incorporated in the RFP document for the procurement of the consultancy firm wherein such consultancy firm shall be required to provide such personnel. However, the issue that may arise under this scenario may be that the international design consultancy firms may be reluctant to

take such liability which generally are not in business scope of the design consultants. However, if such situation arises then the Employer may opt for hiring of individual consultant to undertake pre and post shipment inspection.

10. CONCLUSION

The understanding of the Consultant regarding procurement strategy for the implementation of Safari Park Master Plan is summarized as under:

- (i) Procurement of the entire project under single package of BOQ mode contract may require (i) expert input of an international design consultancy firm with relevant expertise in master planning and designing of Safari Parks / Zoo including specifications at the beginning stage of the project or engagement of local expertise through limited competition, (ii) a collaboration of expertise of two entirely un-related field of business i.e constructor and supplier of animals, (iii) all associated risk for the fitness of purpose for the completed facility to be on part of the Employer, (iv) combination of Works and Goods under single procurement, (v) prequalification of the potential bidders to comply with the requirement of procurement of Goods.

Whereas, procurement under single package of BOQ mode of contract will offer (i) one point of contact for the Employer, and (ii) supply of animal in proper time for incorporation in the Safari Park., (iii) less procurement related cost due to combined procurement of Works and Goods, (iv) better hold of the Employer in the design of the facility

Whereas, possible impacts of such procurement may include (i) less probability of participation of the bidders in procurement process due to risk of joint liability of two entirely un-related field of business i.e constructor and supplier of animals, (ii) complexities related to combination of Works and Goods procurement under single package (iii) all associated risk for the fitness of purpose for the completed facility to be on part of the Employer

- (ii) Procurement of the entire project under single package of EPC mode contract may require (i) expert input of an international design review consultancy firm with relevant expertise in master planning and designing of Safari Parks / Zoo at the later stage of the project after the commencement of Works or engagement of local

expertise through limited competition, (ii) a collaboration of expertise of two entirely un-related field of business i.e. design-build constructor and supplier of animals, (iii) all associated risk for the fitness of purpose for the completed facility to be on part of the Contractor, (iv) combination of Works and Goods under single procurement, (v) prequalification of the potential bidders to comply with the requirement of procurement of Goods/animals.

Whereas, procurement under single package of EPC mode of contract will offer (i) one point of contact for the Employer, (ii) supply of animal in proper time for incorporation in the Safari Park, (iii) risk for the fitness of purpose for the completed facility to be on part of the Contractor, and (iv) less cost for the entire procurement.

Whereas, possible impacts of such procurement may include (i) less probability of participation of the bidders in procurement process due to risk of joint liability of two entirely un-related field of business i.e. constructor and supplier of animals, (ii) complexities related to combination of Works and Goods procurement under single package.

- (iii) Procurement of the Infrastructure development Works under BOQ mode contract may require (i) expert input of an international design consultancy firm with relevant expertise in master planning and designing of Safari Parks / Zoo including specifications at the beginning stage of the project or engagement of local expertise through limited competition and (ii) all associated risk for the fitness of purpose for the completed infrastructure facility to be on part of the Employer.

Whereas, procurement of the Infrastructure development Works under BOQ mode of contract will offer (i) higher probability of Pakistani Constructors participation in the procurement process, (ii) no or less Foreign Currency Requirement, (iii) better competition in the procurement process, (iv) better hold of the Employer in the design of the facility, (v) less bid price expected in the procurement process due to domestic participation and BOQ nature, and (vi) less duration of the procurement phase of the Contractor due to possibility of National Competitive Bidding.

Whereas, possible impacts of such procurement may include (i) all associated risk for the fitness of purpose for the completed facility to be on part of the Employer, (ii) the procurement for the supply of animals must be consistent with the timelines

for the completion of Infrastructure facility, (iii) Less certainty of final contract price and time for completion of Works

- (iv) Procurement of the Infrastructure development Works under EPC mode contract will require (i) expert input of an international design review consultancy firm with relevant expertise in master planning and designing of Safari Parks / Zoo at the beginning stage of the project after the commencement of the Works or engagement of local expertise through limited competition and (ii) all associated risk for the fitness of purpose for the completed infrastructure facility to be on part of the Contractor.

Whereas, procurement of the infrastructure development Works under EPC mode of contract will offer (i) all associated risk for the fitness of purpose for the completed facility to be on part of the Contractor, (ii) early engagement of the Contractor is possible as no prior detailed design is required to be prepared, (iii) More certainty of the final contract price and time for completion of Works.

Whereas, possible impacts of such procurement may include (i) More Foreign Currency Requirement due to involvement of Design Firm in association with the Contractor, (ii) less competition in the procurement process, (iii) less hold of the Employer in the design of the facility, (iv) high bid price expected in the procurement process due to foreign firm participation and EPC nature (v) more duration of the procurement phase of the Contractor due to involvement of EPC nature of the task, and (vi) the procurement for the supply of animals must be consistent with the timelines for the completion of Infrastructure facility.

- (v) In case the procurement of the Works is decided by the Employer to be conducted under EPC mode of contract, then National Competitive Bidding may be conducted wherein the Constructors are expected from within Pakistan and Design Firm may be a foreign entity to be engaged directly by such local constructor.

Whereas, procurement of the Infrastructure development Works under EPC mode of contract through National Competitive Bidding will offer (i) higher probability of Pakistani Constructors participation in the procurement process due to generalized similar experience requirement, (ii) less Foreign Currency Requirement due to local constructor participation for construction activity, (iii) better competition in the procurement process, (iv) less bid price expected in the

procurement process due to domestic participation, and (vi) less duration of the procurement phase of the Contractor due to National Competitive Bidding.

Whereas, possible impacts of such procurement may include (i) Engagement of a constructor which may not have exact similar experience of construction of Safari Parks/zoo.

- (vi) In case the procurement of the Works is decided by the Employer to be conducted under BOW mode of contract, then National Competitive Bidding may be conducted wherein the Constructors are expected from within Pakistan.

Whereas, procurement of the Infrastructure development Works under BOQ mode of contract through National Competitive Bidding will offer (i) Pakistani Constructors participation in the procurement process due to generalized similar experience requirement, (ii) less or no Foreign Currency Requirement due to local constructor participation for construction activity, (iii) better competition in the procurement process, (iv) less bid price expected in the procurement process due to domestic participation, and (vi) less duration of the procurement phase of the Contractor due to National Competitive Bidding.

Whereas, possible impacts of such procurement may include (i) Engagement of a constructor which may not have exact similar experience of construction of Safari Parks/zoo.

- (vii) In case the procurement of the Works is decided by the Employer to be conducted under EPC mode of contract, then International Competitive Bidding may be conducted wherein the Designer are from outside Pakistan and the Constructors may be from within or outside Pakistan.

Whereas, procurement of the infrastructure development Works under EPC mode of contract through International Competitive Bidding will offer (i) higher probability of exactly relevant experienced Constructors participation in the procurement process due to exact similar experience requirement,

Whereas, possible impacts of such procurement may include (i) more Foreign Currency Requirement due to foreign constructor participation for construction activity, (iii) less competition in the procurement process due to limited participation of Pakistani Constructors as local constructor may not have exact

similar experience of construction of Safari Parks, (iv) high bid price expected in the procurement process due to international participation, and (v) higher duration of the procurement phase of the Contractor due to International Competitive Bidding.

- (viii) In case the procurement of the Works is decided by the Employer to be conducted under BOQ mode of contract, then International Competitive Bidding may be conducted wherein the Constructors may be from within or outside Pakistan.

Whereas, procurement of the infrastructure development Works under BOQ mode of contract through International Competitive Bidding will offer (i) higher probability of exactly relevant experienced Constructors participation in the procurement process due to exact similar experience requirement,

Whereas, possible impacts of such procurement may include (i) more Foreign Currency Requirement due to foreign constructor participation for construction activity, (iii) less competition in the procurement process due to limited participation of Pakistani Constructors as local constructor may not have exact similar experience of construction of Safari Parks, (iv) high bid price expected in the procurement process due to international participation, and (v) higher duration of the procurement phase of the Contractor due to International Competitive Bidding.

11. RECOMMENDATIONS

In view of the requirement of the Employer, the procurement regulations and implementation of the Project, the following recommendations are proposed:

- (i) The most effective procurement strategy considering the probable benefits as associated risks in order of priority may be Separate Procurement for development of Infrastructure development and supply of animals. The Procurement of Works for Infrastructure development may be conducted under BOQ mode of contract. The Procurement of experts to undertake the detailed master planning and design of the facility may be engaged through limited competition. The engagement and mobilization of local design experts may be initiated immediately to minimize the time for the procurement of Works under BOQ mode. The Procurement of BOQ Works may be through National Competitive Bidding. The procurement for the

supply of animals from domestic market attached (Annex 2) may be conducted separately from the procurement of supplier for animals from outside Pakistan attached (Annex 2). The supplier for animals from local market may be procured through separate National Competitive Bidding whereas the supplier for animals from outside Pakistan may be procured through International Competitive Bidding. The Expert for pre-shipment and post-shipment inspection may be hired as an individual expert by the Employer.

- (ii) Any work that is specialized in nature pertaining to the infrastructure development component of the project, may be executed under the Engineering Procurement Construction (EPC) mode of procurement.
- (iii) The aforementioned procurement strategy is recommended to maximize the probability of (i) successful procurement, (ii) reduction in liability of the Employer for the associated risk for the fitness of facility, (iii) reduce the overall project cost, (iv) certainty of final project cost and time for completion of project, (v) earliest engagement of the Works Contractor, (vi) smooth execution of the project, (vii) minimize the foreign currency requirement, simplify the procurement plan., (viii) provide viable commercial terms to the Employer.
- (iv) Other procurement strategies carry their own pros and cons and the Employer may give due consideration to those possibilities as well to arrive at the model which best suits Employer's requirement.
- (v) Successful achievement of the desired results of the aforementioned procurement strategy are dependent upon multiple unknown factors and therefore cannot be ascertained.
- (vi) For the procurement of animals (local & international), the final decision would be taken by Project Steering Committee at any point in time.

ANNEX 1: FIELD VISITS – LAHORE SAFARI PARK

Date: August 28 and September 1, 2023

INTRODUCTION:

The deputy director of the Lahore Zoo Safari (Ghulam Rasool) and Doctor Rizwan gave a detailed briefing on the major problems and improvements that need to be made to the zoo in order to improve visitor satisfaction, animal welfare, conservation efforts, educational programmes, sustainability, technology, safety, and security. The goal is to address the current issues and provide suggestions for creating a more appealing, educational, and environmentally conscious zoo.

VISITOR EXPERIENCE AND SATISFACTION:**Attraction Points:**

The zoo offers a variety of attractions including the Lion Safari, Boating, Walkthrough areas, Zebra Enclosure, Fun Dunya, Bird Aviary, and Lawns for Picnics, contributing to a diverse visitor experience.

Complaints:

- Entrance: The entrance area requires improvement to create a welcoming and organized first impression for visitors.
- Signage: Clear and well-placed signage is needed to guide visitors effectively throughout the zoo.
- Toilets: Upgrading and maintaining restroom facilities is essential for visitor comfort.
- Traffic Congestion: The narrow road near the lion safari leads to traffic congestion during peak times. Widening the road is recommended.

ANIMAL WELFARE AND CONSERVATION:**Concerns:**

- Water Pipelines: Address the issue of water pipeline leakages to ensure a constant supply for animals.
- Sewerage System: Implement a centralized sewerage system to manage waste effectively.
- Drainage System: Install a proper drainage system to prevent water accumulation in animal enclosures.
- Cage Floors: Ensure that cage floors are not slippery to provide a safe environment for animals.

INFRASTRUCTURE AND FACILITIES:**Concerns:**

- Gazebos: Install gazebos for visitors to rest and enjoy the surroundings.

- Zoo Kitchen and Food Court: Upgrade these facilities to provide better food options for visitors.
- BBQ Pits: Provide designated BBQ areas for visitors interested in outdoor cooking.
- Renovation: Renovate all buildings to enhance their aesthetics and functionality.
- Administration Building: Establish an administration building for efficient zoo management.
- Educational Complex and Auditorium: Create an educational complex with an auditorium for presentations and events.
- Sitting Areas: Provide ample seating areas for visitors' convenience.
- Sick Cages: Place sick cages near the hospital in the rear space for better medical attention.
- Amphitheatre: Build an Amphitheatre near the entrance for public presentations and shows.

EDUCATIONAL PROGRAMS AND INTERPRETATION:

Concerns:

- Tour Guides: Train and deploy knowledgeable tour guides to provide insightful information to visitors.
- Education Officer and Staff: Appoint an education officer and supporting staff to educate visitors about ecosystems and conservation practices.

SUSTAINABILITY AND ENVIRONMENTAL PRACTICES:

Concerns:

- Solar Lighting: Integrate solar lighting systems to reduce energy consumption.
- Water Troughs: Install water troughs with autofill and protective walls to conserve water.
- Food Points: Cover and cement food points to prevent waste and maintain cleanliness.

TECHNOLOGY AND INNOVATION:

Concerns:

- Camera System: Install high-quality cameras inside and outside enclosures for monitoring and research purposes.
- Night-Vision Cameras: Implement night-vision cameras for 24/7 surveillance.
- Motion Sensors: Integrate motion sensors for enhanced security and animal monitoring.
- Remote Access and Cloud Backup: Enable remote access and cloud backup for data security and accessibility.
- Mobile App: Develop a mobile app to provide information, maps, and attraction details to visitors.
- Wall-mounted Displays: Install display screens to share information and educational content.

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- Integration with e-Pay Punjab: Allow visitors to make payments through the e-Pay Punjab system.
 - Access Control and Ticketing: Implement an automated access control and ticket issuance system.
 - Vehicle Tracking: Provide real-time vehicle tracking for enhanced visitor management.
 - Alert and Video Management: Establish an alert and video management system for emergencies.

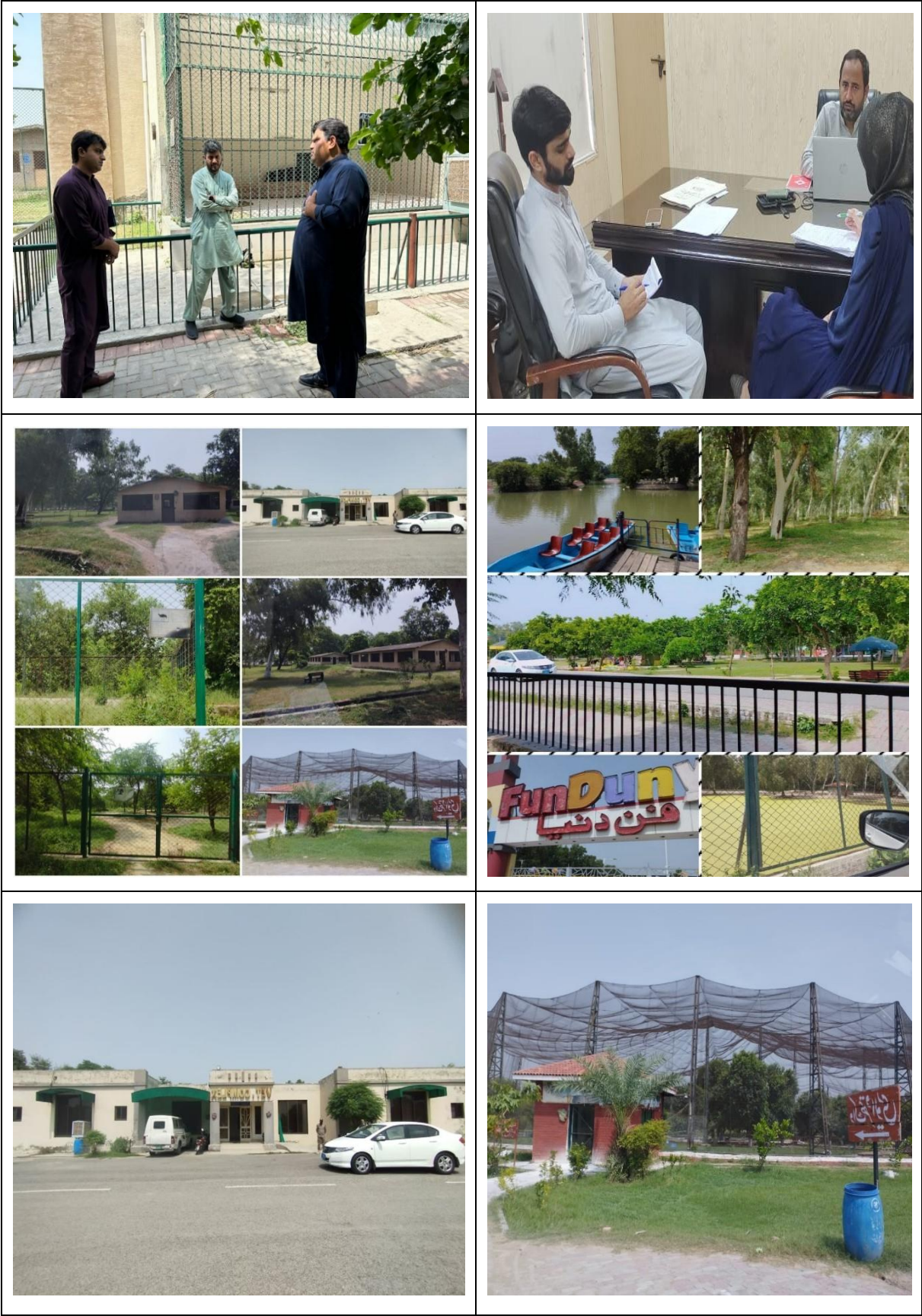
SAFETY AND SECURITY:**Concerns:**

- Visitor Safety Guide: Create a comprehensive safety guide for visitors to ensure their well-being.
- Emergency Coordination: Establish a coordinated approach with various departments across Punjab for emergencies.

CONCLUSION:

By addressing these concerns and implementing the recommended improvements, the zoo can significantly enhance visitor experience, animal welfare, conservation efforts, infrastructure, educational programs, sustainability practices, technology integration, and safety and security measures. These enhancements will contribute to the zoo's reputation as an educational, entertaining, and environmentally conscious destination.

SITE VISIT:



ANNEX 2: LIST OF ANIMALS TO BE PROCURED AS PER CURRENT RATES**INTERNATIONAL PURCHASE**

Rs. in Million			
Sr. #	Name of Animal	Nos of animals	Average Price
1.	Elephant	03 pair	800
2.	Rhinoceros	01 pair	140
3.	Giraffe	02 trio	170
4.	Red Kangaroo	05 trio	60
5.	Black Jaguar	01 male	40
6.	Hippopotamus	01 pair	130
Total			1340

LOCAL PURCHASE

Rs. in Million			
Sr. #	Name of Animal	Nos of animals	Price
1.	Scimitar Oryx	12 No.s	45
2.	Addax	12 No.s	30
3.	Zebra	15 No.s	180
4.	Urial	50 No.s	35
5.	Chinkara	100 No.s	40
6.	Ostrich	20 No.s	12
7.	Variety of Parakeet	LS	20
8.	Variety of Pheasant	LS	14
9.	Variety of Peafowl	LS	14
Total			390

SOURCE: BARLEX AGENCIES, LAHORE

ANNEX 3: Need Assessment Report for Safari Zoo and Revamping Project

EXECUTIVE SUMMARY

The Lahore Safari Zoo, nestled within the heart of our vibrant city, has long been a cherished destination for both residents and tourists alike. With its rich history, diverse array of wildlife, and the potential it holds for education and wildlife conservation, the Lahore Safari Zoo is an invaluable asset. However, as times change and visitor expectations evolve, the need for a comprehensive revamping of the zoo becomes increasingly apparent. This Executive Summary provides an overview of the key findings and recommendations outlined in the full Need Assessment Report.

Key Findings

1. Current Condition Assessment:

- Our assessment of the Lahore Safari Zoo reveals that several facilities and exhibits are in a state of disrepair and require immediate attention.
- The infrastructure, enclosures, and amenities show signs of aging, impacting both visitor experiences and animal welfare.

2. Visitor Footfall Analysis:

- Historical data on visitor footfall indicates that the zoo has witnessed fluctuating attendance over the years.
- By analyzing demographic profiles and visitation patterns, we have identified opportunities to strategically increase visitor numbers.

3. Recommendations to Improve Safari, Footfall, Visitor Experience, and Animal Welfare:

- To address the current challenges, we propose a range of recommendations.
- These recommendations encompass facility upgrades, educational initiatives, and improvements in animal care and exhibit design.

4. Proposed Changing/Revamping Impact Assessment:

- We have evaluated the potential impacts of the proposed changes, accounting for economic, environmental, and social factors.
- Our assessment identifies opportunities for sustainable growth and increased conservation efforts.

5. Impact After Making Proposed Assessment:

- Upon implementing the proposed assessment and revamping plans, we anticipate a transformation in the Lahore Safari Zoo's status.

- We project substantial increases in visitor numbers, improved revenue streams, and a more significant role in wildlife preservation.

6. Additional Recommendations and Next Steps:

- Beyond the proposed assessment, we recommend a long-term vision for the Lahore Safari Zoo.
- This vision includes ongoing maintenance, community engagement, and partnerships for conservation.

Significance of the Revamping Project

The revamping of the Lahore Safari Zoo is not just an aesthetic upgrade; it's an investment in our cultural heritage, a commitment to conservation, and an opportunity for sustainable tourism growth. By addressing the zoo's current shortcomings, we can elevate it to a world-class facility that aligns with international standards of animal welfare, visitor engagement, and environmental responsibility. Moreover, this project has the potential to create jobs, stimulate the local economy, and inspire future generations to appreciate and protect our natural world.

In conclusion, the Lahore Safari Zoo Revamping Project is a transformative endeavour that promises to revitalize a beloved institution, enrich the lives of our citizens, and contribute significantly to global conservation efforts. This Executive Summary outlines the critical findings and recommendations detailed in the full report, which provides a comprehensive roadmap for realizing this vision. We invite your support and collaboration to make this project a reality and ensure a brighter, more sustainable future for Lahore and its iconic zoo.

INTRODUCTION

1.1 Background and History of Lahore Safari Zoo

Lahore Safari Zoo, nestled in the heart of our community, has been an integral part of Lahore's heritage for decades. It was established with a noble vision to connect people with the natural world, evolving from a modest wildlife collection to a diverse sanctuary for biodiversity appreciation, wildlife education, and conservation. Despite its illustrious history and milestones, the zoo now requires revitalization due to aging infrastructure, evolving visitor expectations, and the need for world-class animal care.

1.2 Purpose of the Need Assessment Report

This report serves as the foundation for Lahore Safari Zoo's transformation. It presents a well-researched evaluation of the zoo's current state and the compelling reasons for its revamping. The report targets decision-makers, stakeholders, and collaborators, urging them to recognize the potential for transformation, fostering a deeper connection between humans and wildlife while outlining a blueprint for excellence in wildlife preservation, visitor engagement, and community enrichment.

1.3 Overview of the Report Structure

This report is structured for clarity and comprehensiveness, addressing critical facets of the revamping project:

- i. **Background and Significance:** Explores the history and importance of Lahore Safari Zoo.
- ii. **Objectives of the Revamping Project:** Outlines the project's goals and aspirations.
- iii. **Current Condition Assessment:** Examines the zoo's existing state in detail.
- iv. **Visitor Footfall Analysis:** Analyzes historical visitor data.
- v. **Recommendations:** Provides specific strategies for enhancing various aspects.
- vi. **Proposed Changing/Revamping Impact Assessment:** Evaluates anticipated outcomes and challenges.
- vii. **Anticipated Impact of Proposed Assessment:** Envisions the revitalized zoo's significance.
- viii. **Additional Recommendations Way Forward:** Paves the way for long-term sustainability and growth beyond the assessment.

This structure ensures a comprehensive understanding of the need assessment, aligning with the goal of rejuvenating Lahore Safari Zoo into a thriving hub of wildlife conservation and education.

BACKGROUND AND CONTEXT

2.1 History of Lahore Safari

The Lahore Safari Zoo previously named as Woodland Wildlife Park was established in 1981 over 242 acres (98 ha) as a government funded public facility. It is located at 13km away from motorway link at Raiwind Road, Lahore. In 1998, it was handed over to the Punjab Wildlife and Parks Department by the Forest Department.

The park was extensively renovated and renamed Lahore Zoo Safari on January 21, 2009. Since then, it has emerged as a distinguished wildlife park and zoo, underpinned by a visionary aspiration of offering refuge to wild animals while enlightening the public on the paramount principles of wildlife conservation. Over the years, it has etched its significance deeply into the tapestry of the community, embodying the dual role of a beloved tourist destination and a revered educational asset.

2.2 Current Status of Lahore Safari

Today, the Lahore Safari stands as a sanctuary for over 1,300 animals representing an astounding spectrum of over 130 species and is open to visitors from 8am till sunset. This heaven comprises distinct zones, including a captivating safari park, an enchanting bird park, and an educational reptile house. The Safari Zoo is offering stunning display of the animals and birds unique in this region. The complex houses a comprehensive array of facilities, from meticulously designed animal enclosures and immersive exhibits to well-appointed visitor amenities and essential administrative structures.

The largest walkthrough aviary of Pakistan is located in the Lahore Zoo Safari. Boating and fishing facilities have been developed near the lake which is the biggest in the city, complete with four islands. There are also safari tracks in the lion and Bengal tiger areas, covering an area of 80 acres (32 ha). Furthermore, amusement facilities include pony ride, Joyous moment by Baghi Ride, Dash Cruising, Lion Safari, Live Walk through Birds aviary, variety of antelopes, Play Land for kids, Jurassic park, boating and fishing facility, Food courts, etc.

Positioned as a contemporary zoological institution, Lahore Safari ardently commits to the triad of animal welfare, conservation, and education. With unwavering dedication, its proficient staff ensures the well-being of its animal residents while simultaneously serving as ambassadors of wildlife education, enlightening visitors about the pressing need for the preservation of our natural heritage.

2.3 Previous Renovations and Developments

In 2004, the largest walkthrough aviary of Pakistan was constructed in Safari Zoo, Lahore and opened to public visitors. Boating and fishing facilities were also built near a lake. In 2006, Government of Pakistan sanctioned 87 million Pakistani rupees to reconstruct the 2 kilometres (1.2 mi) road leading to the wildlife park. This development increased the

accessibility to the facility. The Government of Pakistan turned management of the wildlife park over to the Zoo Maintenance Committee (ZMC) headed by the Chairman of the Punjab Wildlife & Parks Department. A ticket system was introduced in the wildlife park so that the Lahore Zoo Safari could become a semi-autonomous, self-financed organization. Lahore Safari has embarked on a transformative journey of rejuvenation. This pivotal renovation endeavor encompassed the construction of cutting-edge enclosures and captivating exhibits, complemented by a strategic enhancement of visitor amenities. The result was remarkable with elevated visitor experience coupled with a significant upgrade in the safari's facilities.

2.4 Significance of Lahore Safari

The Lahore Safari stands as a compelling magnet for tourists, drawing visitors from far and wide, both domestically and internationally. This iconic attraction plays a pivotal role in the local economy, catalysing job creation and economic growth while concurrently bolstering the city's reputation as a vibrant and forward-looking metropolis.

Beyond its role as a tourist hub, the Lahore Safari assumes the mantle of a cherished educational resource. Here, an array of meticulously curated educational programs caters to students and enthusiasts of all ages, offering profound insights into the realms of wildlife, conservation, and the urgent necessity of safeguarding our natural world.

Further underscoring its significance, Lahore Safari actively engages in conservation endeavours. As a proud member of the World Association of Zoos and Aquariums (WAZA) and the Conservation Breeding Specialist Group (CBSG), it partakes in pivotal breeding programs for endangered species and extends support to conservation initiatives in their native habitats.

OBJECTIVES OF THE REVAMPING PROJECT

In alignment with the EPC RFP's stipulations and comprehensive project scope, the objectives of the revamping project are outlined below, with an emphasis on elucidating the desired outcomes and benefits.

3.1. Enhancement of Infrastructure:

To modernize the infrastructure of Lahore Safari Zoo, ensuring that it meets contemporary standards in wildlife care, visitor experience, and conservation. The desired outcomes include the following:

- i. Provision of improved habitats by transformation of existing enclosures into advanced habitats that replicate the natural environments of the animals. This modernization will promote natural behaviors among zoo inhabitants, enhancing their well-being and providing visitors with an immersive experience.
- ii. By upgrading visitor amenities and facilities, the project intends to create a more enjoyable and comfortable experience for guests. This includes improved seating, rest areas, dining options, and interactive exhibits, all contributing to the overall guest satisfaction.
- iii. The project prioritizes infrastructure resilience to ensure the long-term sustainability of Lahore Safari Zoo. Modernized facilities will be designed to withstand environmental challenges, contributing to the safari's ability to thrive in the face of changing conditions.

3.2. Conservation and Biodiversity Preservation:

To strengthen Lahore Safari Zoo's role as a center for wildlife conservation, with a focus on the preservation of endangered species and biodiversity to anticipate the following benefits.

- i. The revamping project will enable Lahore Safari Zoo to actively participate in regional and global conservation efforts. This includes collaborative breeding programs, wildlife research, and efforts to protect endangered species from extinction.
- ii. By implementing advanced breeding programs, the zoo aims to contribute to the survival of endangered species. The successful breeding of rare and threatened animals will be a testament to the project's conservation impact.
- iii. The project's thematic zones will serve as microhabitats of ecosystems under threat. By protecting these ecosystems and the species within them, Lahore Safari Zoo will play a vital role in preserving biodiversity.

3.3. Visitor Engagement and Education:

To provide engaging and educational experiences to visitors, fostering an appreciation for wildlife and environmental conservation with the desired outcomes as described under.

- i. Lahore Safari Zoo will feature state-of-the-art educational centers and interpretive exhibits. These resources will provide visitors with insights into the significance of wildlife conservation and the delicate balance of ecosystems.
- ii. Increased Visitor Awareness: The project aims to increase visitor awareness and knowledge about wildlife and ecosystems. Through interactive displays, guided tours, and informative signage, guests will gain a deeper understanding of the natural world.
- iii. By immersing visitors in conservation efforts, Lahore Safari Zoo seeks to cultivate a sense of stewardship among its guests. Visitors will not only observe wildlife but actively participate in the cause of conservation.

3.4. Community Enrichment and Cultural Integration:

To further integrate Lahore Safari Zoo into the community, promoting cultural enrichment, environmental consciousness, and local engagement with the desired outcomes as outlined below.

- i. The zoo will host cultural events, educational programs, and community outreach initiatives. These activities will enrich the local community by providing opportunities for cultural expression and learning.
- ii. Accessibility and inclusivity for local residents will be a priority. The revamped zoo will offer special programs and discounts to residents, ensuring that it remains an accessible and valued community resource.
- iii. Lahore Safari Zoo will actively seek partnerships with local organizations, schools, and cultural institutions. These collaborations will foster mutual benefit and strengthen the zoo's ties to the community.

3.5. Economic Growth and Sustainable Tourism:

To contribute to economic growth in the region while practicing sustainable tourism that minimizes environmental impact with the following foreseen benefits.

- i. The project is expected to significantly boost tourism revenue in the region. Increased visitation longer stays, and enhanced visitor experiences will contribute to economic growth.
- ii. Lahore Safari Zoo is committed to implementing eco-friendly practices. These measures include energy-efficient systems, waste reduction, and the use of renewable energy sources, all aimed at minimizing the zoo's carbon footprint.
- iii. By embracing sustainable tourism, the project aligns with broader national goals of responsible tourism and sustainable development, contributing to the country's commitment to environmental preservation and economic growth.

CURRENT CONDITION ASSESSMENT - SENTIMENT ANALYSIS

4.1 Overview of Existing Facilities

The Lahore Safari, sprawling across lush acres of natural landscape, is a composite of diverse sections, each contributing to its rich tapestry. At present, the safari is strategically divided into several major sections, each offering a distinct glimpse into the world of wildlife. The layout includes the captivating Safari Park, an enchanting Bird Park, a captivating Reptile House, and several specialized enclosures designed to emulate the natural habitats of their inhabitants.

4.2 Condition of Animal Safari and Enclosures

The heart of the Lahore Safari is undoubtedly its animal safari and enclosures. A comprehensive assessment reveals a mosaic of varying conditions. While many enclosures adhere to contemporary animal welfare standards in terms of size, cleanliness, and safety measures, there are instances where improvement is imperative. Notably, some enclosures require modernization to better accommodate the evolving needs and well-being of their inhabitants.

4.3 State of Visitor Amenities

The visitor experience at Lahore Safari is not limited to animal encounters; it encompasses the quality of visitor amenities. A thorough evaluation of restrooms, seating areas, and food facilities reveals areas ripe for enhancement. Improvements in these aspects are essential to ensure that visitors can enjoy a comfortable and enriching experience throughout their safari journey.

4.4 Infrastructure and Maintenance

The infrastructure at Lahore Safari, including pathways, signage, and lighting, serves as the backbone of the visitor experience. While the zoo boasts a well-laid network of

pathways, some sections require attention to ensure safety and accessibility. Additionally, the effectiveness of maintenance practices across the safari demands review to sustain the long-term quality of the infrastructure.

4.5 Safety Measures

Ensuring the safety of both visitors and animals is of paramount importance. The current safety measures exhibit commendable standards; however, there is scope for enhancement. Identifying potential safety hazards and implementing proactive measures is vital to provide a secure environment for all.

4.6 Accessibility

Accessibility is a core consideration in facilitating an inclusive visitor experience. While Lahore Safari strives to be accessible to all, barriers to accessibility exist. A comprehensive assessment identifies areas where improvements and modifications are needed to ensure that individuals with disabilities can fully enjoy the safari.

4.7 Environmental Impact

An environmentally responsible approach is fundamental to the operation of Lahore Safari. This includes waste management, energy consumption, and water use. The current environmental impact assessment underscores the need for sustainable practices, aligning with global conservation principles.

4.8 Feedback from Visitors

Incorporating the voices of our visitors, we have collated invaluable feedback. This feedback offers insights into recurring concerns and suggestions for improvement. Addressing these issues is integral to enhancing visitor satisfaction and ensuring an educational and enjoyable experience.

4.9 Technology and Innovation

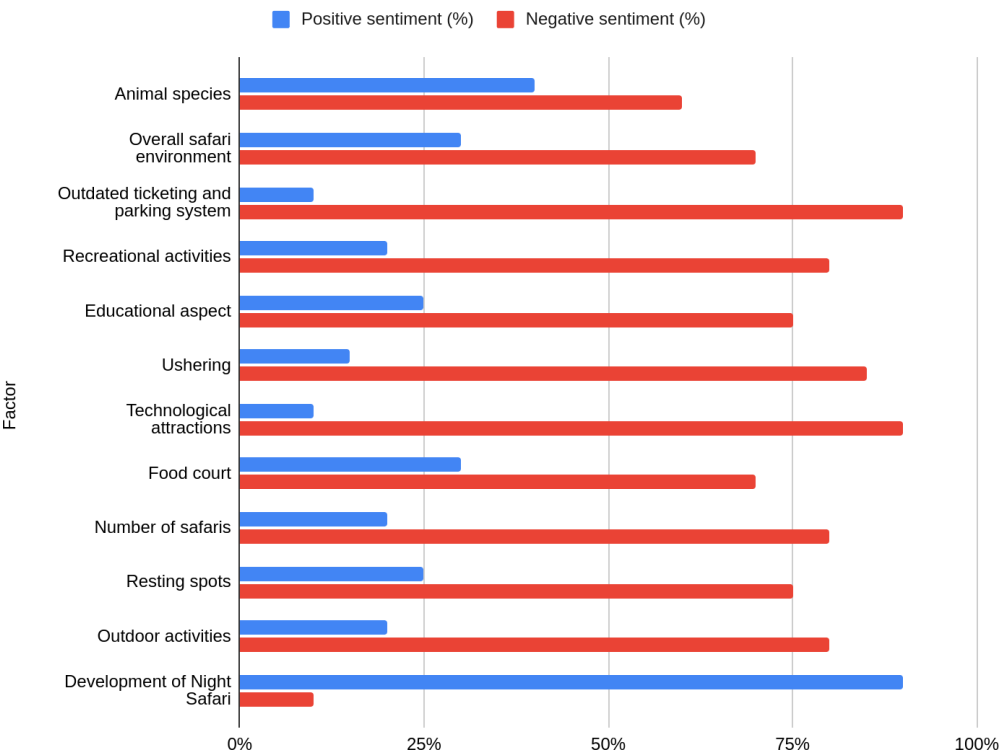
The integration of technology and innovation holds great potential for enhancing the visitor experience and improving operational efficiency. Exploring areas where technology can be harnessed, from interactive exhibits to data-driven decision-making, will be crucial to the safari's revitalization.

4.10 Benchmarking

Benchmarking Lahore Safari against industry standards and best practices has unveiled areas of excellence and opportunities for growth. Identifying where the safari excels and where it can learn from peers informs the strategic direction of the revamping project.

Assessment of Sentiment Analysis

Positive sentiment (%) and Negative sentiment (%)



Factorial Sentiment Analysis

Factors	Highlighted factor in the sentiment
Animal species	Visitors want to see more variety of animal species, such as zebras, rhinoceroses, hippopotamuses, and a variety of birds and reptiles.
Overall safari environment	The overall safari environment does not give much of a safari look. Only the lion safari is there, and the vehicles are outdated.
Recreational activities for safaris	There are very few recreational activities available for safaris, such as playgrounds, picnic areas, and walking trails.
Educational aspects for Lahore Safari	The educational aspects for Lahore Safari are poor. The exhibits are outdated and lack informative signage.
Ushering in safari	There is a lack of ushering in the safari. The ushers are sometimes unhelpful and do not seem to be knowledgeable about the animals or the safari.
Technological attractions	Technological attractions are rare in the safari. There are no interactive exhibits or animal cameras.
Food court	There is a lack of a proper food court in the safari with proper seating and environment. The food court offers poor quality food at high prices.
Number of safaris	There is a lack of number of safaris. There should be more animal safaris, such as elephant safari, rhino safari, and giraffe safari. And safari should be in thematic structure

Factors	Highlighted factor in the sentiment
Resting spots	There are no proper or good resting spots in the safari. This leads to overcrowding and congestion.
Outdoor activities in safari	There is a lack of outdoor activities in the safari, such as camping and glamping pods.
Development of Night Safari	A night safari can increase footfall in safari

VISITOR FOOTFALL ANALYSIS

5.1. Historical Visitor Data Analysis:

Historical visitor data for Lahore Safari Zoo has been meticulously collected from various sources over the past decade. These data include records of daily visitor counts, ticket sales, and visitor surveys. The zoo's ticketing system, which includes electronic records, has been a valuable source of information. Additionally, seasonal variations and special events have been taken into account. The analysis of historical visitor data reveals several significant trends:

- i. **Annual Growth:** Over the past decade, Lahore Safari Zoo has shown consistent annual growth in visitor numbers. The average annual growth rate has been approximately 6%, indicating a steady increase in popularity.
- ii. **Seasonal Variation:** The zoo experiences predictable seasonal variations in visitor numbers. The spring and summer months, from March to August, consistently see the highest footfall. Conversely, the winter months, particularly December and January, witness a decline in visitors.
- iii. **Weekend Peaks:** Saturdays and Sundays are the busiest days of the week, contributing significantly to overall footfall. The zoo is especially crowded during holiday weekends and special events.

5.2. Peak Periods:

For Lahore Safari Zoo, peak periods are defined as the months from March to August, which correspond to the spring and summer seasons. Additionally, weekends and public holidays are considered peak times. The off-peak periods are the winter months from December

to February and weekdays, excluding public holidays. Several factors contribute to increased visitation during peak periods:

- i. Weather: The pleasant weather during spring and summer encourages more people to visit the zoo. Families often choose these months for outings.
- ii. School Holidays: The peak periods align with school holidays, resulting in an influx of families with children.
- iii. Special Events: The zoo hosts seasonal events, such as animal shows and educational programs, during peak periods, attracting additional visitors.

Impact on Operations: The influx of visitors during peak periods has several operational implications:

- i. Staffing: Additional staff members are required to manage crowds, ensure visitor safety, and provide educational programs.
- ii. Revenue Generation: Peak periods contribute significantly to revenue generation through increased ticket sales, merchandise purchases, and concessions.
- iii. Visitor Experiences: Managing crowds during peak periods is essential to ensure positive visitor experiences. Long queues and overcrowding can negatively impact visitor satisfaction.

5.3. Demographic Profile of Visitors:

Visitor demographic data have been collected through on-site surveys conducted at the zoo entrance. These surveys are voluntary, and participants provide information about age, gender, geographical origin, and preferences.

Age Groups:

- i. Children (0-12 years): 35%
- ii. Teenagers (13-19 years): 20%
- iii. Adults (20-59 years): 40%
- iv. Seniors (60+ years): 5%

Gender Distribution:

- Male: 55%
- Female: 45%

Geographical Origin:

- i. Local Residents (within Lahore): 65%
- ii. Other Cities in Pakistan: 25%
- iii. International Tourists: 10%

Visitor Preferences: Visitor surveys have provided insights into visitor preferences:

- i. Favorite Exhibits: The African Safari and Big Cat Enclosure are consistently rated as the most popular exhibits.
- ii. Activities: Visitors express a strong interest in guided tours, animal feeding experiences, and educational programs.

Repeat Visitors: Approximately 25% of visitors are repeat visitors, indicating a positive visitor experience that encourages them to return.

The demographic data counts are month-wise summarized as under

Category	Months												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Adult	24837	35335	28328	4677	46234	19711	43681	23038	13145	16575	19653	27194	290717
Child	10660	8699	8009	1087	8409	6972	14241	6621	3593	5661	5644	7270	84616
Student	2643	5784	5877	812	1911	1683	1517	1341	5661	5644	7270	4843	46420
Total	35761	47612	40924	6545	56834	28366	59439	30999	22401	27840	32567	39307	420423

REVAMPING RECOMMENDATIONS

In alignment with the comprehensive discussions and updates presented throughout this document, the subsequent recommendations have been formulated. These recommendations encompass enhancing the safari experience, increasing visitor footfall, enriching visitor experiences, ensuring animal welfare, and implementing effective advertisement and communication strategies.

6.1. Enhancing the Safari Experience

- i. Prioritize thematic zone revamping, focusing on authenticity, enrichment, and aesthetics to create immersive safari experiences that closely mimic natural habitats.
- ii. Conduct a thorough assessment of each thematic zone to identify areas requiring enhancement.
- iii. Collaborate with wildlife experts and landscape architects to create naturalistic habitats.
- iv. Integrate technology such as live streaming cameras to provide virtual access to wildlife behavior.

6.1.2. Interactive Exhibits

- i. Introduce interactive exhibits within thematic zones, allowing visitors to engage directly with animals in a safe and educational manner.

- ii. Design and implement interactive touchpoints, such as feeding stations or touch tanks, under professional supervision.
- iii. Develop digital interfaces with educational content for self-guided exploration.
- iv. Ensure visitor safety and animal well-being through strict guidelines and oversight.

6.1.3. Guided Safaris

- i. Establish guided safari tours led by knowledgeable experts to provide informative narratives and insights into wildlife behavior and conservation efforts.
- ii. Recruit and train safari guides with expertise in wildlife biology, conservation, and storytelling.
- iii. Customize safari experiences for different age groups and interests, offering thematic tours.
- iv. Implement real-time communication tools for guides to share live observations with visitors.

6.2. Increasing Visitor Footfall

- i. Implement targeted marketing campaigns to attract diverse visitor demographics, including families, schools, and wildlife enthusiasts.
- ii. Utilize data analytics to identify high-potential markets and tailor marketing strategies.
- iii. Collaborate with travel agencies and educational institutions to promote group visits.
- iv. Leverage social media influencers and wildlife photographers for authentic endorsements.

6.2.2. Seasonal Events

- i. Organize seasonal events and promotions to drive increased visitation during off-peak periods.
- ii. Develop a calendar of events including wildlife festivals, themed weeks, and cultural celebrations.
- iii. Offer discounted admission rates, package deals, and exclusive experiences during off-peak seasons.
- iv. Collaborate with local businesses for joint promotions and packages.

6.2.3. Accessibility Improvements

- i. Enhance transportation links and access points to the zoo, ensuring convenient entry for visitors.
- ii. Conduct a thorough assessment of current transportation infrastructure and identify bottlenecks.
- iii. Collaborate with local authorities to improve road signage and public transportation options.
- iv. Enhance parking facilities and introduce e-parking solutions for efficient vehicle management.

6.3. Improving Visitor Experiences

- i. Upgrade visitor amenities, including rest areas, dining facilities, and information centers, to enhance overall guest comfort and satisfaction.
- ii. Develop comprehensive educational programs and interpretive materials to engage and educate visitors on wildlife conservation and biodiversity.
- iii. Introduce immersive experiences, such as behind-the-scenes tours and wildlife encounters, to forge a deeper connection between visitors and the natural world.

6.4. Ensuring Animal Welfare

- i. Enrich animal habitats with natural elements, stimulating physical and mental activity to ensure the well-being of zoo inhabitants.
- ii. Prioritize veterinary care and regular health assessments for animals, with a focus on preventive measures and early intervention.
- iii. Allocate resources to active participation in conservation programs, focusing on endangered species breeding and habitat restoration.

6.5. Advertisement and Communication Strategies

- i. Enhance the zoo's online presence and engagement through social media platforms, virtual tours, and wildlife webcams.
- ii. Strengthen connections with local communities through outreach programs, fostering a sense of ownership and pride in the zoo.
- iii. Collaborate with educational institutions, conservation organizations, and local businesses to leverage their networks and promote the zoo.

These comprehensive and meticulously crafted recommendations collectively form a strategic roadmap to revitalize Lahore Safari Zoo. They are designed to ensure that the zoo remains not only a beacon of wildlife preservation, education, and visitor satisfaction but also a testament to the profound connection between humans and the natural world.

ANTICIPATED IMPACT ASSESSMENT

In alignment with the comprehensive recommendations and plans discussed in this document, the Proposed Changing/Revamping Impact Assessment outlines the transformative changes and revamping plans for Lahore Safari Zoo. This section aims to assess the potential positive impacts of these changes, encompassing economic, environmental, social, and educational effects, while also identifying potential challenges and risks associated with the proposed changes.

7.1. Proposed Changes and Revamping Plans

7.1.1. Thematic Zone Revamping

Description of Proposed Changes: The proposed enhancements for thematic zones include a comprehensive habitat redesign, interactive exhibits that facilitate educational experiences and connections with wildlife, and immersive experiences designed to closely mimic animals' natural habitats.

Revamping Plans: The revamping plans involve meticulous attention to detail, encompassing architectural and landscape modifications, enrichment features, and exhibit enhancements. Timelines, budgets, and key milestones have been set to ensure the successful execution of these plans.

7.1.2. Marketing and Visitor Attraction

Description of Proposed Changes: The strategies for increasing visitor footfall involve targeted marketing campaigns designed to attract a diverse range of visitors, including families, schools, and wildlife enthusiasts. Seasonal events and enhanced accessibility will be key components of these changes.

Revamping Plans: The revamping plans entail the deployment of marketing experts, the creation of an event calendar, and the implementation of infrastructure improvements to accommodate increased visitation. These plans have been meticulously designed to ensure optimal outcomes.

7.1.3. Visitor Experience Enhancement

Description of Proposed Changes: Proposed improvements for visitor experiences include upgrading visitor amenities to enhance guest comfort, developing comprehensive educational programs and interpretive materials to foster wildlife conservation knowledge, and introducing immersive experiences that create a deeper connection between visitors and the natural world.

Revamping Plans: The revamping plans encompass renovation projects for visitor amenities, collaborations with educational institutions for knowledge dissemination, and the creation of engaging visitor experiences such as behind-the-scenes tours. These plans aim to elevate the overall visitor experience.

7.1.4. Animal Welfare and Conservation

Description of Proposed Changes: The proposed changes focus on enriching animal habitats, prioritizing veterinary care and health assessments, actively participating in conservation programs, and enhancing the educational aspects of conservation initiatives.

Revamping Plans: The revamping plans involve habitat enrichment through the introduction of natural elements, frequent veterinary check-ups and preventive measures, collaboration with conservation organizations, and the incorporation of educational content into conservation initiatives.

7.1.5. Advertisement and Communication Strategies

Description of Proposed Changes: Proposed changes include an enhanced online presence, community outreach initiatives, collaborative partnerships with educational institutions and local businesses, and a strong focus on educational content to engage and inform the public.

Revamping Plans: The revamping plans comprise the development of a comprehensive digital engagement strategy, the organization of community outreach events and partnerships with local organizations, and the creation and dissemination of educational content through various channels.

7.2. Positive Potential Impacts

7.2.1. Economic Impact

Economic Growth: The proposed changes are expected to drive economic growth through increased visitor numbers, resulting in higher revenue generation and job creation. Economic education will also play a role in this impact.

Local Business Benefits: Local businesses are likely to benefit from collaborative marketing efforts and increased footfall, ultimately contributing to economic education within the community.

Sustainable Tourism: The transformation aligns with national goals for sustainable tourism practices, further promoting economic education by demonstrating responsible and eco-friendly approaches to tourism.

7.2.2. Environmental Impact

Conservation Efforts: By actively participating in conservation initiatives, the zoo will contribute to the protection of endangered species, the preservation of biodiversity, and the promotion of environmental education.

Sustainable Practices: Implementing eco-friendly measures will minimize the zoo's environmental footprint, setting an example for sustainable practices and reinforcing environmental education.

Habitat Restoration: Restoration efforts will positively impact regional ecosystems within thematic zones, underscoring the zoo's role in habitat restoration and environmental education.

7.2.3. Social and Educational Impact

Community Engagement: Outreach programs, cultural events, educational partnerships, and the promotion of social and educational aspects are expected to enhance community engagement, fostering a sense of ownership and pride in the zoo.

Educational Enhancement: The emphasis on educational value and knowledge dissemination among visitors is expected to elevate the educational impact, emphasizing the importance of educational aspects.

Inclusivity and Accessibility: Efforts to enhance accessibility and inclusivity for local residents and diverse visitor demographics will ensure broader community engagement and educational access.

7.3. Potential Challenges and Risks

7.3.1. Implementation Challenges

Budget and Resources: Challenges related to budget allocation, resource allocation, and educational resource provision could impact the successful implementation of the proposed changes and educational objectives.

Logistics: Logistical challenges related to construction, transportation, and exhibit changes may affect the timeline and budget, potentially influencing educational objectives.

Timeline: Potential delays and timeline challenges may disrupt the project's progress, influencing the achievement of educational objectives and the timely delivery of educational content.

7.3.2. Visitor Management and Safety

Increased Footfall: Challenges related to managing increased visitor numbers, including crowd control, visitor safety, and the need for educational guidance, could arise during the revamping process.

Animal Interactions: Ensuring the safety of visitors during interactive exhibits and animal encounters is crucial, with educational content playing a pivotal role in informing visitors about safety measures.

Visitor Expectations: Managing visitor expectations during the revamping process is essential to prevent dissatisfaction and maintain educational objectives.

7.3.3. Environmental Considerations

Habitat Impact: Changes to habitats may pose challenges related to animal well-being and environmental education, necessitating careful planning and execution.

Conservation Challenges: Challenges related to participating in conservation initiatives and breeding programs may emerge, highlighting the importance of educational content to foster understanding.

Sustainability: Ensuring the sustainability of eco-friendly practices in the long term may present challenges, emphasizing the need for ongoing environmental education.

Details of Recommendations of Activities for Lahore Safari

Activity	Current situation in Lahore Safari	Recommended action
Animal encounters	Limited options, such as lion safari	Add more animal encounters, such as elephant safaris, giraffe safaris, and camel safaris. These encounters would give visitors the opportunity to interact with a wider variety of animals and learn more about them. For example, an elephant safari would allow visitors to ride on an elephant and

Activity	Current situation in Lahore Safari	Recommended action
		get a close-up view of the animals. A giraffe safari would allow visitors to feed and pet giraffes. A camel safari would allow visitors to experience the desert in a traditional way.
Educational programs	Outdated exhibits and lack of informative signage	Update the exhibits and add more interactive exhibits. Provide more educational programs, such as guided tours and talks by experts. For example, the exhibits could be updated to include more information about the animals' natural habitats and behaviors. Interactive exhibits could be added that allow visitors to learn about the animals in a fun and engaging way. Guided tours could be offered that take visitors through the safari and explain the animals and their habitats. Talks by experts could be given on topics such as animal conservation and animal welfare.
Safari options	Only lion safari	Add more safari options, such as elephant safaris, giraffe safaris, and night safaris. These safaris would give visitors the opportunity to see a wider variety of animals and experience the safari in different ways. For example, an elephant safari would allow visitors to see the animals in their natural habitat and learn about their behavior. A giraffe safari would allow visitors to see the animals up close and learn about their unique features. A night safari would allow visitors to see the animals at night, when they are more active.

Activity	Current situation in Lahore Safari	Recommended action
Food court	Poor quality food at high prices	Improve the food court by offering a wider variety of food options, improving the quality of the food, and making the food court more comfortable. For example, the food court could offer more options for vegetarians and vegans. The quality of the food could be improved by using fresh ingredients and cooking the food to order. The food court could be made more comfortable by adding more seating and providing better lighting.
Resting spots	Not enough resting spots	Add more benches and picnic tables throughout the safari. This would help to alleviate overcrowding and congestion and make it easier for visitors to relax and enjoy their time at the safari.
Outdoor activities	Lack of outdoor activities	Add more outdoor activities, such as hiking trails, a train ride, and a zipline. These activities would make the safari more exciting and versatile and appeal to a wider range of visitors. For example, hiking trails would allow visitors to explore the safari on foot and get closer to the animals. A train ride would take visitors on a tour of the safari and allow them to see the animals from a different perspective. A zipline would allow visitors to experience the safari from the air.
Night safari	No night safari	Develop a night safari, which will allow visitors to see the animals at night. This is a popular activity at other safari parks, and it would be beneficial for Lahore Safari to offer it as well. A night safari would allow visitors to see the animals when they are more active and see their natural behaviors.

ANTICIPATED BENEFITS OF PROPOSED ASSESSMENT

Few anticipated impacts of the project are as under.

- i. Positive Impacts on Lahore Safari Zoo in terms of the following are Enhanced Visitor Experience, Improved Animal Welfare, Conservation Success, Cultural Enrichment and Economic Growth.
- ii. Positive Impacts on the Surrounding Community include Community Engagement, Educational Empowerment and Inclusivity and Accessibility.
- iii. Quantification of Anticipated Increases in terms of increase in Visitor Numbers, Revenue Generation and Conservation Efforts

Detailed Analysis for recommendations for More Animal Safaris in Lahore Safari

Reason of proposed intervention	Impact
Gives visitors more opportunities to see animals.	Currently, the only animal safari available at Lahore Safari is the lion safari. This means that visitors only have the opportunity to see lions. By offering more animal safaris, such as elephant safaris, giraffe safaris, and camel safaris, visitors would have the opportunity to see a wider variety of animals.
Makes the safari more exciting and memorable.	Animal safaris are a great way to experience the safari in a unique and exciting way. By offering more animal safaris, Lahore Safari can make its safari more appealing to a wider range of visitors.
Increases educational value.	Animal safaris can be a great way to learn about animals and their natural habitats. By offering more animal safaris, Lahore Safari can increase the educational value of its safari.
Attracts more visitors.	Animal safaris are a popular attraction at other safari parks. By offering more animal safaris, Lahore Safari can attract more visitors and boost its revenue.

Reason of proposed intervention	Impact
Generates more revenue.	Animal safaris can be a profitable business. By offering more animal safaris, Lahore Safari can generate more revenue and improve its financial situation.

ADDITIONAL RECOMMENDATIONS AND WAY FORWARD

This section, which extends beyond the proposed assessment and revamping plans, outlines supplementary steps and long-term strategies aimed at ensuring the sustained growth, relevance, and excellence of Lahore Safari Zoo.

9.1. Strengthening Conservation Initiatives

Expand Engagement with Conservation Organizations: Forge deeper collaborations with regional and international conservation organizations to tap into their expertise, funding, and resources, thereby bolstering comprehensive conservation efforts.

Establish a Research and Innovation Center: To advance scientific research, breeding programs, and technological innovations, create a dedicated research and innovation center within the zoo premises. This center will play a pivotal role in supporting wildlife conservation efforts worldwide.

9.2. Educational Advancement

Develop School Outreach Programs: Create structured educational outreach programs targeting schools, with a particular focus on curriculum-aligned wildlife and conservation education. This initiative will cultivate a new generation of wildlife stewards.

Offer Scholarship Opportunities: Provide scholarships and internship programs to students pursuing degrees in wildlife biology, ecology, and related fields. This investment in education and research will contribute significantly to the zoo's mission.

Launch an Online Learning Platform: Develop an online learning platform with a rich repository of educational resources, including virtual tours, webinars, and interactive courses. This digital offering will extend the zoo's reach and impact globally.

9.3. Sustainable Practices

Pursue Green Certification: Take steps towards achieving recognition as an eco-friendly and sustainable institution. Implement environmentally responsible practices, including waste reduction, renewable energy adoption, and sustainable water management.

Expand Conservation-Based Merchandise: Diversify the merchandise store to include products directly contributing to wildlife conservation. The proceeds from these items will fund specific conservation initiatives.

9.4. Visitor Engagement and Experience

Host Annual Wildlife Festivals: Organize yearly wildlife festivals featuring educational exhibits, wildlife-themed art, cultural performances, and interactive activities. These events will foster a deeper connection between the community and wildlife.

Introduce Membership Programs: Launch membership programs offering exclusive benefits such as unlimited visits, behind-the-scenes tours, and access to special events. This initiative will generate recurring revenue and cultivate a sense of belonging among members.

9.5. Community Involvement

Host Local Artisan Markets: Arrange regular artisan markets featuring local crafts, foods, and products. This platform will showcase the talents of local businesses and artisans while strengthening community bonds.

Establish Community Gardens: Create community gardens within the zoo's premises, encouraging local residents to participate in conservation by cultivating native plants that support local wildlife.

9.6. Long-Term Sustainability

Create an Endowment Fund: Establish an endowment fund to secure the zoo's financial future. Encourage philanthropic donations and investments to ensure continuous operations and improvements.

Pursue Environmental Certification: Strive for recognized environmental certifications that demonstrate the zoo's commitment to sustainability and conservation.

In summary, the supplementary recommendations and long-term strategies outlined in this section are vital for ensuring Lahore Safari Zoo's sustained growth, relevance, and excellence. These initiatives extend the zoo's influence as a global leader in wildlife conservation, education, and community engagement while securing its place as a treasured institution for generations to come.

CONCLUSION

10.1. Summarize the Overall Need for Revamping Lahore Safari Zoo

Lahore Safari Zoo, an institution steeped in history and cultural significance, has been a cornerstone of our community's heritage for generations. It has evolved from its modest beginnings into a dynamic sanctuary dedicated to wildlife conservation and education. The need for revitalization is evident as we strive to uphold the institution's legacy while meeting the demands of the modern age.

Our vision for Lahore Safari Zoo is one of institutional growth and renewal. Its aging infrastructure, evolving visitor expectations, and a deep commitment to world-class wildlife care compel us to embark on a journey of comprehensive revamping. We aim to bridge the gap between our historical legacy and contemporary aspirations.

Fundamentally, Lahore Safari Zoo serves as a bridge between humans and wildlife. It has, over the years, introduced countless individuals to the wonders of the natural world, fostering awareness, education, and conservation. The need for revamping is not merely a response to wear and tear; it is a reflection of our dedication to this fundamental purpose.

10.2. Emphasize the Importance of the Project for the Community and Wildlife Conservation

At its core, the revitalization of Lahore Safari Zoo extends far beyond bricks and mortar. It is a project of community enrichment, offering cultural experiences, educational empowerment, and an inclusive spirit. The zoo will continue to serve as a hub for cultural enrichment and local engagement, inviting our community to come together, celebrate our heritage, and look to the future with pride.

Equally, Lahore Safari Zoo is a bastion of wildlife conservation. It takes on the responsibility of protecting endangered species, preserving biodiversity, and contributing to regional and

global conservation initiatives. This project stands as an embodiment of our commitment to the stewardship of our natural world.

The transformative potential of the revamping project cannot be overstated. It reaches beyond the zoo's physical boundaries, shaping the cultural, educational, and environmental landscape of our region. It is a rallying call for our community to recognize the importance of this institution in our lives and to collectively commit to its revitalization.

In conclusion, Lahore Safari Zoo represents more than just an institution; it is a bridge between our past and our future, between our community and the natural world. We extend an invitation to all stakeholders, decision-makers, and collaborators to join hands with us in realizing the vision of a revitalized Lahore Safari Zoo - an enduring legacy of wildlife preservation, community engagement, and education.

TENTATIVE LIST FOR ACQUISITION OF ANIMALS

Sr. #	Name of Animal	Tentative No. of Animals
1.	Elephant	02 pair
2.	Rhinoceros	01 Trio
3.	Giraffe	03 trio
4.	Black Jaguar	01 male
5.	Oryx	12 Nos.
6.	Addax	12 Nos.
7.	Zebra	15 Nos.
8.	Urial	30 Nos.
9.	Ostrich	20 Nos.
10.	Blue Bull	20 Nos.
11.	Spotted Deer	15 Nos.
12.	Freshwater and Marine Fish, Coral Reefs, and Invertebrates.	As required for the Aquarium

*The proposed number and species of animals may be varied as per availability and site requirement.

Tentative List of Medical Equipment for Rehabilitation Centre

Sr. No.	Items	Qty
1.	Chemistry Analyser	1
2.	Hematology Analyser	1
3.	Microspore with camera and LED	1
4.	Distillation Unit	1
5.	Vortex Mixture	1
6.	Hot water bath	1
7.	Misc. Lab Apparatus and Chemicals	L.S
8.	Hormone Analyzer	1
9.	Customized V-Shaped Surgical Table	1
10.	Surgery Kit	1
11.	Sterilization (steamer)	1
12.	Suction Apparatus	1
13.	Surgical Electrical Unit	1
14.	Gas Anesthesia Machine	1
15.	Vital Monitor	1
16.	Examination Table	2
17.	Stretcher (steel)	2
18.	Ultrasound Machine (portable)	1
19.	X-ray Exposure Unit	1
20.	Stretcher (cloth)	4
21.	X-ray CR-Unit	1

**DETAIL OF IT EQUIPMENT FOR E-TICKETING, SURVEILLANCE, DATA
CENTRE AND INFORMATION CENTRES**

Venue	Equipment	Quantity
Parking Area e-Ticketing and Own car safari Entrance	Fabricated Ticketing Booth (Single Sided) - With Civil Work, Furniture and Power	4
	POS Terminal with cash drawers, printer	4
	Vehicle Parking Barrier	7
	Exit Emergency gate Equipment:	
	2 Cordless Scanner, tablet and Khoka	1
	AI Camera	9
	IP Phones	1
	IT Infrastructure / Material	1
	CCTV Camera	4
Entrance Gate (Open Area, Safari Entrance, Food Court and Aquarium)	Gope Entrance POS terminal (cash drawer, thermal printer, Furniture)	8
	Gope Cordless Industrial handheld barcode scanner	4
	Gope area Flapping gates	8
	Gope AI Camera Footfall Counter	8
	Gope Signage Boards	10
	SMD (Gope Entrance) Size: 10ft. W x 8ft. H	1
	Safari Entrance POS terminal (cash drawer, thermal printer, Furniture)	6
	Safari Cordless Industrial handheld barcode scanner	3
	Safari area Flapping gates	6
	Safari AI Camera Footfall Counter	6
	Safari Signage Boards	6
	Safari GPS Tracking bands	100
	Stationary (Printing Rolls)	1
	CCTV Cameras	10
	IT Infrastructure / Material	1
	IP Phones	3
African Safari and Information center	CCTV Cameras	4
	65" LED TV	3
	IP Phones	1
	Fixed Binoculars	8
	POS terminal for souveiner (cash drawer, thermal printer, ticketing counter)	1
	IT Infrastructure / Material / Power	1
Desert Safari, Saltrange and Information center	CCTV Cameras	4
	High Performance SMD Cinema Video wall screen P1.25 with Multimode Display player/controller Size: 12ft W x 10ft H	1
	Professional Cinema Sound System (8.1 DTS Dolby Digital Surround Sound System)	1
	65" LED TV	1
	IP Phones	1
	Fixed Binoculars	8
	POS terminal for souveiner (cash drawer, thermal printer, ticketing counter)	1
	IT Infrastructure / Material / Power	1
Glamping Pods	IP Phones	6
	CCTV Cameras	4
	IT Infrastructure / Material / Power	1
Datacenter	MPLS/SDWAN CIR Corporate Internet connection for Safari Zoo	1
	Dell 2U Rack Server	1
	Datacenter Equipment and Infrastructure	1
	IP-PBX Software Application	1
	AI based Soft NVR Software Application	1

VETTED ROUGH COST ESTIMATES



**Deals in Laptop Desktop Network Solutions CCTV Digital Attendance Systems Printers
UPS Electric Pannels Measuring Instruments & General order Supplier Sales & Service**

Estimate

S.No	Particulars			Rate
1	Installation of CCTV Camera (Static, PTZ with wiring)	Qty		17 M
	PTZ Camera Hikvision/Dhaua	5		
	NVR Hikvision/Dhaua 16 Channel	1		
	Harddisk 4 TB	1		
	Configuration/Installation/Wiring	8		
	LED 43 inches Haier/TCL/Ecostar	1		
	HDMI Cable 3M	1		
2	Installation of Sollar System for Tube well (35KW)	Qty		7.200 M
	Solar Panel. TIER-1 A-GRADE. 550W Jinko/Longi/Canadian Mono Perk Half	70		
	GD-100-37KW-3PHASE-VFD-INVT	1		
	AC&DC Earth Bore with complete accessories for grounding solar	01		
	Flat Roof G.I-L2-14gage Galvanized Solar Panel structure	35		
	Wiring Cost (DC & AC wiring), AC&DC Breaker, AC&DC SPD DB Box, ducting, PVC Pipe, Flexible Pipe Installation &	70		
3	Installation of Sollar System 25 KW	Qty		6.600 M
	Solar Panel. TIER-1 A-GRADE. 550W Jinko/Longi/Canadian Mono Perk Half	45		
	INVERTER Hybrid 25KW-1PHASE-Crown/Tesla/Knox/Dual O/P	3		
	BATTERY-Tublar TA-1800 OSAKA	12		
	AC&DC Earth Bore with complete accessories for grounding solar	02		
	Net metering/Turnkey solutions as per NEPRA rules complete Process Documentation and Bi-Directional	01		
	Flat Roof G.I-L2-14gage Galvanized Solar Panel structure	23		
	Wiring Cost (DC & AC wiring), AC&DC Breaker, AC&DC SPD DB Box, ducting, PVC Pipe, Flexible Pipe, Main Disconnection	45		

Annexure17 - Quotations

4	Installation of Sollar System 8 KW	Qty	21M
	Solar Panel. TIER-1 A-GRADE. 550W Jinko/Longi/Canadian Mono Perk Half Cut.	14	
	INVERTER Hybrid 8KW-1PHASE- Crown/Tesla/Knox/Dual O/P	1	
	BATTERY-Tublar TA-1800 OSAKA	04	
	AC&DC Earth Bore with complete accessories for grounding solar panel	02	
	Net metering/Turnkey solutions as per NEPRA rules complete Process Documentation and Bi- Directional Meter Installation Charges.	01	
	Flat Roof G.I-L2-14gage Galvanized Solar Panel structure	7	
	Wiring Cost (DC & AC wiring), AC&DC Breaker, AC&DC SPD DB Box, ducting, PVC Pipe, Flexible Pipe, Main Disconnection Switch Installation & Commissioning.	14	
5	Metal Detector ZKTeco		0.025 M
6	Walkthrough Gate Standard External Size: 2200mm(H)X800mm(W) X580mm(D) Standard Internal Size: 2010mm(H)X700mm(W) X500mm(D) Package Size for Door Panels: 2260*650*260mm *1ctn Package Size for Control Unit: 780*390*250 mm*1ctn Gross Weight:70kg Working Frequency: 4KHz—8KHz Standard External Size: 2200mm(H)X800mm(W) X580mm(D) Standard Internal Size: 2010mm(H)X700mm(W) X500mm(D) Package Size for Door Panels: 2260*650*260mm *1ctn Package Size for Control Unit: 780*390*250 mm*1ctn Gross weight: 70kg Detection Zones: 18 Sensitivity Levels: 256 Display: 3.7" LCD display Standard Functions: Detecting metal, Counting alarm and people. Optional Functions: 2000mAH Backup Battery Power Supply: AC100 V-240 V Working Temperature: - 20°C~+50°C Detection Zones: 6 Sensitivity Levels: 100 Display: LED Standard Functions: Detecting metal, Counting alarm and people. Optional Functions: 2000mAH Backup Battery Power Supply: AC100 V-240 V Working Temperature: -20°C~+50°C Working Frequency: 4KHz—8KHz Walk Through Metal Detector		0.200 M
7	Wireless Sets Walkie Talkie CTCSS / DCS (50 CTCSS and 104DCS codes). Dual band, Dual display, Dual standby. IP67 Waterproof and dustproof. Cross band reception/transmission. High power / mid / low (5W / 3W / 1W) selection. Up to 128 Memory channels. Battery Saving. VOX (voice operated transmission). Wide / Narrow band selection. Tone end of transmission. Auto-Back light. Dual band standby. Time-out timer (TOT). Voice prompt (English /Chinese). DTMF emergency alarm. ANI code PTT-ID. Frequency reverse. Auto keypad lock. Busy channel lock function. PC software or Manual program. Emergency SOS sound and light alarm. Priory scanning Function. Commercial FM radio receiver (65Mhz-108MHz). Relay forwarding confirmed (1750Hz). Low Battery warning. Display illumination and programmable keyboard		0.052 M
8	Dustbin Dustbin Large Out Door Paddle Operated PVC 100 Litter		0.017 M
9	Mist Fan 24 inch Royal Fan/Pak Fan/GFC Fan/Super Asia Fan		0.040 M

Annexure17 - Quotations

10	Bracket Fan 18 inch Royal Fan/Pak Fan/GFC Fan/Super Asia Fan	0.015 M
11	Air Conditioner 1.5 Heat & Cool Haier Inverter AC Heat & Cool 18HFP	0.250 M
12	Cabinet Air Conditioner 4 Ton Haider Floor Standing Air Conditioner Heat & Cool 48e	0.900 M
13	AC Chiller 8 Ton Acson 8 Ton Floor Standing Unit R410a A5FS100FR-M	2.300 M
14	Vehicle 1000 CC Suzuki Cultus VXR	5.134 M
15	Vehicle 1200 CC Suzuki Swift GL	5.833 M
16	Motorcycle 125 CC Honda CG-125 Red	0.356 M
17	Laptop Core I5 13 th Generation 8 GB RAM 512 GB Hard Drive 512 GB SSD HP Envy 14 2in1 One Year Warranty	0.375 M
18	Projector Sony Ultra Short WXGA VPL-536C 3100 Lumens 6000 Hrs Lamp Life 1280x800 resolution auto Dimming & Brightness Remote & Pen	0.325 M
19	Water Chiller Pak Made National Electric 302 Liter Three Tap Cabinet Single Phase	0.100 M
20	Photo Copier Ricoh MP 4000 Servies Black & white Photo Copier 3 Feeding 25000 pages yield	0.400 M

T&C:

1. Payment terms 100% Advance
2. Warranty Claim according to warranty policy terms by the product manufacturing company.
3. Prices are Inclusive of WHT.
4. Quotation Valid for 15 Days.
5. Please pay in favor of account title "Syed Zeshan Haider"

For MAT Enterprises

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Deputy Director (Wildlife)
Safari Zoo,
Lahore.

Ref: BTS/EDAN/077
Date: 18-09-2023

SUBJECT: QUOTATION OF VETERINARY ULTRASOUND MACHINE

Dear Sir,

Reference to the subject, we are pleased to quote our best prices with following terms and condition. We hope you will find our offer very attractive and complete in all aspect and hope to receive your valued order soon.

Terms and Conditions

- 01. Validity : 30 days.
- 02. Delivery : 6-8 Weeks
- 03. Literature : Relevant literature attached here with.
- 04. Installation : Installation will be done by our trained engineer.
- 05. Warranty : One Year
(Batteries, Consumable items and damage will not cover under warranty)
- 06. Price : FOR basis (Inclusive of GST)

Note: 1) The F.O.R prices are based on the existing custom duties, income tax and today's rupees to foreign currency exchange rate. Any taxes levy by Government will be added and the rates prevailing at the time of order will be applicable.

Assuring you of our best cooperation,




For Bio-Tech Services

Item Name: Veterinary Ultrasound Machine

High Resolution Digital Beam Former **EDAN Veterinary Ultrasound Scanner (B/W) Model DUS60, which has most leading international quality recognitions.**

- **Multi frequency Convex Probe Model: C361-2**
- **Multi frequency Micro Convex Probe Model: C611-2**
- Main unit with 12.1" TFT-LCD monitor
- Cine Loop Memory 256 frames
- Zoom: 8 steps
- Display Modes: B, 2B, 4B, B+M, M, and PW
- Grey Shades: 256 levels
- Scanning Depth: 324mm
- Applications (probe dependent):
 Large Animal: Reproduction, Tendon.
 Small animal: Abdomen, Small part, basic cardiology.
- Storage media: Built-in Flash, internal large capacity data storage
- Built-in image archive: 504MB built-in image storage
- Power supply: 100V-240V ~ 50Hz/60Hz
- USB port: 2, VGA output: 1, Ethernet port: 1
- Built-in Battery operation
- Trolley for Ultrasound Machine –Local*
- Stabilizer*

MANUFACTURER: EDAN INSTRUMENTS INC.
ORIGIN: CHINA

DESCRIPTION	FOR Unit Price (Inclusive of GST)
FULL PACKAGE PRICE FOR VETERINARY ULTRASOUND MACHINE EDAN DUS 60 AS INDICATED ABOVE	Rs. 1,593,000/- (Rupees One Million Five Hundred Ninety Three Thousand Only)

*separate origin, will be provided locally.

OLYMPUS[®]

Your Vision, Our Future

Biological Microscope

CX23

Bringing Reliability to the Classroom



User-Friendly Design and Outstanding Optical Performance



Ergonomic grip

- Ergonomic grips add safety when retrieving the microscope from high places.
- Colored grips indicate the appropriate places to hold the microscope.
- Smooth, rounded design eliminates sharp edges.
- The CX23 microscope is one of the lightest in its class, with a total weight of approx. 5.9 kg (13.01 lbs).

Lift

1



Angled arm enables comfortable carrying



Ergonomic grip for easy carrying

- The arm is angled to keep user’s wrists in a comfortable, neutral position.
- The eyepiece can be fixed in place to help prevent damage or loss during transportation.
- A rackless stage and stage cover enable safety and stability during long periods of use.

Carry

2



Fixed eyepieces



Rackless stage and stage cover



Convenient and easily accessible power cable storage



Locking pin for easy binocular rotation

- A locking pin keeps the observation tube in place.
- Interpupillary adjustments, ranging from 48 to 75 mm, enables individual users to set it to their needs.
- Eyepoint adjustments accommodate the user’s height and provide greater comfort.
- Left and right diopter adjustment enable optimal focus for each eye.

Prepare

3



Interpupillary adjustment



Eyepoint height adjustment



Designed for the Classroom

Set the Sample

4

- An inward-facing rotating nosepiece facilitates a larger working area above the stage, enabling easier operation and specimen exchange or making it easier to apply oil to immersion objectives.
- Objectives with long working distances provide clearance for thick samples and slides.
- Bring specimens into focus quickly by using the coaxial knobs for fine or coarse adjustments. The microscope is built for durability and precise control, whether accessed from the left or right side.
- A torque release function helps prevent damage if excess force is applied to the coarse focusing knob or stage knob.



Inward-facing revolving nosepiece



Coaxial knobs

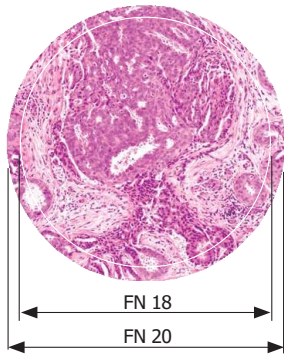
Observe

5

- The focus lock helps prevent the objectives from damaging the specimen.
- Field number (FN) of 20 provides a wide field of view.
- The CX23 microscope features plan achromat objectives that preserve outstanding image flatness throughout the field of view.
- The energy saving LED light source provides a long operation lifetime of 20,000 hours.
- Daylight balanced LED illumination preserves the vivid colors on HE-stained samples.



Focus lock



Wide field of view

Store

6

- A storage compartment on the back of the CX23 microscope makes it easy to stow the power cable after use.
- Protect your investment with an optional custom designed wooden case.
- When the CX23 microscope needs to be left unattended, a built-in security slot enables attachment of an anti-theft cable.



Cable storage compartment



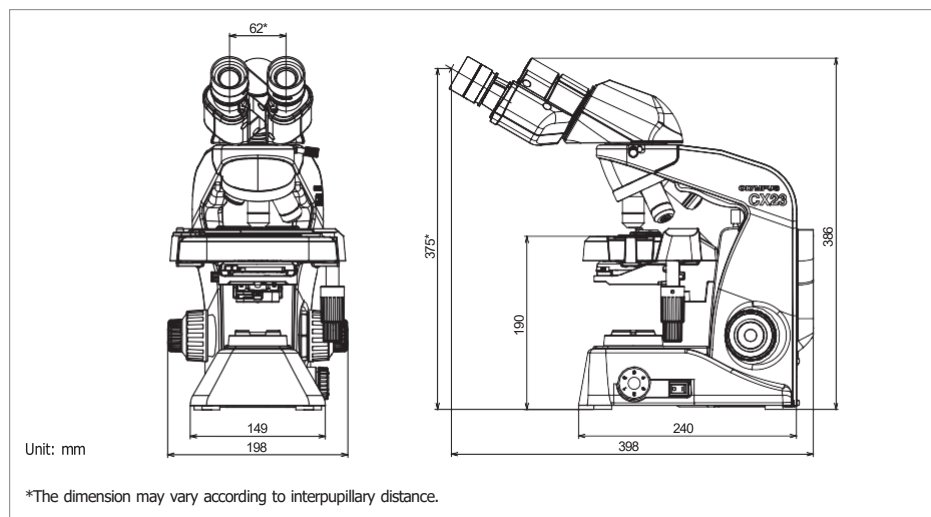
Built-in security slot

CX23 Specifications

Model		CX23LEDRF (S1/S2)		CX23RTFS2
Body		Aluminum die-cast metal frame, protective plastic covering		
Optical System		Infinity optical system		
Illumination System		Built-in transmitted illumination system LED power consumption: 0.5 W (nominal value)		
Focusing		•Stage height movement •Coarse movement stroke: 15 mm •Coarse adjustment limit stopper •Torque adjustment for coarse adjustment knob •Fine focus knob (minimum adjustment gradations: 2.5 μm)		
Revolving Nosepiece		Fixed quadruple nosepiece with inward tilt		
Stage		Wire movement mechanical fixed stage •Size (W × D): 174 mm × 89 mm •Traveling range (X × Y): 76 mm × 30 mm •Specimen holder •Specimen position scale		
Observation Tube	Type	Binocular, anti-fungal		Trinocular, anti-fungal
	Eyepiece (anti-fungal)	10X Field Number (FN): 20 15X Eyepiece (FN): 12 (optional)		
	Tube inclination	30°		
	Light path selector	None		Eyepiece/Camera port = 100/0 or 0/100
	Interpupillary distance adjusting range	48 – 75 mm		
Eyepoint adjustment		370.0 – 432.9 mm		
Condenser		•Abbe condenser NA 1.25 with oil immersion		•Built-in aperture iris diaphragm
Objectives		Plan Achromat, anti-fungal 4X NA 0.1 W.D. 27.8 mm 10X NA 0.25 W.D. 8.0 mm 20X NA 0.4 W.D. 2.5 mm (optional) 40X NA 0.65 W.D. 0.6 mm 100XOil NA 1.25 W.D. 0.13 mm (CX23LEDRFs1 built-in, CX23LEDRFs2/RTFS2 optional)		
Optional Accessories		Reflection mirror (CH20-MM), eyepiece micrometer Dust cover, darkfield stop (CH2-DS+CH2-FH) Field Diaphragm (CX23-FS)* Dedicated wooden case (CH20-WB2)		Reflection mirror (CH20-MM), eyepiece micrometer Dust cover, darkfield filter (CH2-DS)
Dimensions (W × D × H)		198 mm × 398 mm × 386 mm		198 mm × 398 mm × 430 mm
Weight		Approximately 5.9 kg		Approximately 6.5 kg
Rated Voltage/Electric Current		AC 100 – 240 V 50/60 Hz 0.4 A		
Power Consumption		Less than 2 W		

*CX23-FS is included in CX23RTFS2 standard set

DIMENSIONS



Dedicated wooden case (optional)

Specimen courtesy of :
JAPANESE FOUNDATION FOR CANCER RESEARCH
Cancer Institute, Cancer Institute Hospital
Department of Pathology
Futoshi Akiyama, M.D., Ph.D.
Yuichi Ishikawa, M.D., Ph.D.

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FCR PRIMA T2 Specifications

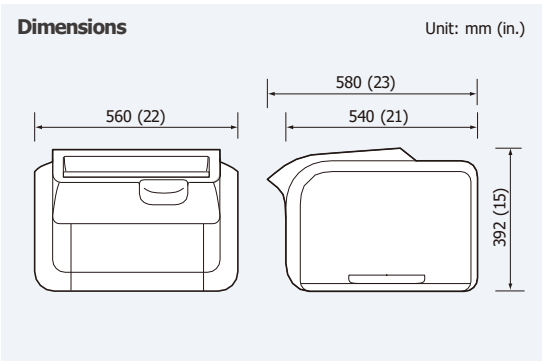
Standard Components	FCR PRIMA T2 Image Reader (Model: CR-IR 392)
Applicable Console	FCR PRIMA Console, FCRView, CR Console, Console Advance
Main Connectable Imagers	DRYPIX PRIMA/ Smart/ Lite/ Plus/ 4000
Supplies	Imaging Plate ST-VI: 35 × 43 cm (14"× 17"), 35 × 35 cm (14"× 14"), 10"× 12", 8"× 10", 24 × 30 cm, 18 × 24 cm, 15 × 30 cm IP Cassette Type CC: 35 × 43 cm (14"× 17"), 35 × 35 cm (14"× 14"), 10"× 12", 8"× 10", 24 × 30 cm, 18 × 24 cm, 15 × 30 cm
Time Required for IP Feed/ Load	Min. 49 sec.
Processing Capacity	Up to 73 IPs/hr.
Reading Specification	10 pixels / mm, 5 pixels/mm
Time to Start on Display	Min. 33 sec.
Time to Print on DRYPIX PRIMA	Approx. 165 sec. (Approx. 155 sec.)* in case of 35 × 43 cm (14"× 17")
Number of Stacker	1
Network	10 Base T/100 Base TX
Dimensions (W × D × H)	560 × 540 × 392 mm (22"× 21"× 15")
Weight	39 kg (86 lbs.)
Power Supply Conditions	Single phase 50-60 Hz AC120-240V ±10% 1.9A (max)
Environmental Conditions	Operating Conditions: • Temperature: 15-30 °C • Humidity: 15-80 %RH (No dew condensation) • Atmospheric pressure: 750-1060 hPa

This equipment is a Class 1 laser product (IEC60825-1:2001).

*In the high speed mode



Extremely fast processing in a compact body streamlines diagnosis



Imaging Plate ST-VI

35 × 43 cm (14"× 17"),
35 × 35 cm (14"× 14"),
10"× 12", 8"× 10",
24 × 30 cm, 18 × 24 cm,
15 × 30 cm

IP Cassette Type CC

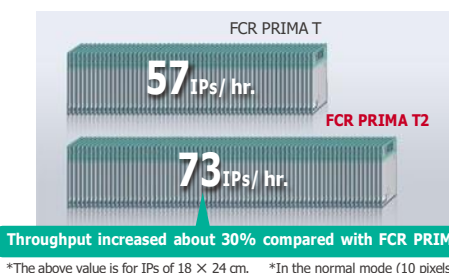
35 × 43 cm (14"× 17"),
35 × 35 cm (14"× 14"),
10"× 12", 8"× 10",
24 × 30 cm, 18 × 24 cm,
15 × 30 cm



This compact table-top reader unit has outstandingly high-speed processing capability to challenge the common misconception of CR

High-Speed Processing

FCR PRIMA T2 is a table-top reader unit which boasts a world-class high processing speed of 73 IPs/hour. In the high speed mode (5 pixels/mm), throughput is enhanced almost 70% compared with FCR PRIMA T (only for IPs of 14" x 17" and 14" x 14"). As with all Fujifilm equipment FCR PRIMA T2 is easy to operate. It will help reduce patient waiting time and greatly increase the efficiency of examination workflow.



Space-Saving Design

FCR PRIMA T2, with its light and compact table top design, can be placed on a desk, shelf or anywhere space is limited. As this is a fully digital reader, neither a darkroom nor automatic processor is required. FCR PRIMA T2 can always be installed in the space formally used by a chemistry based processor.



Stable High-Quality Images

Although this is a compact machine its excellent image quality is the same as that produced by the rest of the FCR range. Image Intelligence™, Fujifilm's proprietary image processing technology, enhances image contrast and sharpness, without any deterioration of details. FCR PRIMA T2 supports accurate diagnosis by offering stable and optimized image quality.



MFP* Multi-Frequency Processing	FNC Flexible Noise Control	GPR Grid Pattern Removal
Enhances FCR images. All diagnostic scopes will be enhanced except for noise. *Optional software	Provides a non-grainy image by mainly isolating and suppressing the noise for the signal.	Removes the stationary grid patterns thus preventing Moiré from being generated resulting in easier diagnosis.

Processing Capacity
73 IPs/ hr.

• The above value is for IPs of 18 x 24 cm.

Weight
39 kg

392 mm

540 mm

560 mm

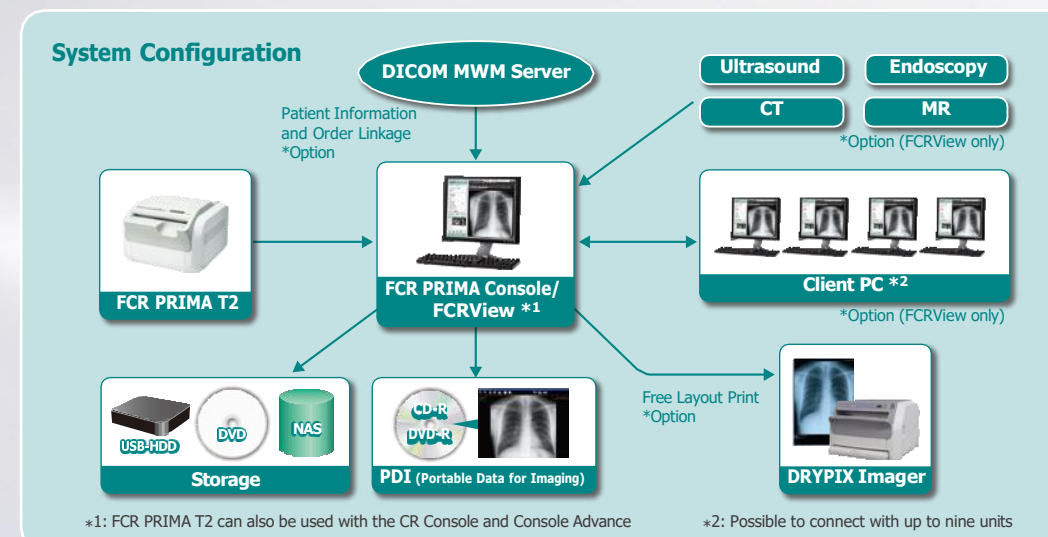
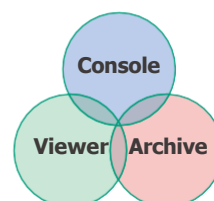
All-in-one workstation



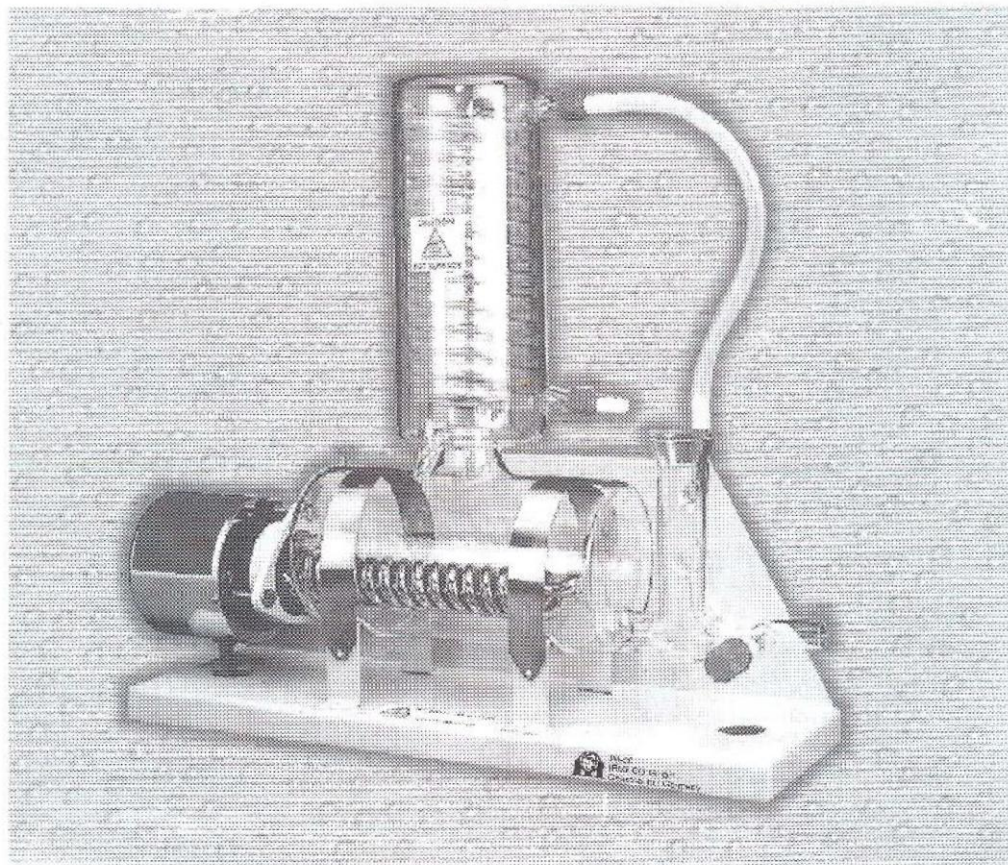
FCR PRIMA Console / FCRView

FCR PRIMA Console and FCRView are all-in-one workstation which meet various radiographic imaging needs. The features include image acquiring, processing, viewing and archiving.

*FCR PRIMA T2 can also be used with the CR Console and Console Advance.

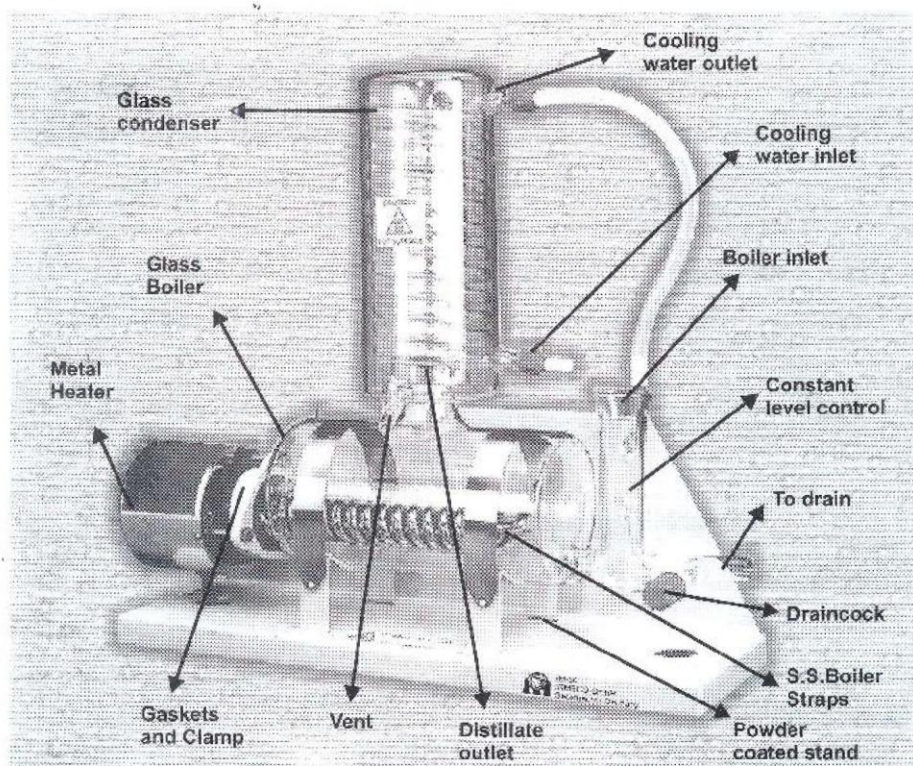


Condensor and Boiler manufactured by
"Iwaki Glass"



Installation & Operating Instructions

WATER STILL - MODEL IM-50



Mounting and placement

This equipment can be either wall or bench mounted.

CHECK FOR THE FOLLOWING SERVICES:

- ❖ Single phase electric supply capable of handling a load of 3KW,230V and with a fuse carrier of 15 amps.
- ❖ The equipment must be earthed in all cases . Blue-Live, Brown-Neutral and Green-Earth.
- ❖ Cooling water supply for glass condenser capable of providing minimum flow rate of 60 lit/hr. The flow rate has to be adjusted by the lab technician using a measuring cylinder or using a flow meter.
- ❖ A drain located below the level of the still, so that the PVC drainpipe from the glass boiler can fall straight without kinks or bends to allow unimpeded flow of water.

INSTALLATION

1. Open the box carefully and identify the following components.

Component	Quantity
"Power coated stand with 2 S.S. Boiler Straps with springs	1
Glass Boiler	1
Glass Condenser	1
Metal Heater (with thermostat)	1
Hose Kit	1
Gasket Kit	1

2. Place the powder coated stand at a suitable location, bench top or wall mounted using the two key holes provided.
3. Take the glass boiler ensuring that the two silicone rubber 'O' rings on the vapour tube are in place. The smaller silicone rubber 'O' ring to be seated on the top groove of the vapour tube of the glass boiler. The bigger silicone rubber 'O' ring is to be adjusted to a distance of approx. 35 mm from the

top surface of the glass boiler or such that when the glass condenser is placed over the vapour tube it does not shake. Take the metal heater, the metal flange, the rubber gasket and the HDPE collar insert and assemble as shown.

- a) Place the metal flange (flat side facing the boiler) over the tapered glass neck of the boiler.
- b) The HDPE collar insert is bent around the tapered glass neck and into the metal flange. The metal flange is pulled and inserted towards the end of the glass boiler neck so that when the metal flange is pulled the HDPE collar insert seals on to the neck.
- c) Place the neoprene rubber gasket over the metal heater and insert the metal heater through the tapered glass neck and into the glass boiler.

Note: The metal heater is to be placed such that the heater rod tip is at the top facing the Condenser.

- d) Secure the metal heater with the three stainless steel bolts provided. Care should be taken not to over tighten the bolts. The heater axis should be parallel to the boiler axis.
1. Place the glass boiler and heater assembly in the cradle of the powder-coated stand. Secure with the S.S boiler straps provided. Connect the metal heater cables to the pins of the 15 amps connector.
2. Mount the glass condenser onto the vapour outlet tube of the glass boiler. The distillate outlet tube or vent should face the front.
3. Take the silicone tubing with screw thread connectors at either end. Screw one end of the silicone tubing on to the upper outlet of the glass condenser and the other end to the glass thread on the glass boiler.
4. Take the other PVC drainpipe and connect to the drain of the glass boiler.
5. Lead the free end of the PVC drainpipe to the drain. Ensure that there are no kinks or bends in the tube so that water flow is not impeded.
6. Ensure that the teflon draincock on the glass boiler is closed.
7. Connect the cooling water inlet of the glass condenser to the cold water feed supply with the help of the PVC tubing provided. For easy attachment to the glass condenser a plastic screw thread is provided along with the hose.
8. Connect the distillate outlet on the glass condenser to a suitable collection reservoir with the help of the hose provided.
9. Connect the mains of the metal heater to a fused 15 amp electric supply must be capable of providing a load of 3 KW at 230V.

IMPORTANT: THE EQUIPMENT MUST BE EARTHED.

VENTILATION REQUIREMENT

The unit can be put to operation under normal room temperature.

Starting the water still

1. Turn on the cooling water supply and adjust the flow rate to approximately 60 lit/hr. Allow the water to flow via the glass condenser into the glass boiler. When the water level reaches the correct operating level and excess water flows to the drain, turn on the heater.
2. When boiling commences and the distillate emerges from the glass-condenser start collecting in the reservoir.

SAFETY CUT-OUT

A thermostat is provided for the metal heater to protect the still from accidental failure of water supply. When the glass boiler runs dry the thermostat automatically shuts off the metal heater. The thermostat resets when the metal heater cools.

NOTE ON SETTINGS OF THERMOSTAT

The thermostat has been FACTORY SET. Do not adjust unless required. Please consult a qualified electrician to do any settings if required.

SETTING THE THERMOSTAT

First, the mains water supply is turned off. If the thermostat does not operate within two minutes of steam issuing from the distillate outlet tube, it is necessary to reduce the thermostat temperature by 5°C.

Conversely, if the thermostat operates during normal running conditions the thermostat temperature should be increased by 5°C.

Before the thermostat temperature is adjusted, the mains electric supply should be **Turned off**. The thermostat cover (Plastic cup) which is held in place by three retaining screws' is removed. This gives easy access to the thermostat with graduated dial. The cover is replaced after resetting the temperature.

After each adjustment, the operation of the thermostat should be checked.

CARE AND MAINTENANCE

For prolonged life of the still it is necessary that regular care and maintenance should be taken. Before any maintenance operation, the still must be isolated from the mains electric supply.

CLEANING

Over a period of operation, scale deposits may develop inside the glass boiler. For peak performance from your still, it is necessary to clean the glass boiler regularly.

The number of times the still needs to be cleaned during the course of its operation depends on the hardness of the water used. In very hard water areas it might be necessary to clean the still once a week, while in soft water areas, several weeks may elapse before cleaning becomes necessary.

10%Formic acid (methanoic acid) is used for removing scale deposits.

STEPS ON CLEANING

1. The electric supply to the still is switched off and the water in the glass boiler is allowed to cool.
2. The cooling water supply is turned off.
3. The teflon draincock in the glass boiler is opened and the water in the boiler is completely drained off. The draincock is then tightly closed.
4. Through the funnel of the glass boiler inlet tube, fill dilute 10% formic acid solution till the operating level is reached. Excess acid should be avoided.
5. The acid is allowed to react and break down the scale deposits. The time taken depends on the severity of scale build up. Drain the boiler by opening the draincock.

Important: Safety precautions have to be observed, since the liquid flowing to the drain may be acidic, as it may not be completely neutralized.

6. The draincock in the glass boiler is closed and the glass boiler is filled with cold water and allowed to drain out. This procedure is repeated two or three times.
7. The still can be restarted when the glass boiler is filled with water. The still should be allowed to run for around 10 minutes before collecting the distillate.

REGULAR CLEANING WILL KEEP YOUR STILL RUNNING AT OPTIMUM CONDITION

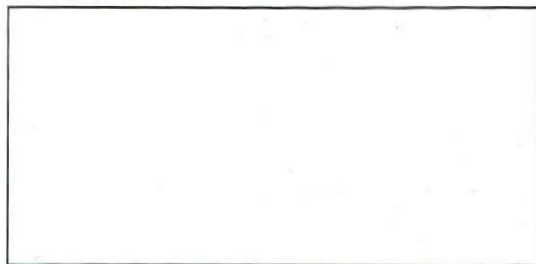
TECHNICAL DATA

Output Litres/hours	4	Conductivity $\mu\text{S}/\text{cm}$	3.0 - 5.0	Temperature	25 - 35°C
Quality of distillate*	Single distilled	Resistivity megOhm-cm	0.25 - 0.40	Water supply	1 litre / min
pH	5.0 - 6.5	Pyrogen content	Pyrogen Free	Power	220 / 240V

*pH, conductivity and resistivity are affected by temperature and the presence of absorbed carbon dioxide. The basis of the tests is 20°C on distilled water free of carbon dioxide.

**CONDENSOR AND BOILER MANUFACTURED BY "IWAKI GLASS"
AND IWAKI IS A REGISTERED TRADE MARK OF IWAKI JAPAN**

Distributor:



Irmeco

IRMECO GmbH

P.O. Box 15 06

D-21496 Geesthacht / Germany

Phone : +49 4152 / 88 54-0

Telefax: +49 4152 / 88 54-10 + 84 25 81

E-Mail: info@irmeco.de

Internet: www.irmeco.de


RAYS TECHNOLOGIES

7/I, Block F,
Near Main Market, Gulberg-II,
Lahore-54660
Pakistan.
Tel: 0092-42-35753903, 35753904-5
Fax: 0092-42-35753906
Email: sales@raystechno.com
Website: www.raystechno.com

Ref. No.: RT/0998/2023
Date: 14-09-2023

**The Deputy Director
Wild Life
Safari ZOO,
Lahore.**

QUOTATION

Dear Sir,

We refer to your enquiry and are pleased to quote hereunder our best prices for your consideration:

Sr.#.	Description	Unit Price (Rs)
<u>PRICES ARE NET, 18% SALES TAX WILL BE CHARGED EXTRA ON THE QUOTED PRICES.</u>		
5.	Distillation Apparatus all glass Borosilicate Glass fitted with metal element 3 KW capacity 4 Litre per hour, conductivity 4 μ s/cm, PH 5.5 to 6.5 Model IM-50, Irmeco Germany. (Country of Origin: Malaysia)	Rs. 295,000.00
9.	<u>Trinocular Microscope</u> Model: CX23LED Country of Origin: China Manufacturer: Olympus Corporation Japan	
	Body: Aluminum die-cast metal frame, protective plastic covering	
	Optical System: Infinity optical system	
	Illumination System: Built-in transmitted illumination system LED power consumption: 0.5 W (nominal value)	
	Focusing: Stage height movement Coarse movement stroke: 15 mm Coarse adjustment limit stopper Torque adjustment for coarse adjustment knob Fine focus knob (minimum adjustment gradations: 2.5 μ m)	
	Revolving Nosepiece: Fixed quadruple nosepiece with inward tilt Stage: Wire movement mechanical fixed stage Size (W $\times$ D): 174 mm $\times$ 89 mm Traveling range (X $\times$ Y): 76 mm $\times$ 30 mm Specimen holder • Specimen position scale	

Observation Tube:	Type: Trinocular, anti-fungal		
	Eyepiece (AntiFungal): 10X Field Number 20		
	Tube Inclination: 30°		
	Light Path Selector: None		
	Interpupillary distance adjusting range: 48-75mm		
Condenser:	Eye Point Adjustment: 370.0 – 432.9 mm		
	Abbe condenser NA 1.25 with oil immersion		
Objectives:	Built-in aperture iris diaphragm		
	Plan Achromat, anti-fungal		
	4X	NA 0.1	W.D. 27.8 mm
	10X	NA 0.25	W.D. 8.0 mm
	40X	NA 0.65	W.D. 0.6 mm
	100XOil	NA 1.25	W.D. 0.13 mm

Technical Specs:

CX23RTFS2	Microscope frame for transmitted microscopy with LED illumination, trinocular tube, a pair of eyepiece 10X with Helicoid adjustment (F.N.20), quadruple revolving nosepiece, right-handle double-plate stage, abbe condenser and plan objectives (4X, 10X, 40X), including field stop adapter, AC adapter, fixing belt for transportation
CXPL100XO	Plan achromat objective 100X/1.25, WD 0.13 (spring, oil)
UYCP-12	Power Cord
COVER-012	Dust Cover

Model: CX23LED Trinocular Microscope Olympus.

WITH**Microscope Digital Camera**

Model: HD1500T

HDMI C-mount camera

6MP Still resolution 3264x1836

2MP Live video 1920x1080 60 fps (frames per second) via HDMI

2MP Live video 1920x1080 30 fps (frames per second) via USB2.0

Video record: 1080p 30fps (frames per second) on SD card or PC

Output: HDMI, USB 2.0, SD Card, 1/3" CMOS chip (use .3x C-mount adapter)

Button (1) controls: Exposure, White balance, Gamma, Gain, Sharpness, Saturation, Contrast, Button (2) controls: Cross line, Image Compare, Image Freeze

OS support: Windows XP and later

Software: ISCapture full parameter control

C-mount Adaptor

LED 32" (Locally Supplied)

Complete set as above.

Rs. 1,495,000.00

Sales Tax Registration No : **03-94-9999-778-91**
National Tax No : **0665848-2**

Terms & Conditions: -

Offer Validity : 30 days
Delivery Period : 120 days
Price : **18% Sales tax will be charged extra on the quoted prices.**
Payment : By Cheque as usual (100% Advance)
Warranty : One year.
Installation : By our qualified engineer.

Note: - EUC will be required for export approval from respective country. If EUC may be rejected by export control authority the order will stand as cancelled without any obligation on our part.

Thanking you

Rays Technologies