



PC-1

Implementation of Master Plan of Safari Zoo Lahore

ORIGINAL APPROVED COST	PKR Million. 2,453.200/-
1st REVISED PROPOSED COST	PKR Million. 2,453.200/-
ORIGINAL APPROVED GESTATION	24 Months Till June 2025
1st REVISED PROPOSED 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

2.2. TEHSIL(S)

I. RAIWIND

3. AUTHORITIES RESPONSIBLE FOR

3.1. SPONSORING AGENCY

- FORESTRY, WILDLIFE, FISHERIES

3.2. EXECUTION AGENCY

- COMMUNICATION & WORKS DEPARTMENT (C&W)
- 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 Listed in ADP CFY
2	GS No: 5606
3	Total Allocation: 1,423.822

Comments:

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 biop diversity 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 biop diversity. 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 biop diversity.

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 Rehabilitation 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 biopersity. 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: Capital
Cost Center:OTHERS- (OTHERS)
Fund Center (Controlling):LE4203

Grant Number:Government Buildings - (PC12042)
LO NO:LO23004232
A/C To be Credited:Account-I

PKR Million

Sr #	Object Code	2023-2024		2024-2025	
		Local	Foreign	Local	Foreign
1	A12403-Other Buildings	879.099	0.000	0.000	0.000
Total		879.099	0.000	0.000	0.000

Financial Components: Revenue
Cost Center:OTHERS- (OTHERS)
Fund Center (Controlling):LE4217

Grant Number:Development - (PC22036)
LO NO:LO23000646
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	3.500	0.000	2.000	0.000
2	A09801-Purchase of Livestock	600.000	0.000	0.000	0.000
3	A09701-Purchase of Furniture and Fixture	20.000	0.000	0.000	0.000
4	A13304-Structures	300.000	0.000	0.000	0.000
5	A03942-Cost of Other Stores	8.000	0.000	2.000	0.000
6	A03907-Advertising and Publicity	35.500	0.000	2.500	0.000

7	A03927-Purchase of Drug and Medicines	5.000	0.000	2.000	0.000
8	A13801-Maintenance of Gardens	150.000	0.000	0.000	0.000
9	A03919-Payments To Others For Service Rendere	60.000	0.000	0.000	0.000
10	A01277-Contingent Paid Staff	5.000	0.000	5.000	0.000
11	A02203-Consultant based Research and Surveys	55.000	0.000	0.000	0.000
12	A03802-Training - International	7.000	0.000	0.000	0.000
13	A03407-Rates and Taxes	2.833	0.000	0.000	0.000
14	A03901-Stationery	4.000	0.000	1.000	0.000
15	A03303-Electricity	3.000	0.000	2.000	0.000
16	A03806-Transportation Of Goods (Govt)	4.000	0.000	1.000	0.000
17	A03970-Others	6.000	0.000	2.000	0.000
18	A13001-Transport	7.000	0.000	0.000	0.000
19	A13101-R & M Of Machinery And Equipment	0.500	0.000	0.500	0.000
20	A09802-Purchase Of Other Assets- Others	0.500	0.000	0.500	0.000
21	A03201-Postage and Telegraph	0.500	0.000	0.500	0.000
22	A03204-Electronic Communication	0.500	0.000	0.500	0.000
23	A09501-Purchase of Transport	191.244	0.000	0.000	0.000
24	A09601-Purchase of Plant and Machinery	28.848	0.000	0.000	0.000
25	A09404-Medical And Laboratory Equipment	26.000	0.000	0.000	0.000
26	A01106-Pay of Contract Staff	0.000	0.000	25.975	0.000
27	A01151-Basic Pay	0.000	0.000	0.442	0.000
28	A01101-Basic Pay	0.000	0.000	0.720	0.000

29	A01202-House Rent Allowance	0.000	0.000	0.172	0.000
30	A01203-Conveyance Allowance	0.000	0.000	0.137	0.000
31	A01217-Medical Allowance	0.000	0.000	0.078	0.000
32	A0124H-Special Allowance 2021	0.000	0.000	0.196	0.000
33	A0124T-Special Allowance - 2022	0.000	0.000	0.118	0.000
34	A0124R-A0124R - Adhoc Relief Allowance 2022	0.000	0.000	0.118	0.000
35	A0124Q-New Special Allowance 2023	0.000	0.000	0.371	0.000
36	A01270-Other	0.000	0.000	0.349	0.000
Total		1,523.925	0.000	50.176	0.000

8. ANNUAL OPERATING COST (POST COMPLETION)

Financial Components: Revenue
Cost Center:OTHERS- (OTHERS)
Fund Center (Controlling):LE4217

Grant Number:Development - (PC22036)
LO NO:LO23000646
A/C To be Credited:Account-I

		PKR Million
Sr #	Object Code	
Total		

Financial Components: Revenue
Cost Center:OTHERS- (OTHERS)
Fund Center (Controlling):LE4217

Grant Number:Development - (PC22036)
LO NO:LO23000646
A/C To be Credited:Account-I

		PKR Million
Sr #	Object Code	
Total		

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 diverse 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 diverse 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 2023-25.

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:Mudassir Hassan

Designation:Project Director

Email:

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
eparation of PC-I Project.

PREPARED BY:


(MUDASSER HASAN)
PROJECT DIRECTOR
IMPLEMENTATION OF MASTER PLAN
OF SAFARI ZOO LAHORE

COUNTERSIGNED BY:


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

16. REVISION HISTORY

16.1 ORIGINAL

As per directions of the Chief Minister Punjab, international zoo experts were invited to visit the Safari Zoo Lahore. During their brief stay, the project designs were discussed at length and resultantly valuable input was obtained to modify / improve the proposed structures to ensure better housing / enrichment and visitor experience. Several housing and moat designs were accordingly changed to address the observation of experts. Furthermore, during execution some designs changes were also made in consultation with the executing agency and resident consultant (ECSP) to address the site limitations and ground requirements to ensure safe and feasible structures.

COMPARATIVE STATEMENT

CONSERVANCY AND WORKS

Approved PC-1			Revised PC-1		Diff.
Sr. No.	Description	Amount (in million)	Description	Amount (in million)	
1	Lion House	23.369	Lion House	25.932	(+) 2.563
2	Tiger House	30.426	-	-	(-) 30.426
3	Leopard House	52.661	Leopard House	16.210	(-) 36.451
4	Giraffe House	28.105	Giraffe House	50.029	(+) 21.924
5	Rhino House	46.871	Rhino House	38.071	(-) 8.800
6	Elephant Sanctuary	33.726	Elephant House	108.092	(+) 74.366
7	Ungulates House	36.628	Ungulates House	22.074	(-) 14.554
8	Hospital Building	11.193	Hospital Building	34.204	(+) 23.011
9	Office Building	48.260	Office Building	8.898	(-) 39.362
10	Ostrich House	24.380	-	-	(-) 24.380
11	Zebra House	19.680	-	-	(-) 19.680
12	Sick Cages	6.676	Sick Cages	6.676	0
13	Information Center 1	32.392	Information Center 1	63.832	(+) 31.440

14	Information Center 2	32.392	Information Center 2	68.254	(+) 35.862
15	Camping Pods	36.028	-	-	(-) 36.028
16	Food Court	23.308	Food Court	13.174	(-) 10.134
17	Kitchen / Slaughter House	28.860	-	-	(-) 28.860
18	Parking Area	79.476	Parking Area	100.472	(+) 20.996
19	Desert Safari	5.079	Desert Safari	5.079	0
20	Salt Range	54.259	Salt Range	73.057	(+) 18.798
21	1st Main Gate	16.000	1st Main Gate	10.000	(-) 6.000
22	2nd Main Gate	10.000	-	-	(-) 10.000
23	Raiwind Road Gate	10.000	-	-	(-) 10.000
24	Play Area	0.566	-	-	(-) 0.566
25	Gazebo Area	3.211	Gazebo Area	9.131	(+) 5.920
26	View Points	31.473	View Points	31.473	0
27	Asphalt Road	22.658	Asphalt Road	22.658	0
28	Fair Ways	35.881	Fair Ways	35.881	0
29	-	-	General Area Partition	28.143	(+) 28.143
30	-	-	Repair of Existing Housings	50.000	(+) 50.000
Total Cost		793.574	Total Cost	821.340	(+) 27.766
Add 2% Consultancy Charges (Detailed Engineering Design &		15.871	-	-	(-) 15.871

Detailed Resident Construction Supervision)				
Add 2% Contingency	15.871	Add 2% Contingency	15.871	0
Grand Total Cost:	825.316	Grand Total Cost:	837.211	(+) 11.895
5% PST	39.936	5% PST	41.888	(+) 1.952
Grand Total Cost:	865.253	Grand Total Cost:	879.099	(+) 13.846

COMPARATIVE STATEMENT

MACHINERY, STORES AND EQUIPMENTS

(Rs. in million)

Sr. No.	Approved PC-1				Revised PC-1				Diff.
	Items of Work	Qty	Rate/ Unit	Total	Items of Work	Qty	Rate/ Unit	Total	
1	Procurement of Wireless set	12	0.064	0.768	Procurement of Wireless set	12	0.064	0.768	0.000
2	Procurement of Walk-Through Gate	5	0.800	4.000	Procurement of Walk-Through Gate	5	0.800	4.000	0.000
3	Procurement of Dustbins	30	0.018	0.540	Procurement of Dustbins	30	0.018	0.540	0.000
4	Procurement of Sound System (public address system)	1	2.000	2.000	Procurement of Sound System (public address system)	1	2.000	2.000	0.000
5	Procurement of Sound System	1	0.800	0.800	Procurement of Sound System	1	0.800	0.800	0.000
6	Transportation/Shifting Cages of Animals	6	0.200	1.200	Transportation/Shifting Cages of Animals	6	0.200	1.200	0.000
7	Procurement of Mist Fan (24 inch)	10	0.035	0.350	Procurement of Mist Fan (24 inch)	10	0.035	0.350	0.000
8	Procurement of Bracket Fan (18 inch)	30	0.016	0.480	Procurement of Bracket Fan (18 inch)	30	0.016	0.480	0.000
9	Medical Equipment for Rehabilitation Centre (Annexed)	L.S	26.000	26.000	Medical Equipment for Rehabilitation Centre (Annexed)	L.S	26.000	26.000	0.000
10	Procurement of Inverter Air Conditioner (1.5 ton, heat & cool)	6	0.250	1.500	Procurement of Inverter Air Conditioner (1.5 ton, heat & cool)	6	0.250	1.500	0.000

Sr. No.	Approved PC-1				Revised PC-1				Diff.
	Items of Work	Qty	Rate/ Unit	Total	Items of Work	Qty	Rate/ Unit	Total	
11	Procurement of Inverter Standing AC (8 ton)	4	1.700	6.800	Procurement of Inverter Standing AC (8 ton)	4	1.700	6.800	0.000
12	Purchase of Water Bowser	1	1.500	1.500	Purchase of Water Bowser	1	1.500	1.500	0.000
13	Purchase of Single Cabin Pick-up 4x4 with Fabrication	6	11.000	66.000	Purchase of Single Cabin Pick-up 4x4 with Fabrication	6	9.158	54.948	(-) 11.052
14	23 Seater Electric Vehicles (Soft Trams)	12	10.000	120.000	23 Seater Electric Vehicles (Soft Trams)	12	9.204	110.440	(-) 9.560
15	Purchase of Motorcycle 100 CC	4	0.250	1.000	Purchase of Motorcycle 100 CC	4	0.209	0.856	(-) 0.144
16	Bicycles with QR Code Locks (Adult and Kids)	50	0.050	2.500	Bicycles with QR Code Locks (Adult and Kids)	50	0.050	2.500	0.000
17	Purchase of printers	2	0.080	0.160	Purchase of printers	2	0.080	0.160	0.000
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	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	0.000
19	Procurement and installation of Projector (Minimum loops 2800-3000)	1	0.300	0.300	Procurement and installation of Projector (Minimum loops 2800-3000)	1	0.300	0.300	0.000
20	Generator 5KVA 1 Nos., 3 Nos. 20KVA (non-chinese)	4	0.52	6.500	Generator 5KVA 1 Nos., 3 Nos. 20KVA (non-Chinese), 1 Nos. 100KVA	5	0.500 1.000 5.000	6.500	0.000
21	LED TV 65', 4K UHD (02 for surveillance room and 01 for committee room)	3	0.450	1.350	LED TV 65', 4K UHD (02 for surveillance room and 01 for committee room)	3	0.450	1.350	0.000
22	-	-	-	-	Toyota Fortuner (Petrol)	1	25.000	25.000	(+) 25.000
Total				244.348	Total				(+) 1.744

COMPARATIVE STATEMENT

COST OF ESTABLISHMENT

(Rs. in Million)

Sr. #	Approved PC-1				Revised PC-1				
	Name of Post	Scale	No. of Post	Total	Name of Post	Scale	No. of Post	Total	Diff.
1	Project Director	PPS 10	1	8.134	Project Director	PPS 10	1	4.267	(-) 3.867
2	Director Marketing and Communication	PPS 10	1	8.134	Director Marketing and Communication	PPS 10	1	4.267	(-) 3.867
3	Wildlife Rehabilitation and Behaviour Expert	PPS 9	1	6.139	Wildlife Rehabilitation and Behaviour Expert	PPS 9	1	4.070	(-) 2.069
4	Diagnostic Expert	PPS 8	1	4.183	-	-	-	-	(-) 4.183
5	Wildlife Husbandry Expert	PPS 7	1	3.011	Wildlife Husbandry Expert	PPS 7	1	1.507	(-) 1.504
6	Safari Zone Manager	PPS 7	3	9.033	Safari Zone Manager	PPS 7	2	3.012	(-) 6.021
7	Education Officer	BPS 17	2	2.972	Education Officer	BPS 17	1	0.818	(-) 2.154
8	Medical Laboratory Technologist	BPS 17	1	1.486	Medical Laboratory Technologist	BPS 17	1	0.818	(-) 0.668
9	Assistant	BPS 16	1	0.982	-	-	-	-	(-) 0.982
10	-	-	-	-	Director of Veterinary Care	PPS 10	1	4.267	(+) 4.267
11	-	-	-	-	Senior Manager – Elephant Care	PPS 10	1	4.267	(+) 4.267

12	-	-	-	-	Mahawat	BPS-2	4	1.327	(+) 1.327
Total:-			12	44.074	Total		14	28.620	(-) 15.454

COMPARATIVE STATEMENT

COMMODITIES & SERVICES

(Rs. in Million)

Sr. No.	Approved PC-1		Revised PC-1		Diff.
	Items	Total	Items	Total	
1	Purchase of Zoo Exhibits	600.000	Purchase of Zoo Exhibits	600.000	0.000
2	Purchase of Furniture and Fixture	20.000	Purchase of Furniture and Fixture	20.000	0.000
3	Procurement of Sculpture	40.000	Procurement of Sculpture	40.000	0.000
4	POL Charges	3.000	POL Charges	5.000	(+) 2.000
5	Cost of other store (feed medicine & store)	8.000	Cost of other store (feed medicine & store)	10.000	(+) 2.000
6	Publicity & Advertisement Charges	38.000	Publicity & Advertisement Charges	38.000	0.000
7	Cost of Chemical and Medicines	4.000	Cost of Chemical and Medicines	7.000	(+) 3.000
9	Maintenance of Garden (Landscaping, Plantation, Tracks)	125.000	Maintenance of Garden (Landscaping, Plantation, Tracks)	150.00	(+) 25.000
10	Uniform	3.000	Uniform	0.000	(-) 3.000
11	Services Rendered (Security Staff, & IT equipment for ticketing, surveillance system, information centre and data centre) (Annexed)	60.000	Services Rendered (Security Staff, & IT equipment for ticketing, surveillance system, information centre and data centre) (Annexed)	60.000	0.000
12	Contingent Paid Staff	15.000	Contingent Paid Staff	10.000	(-) 5.000
13	Consultancy	60.000	Consultancy	55.000	(-) 5.000
14	Foreign / Exposure Visits for Animal Procurement (on site / off site inspection)	15.000	Foreign / Exposure Visits for Animal Procurement (on site / off site inspection)	7.000	(-) 8.000

Sr. No.	Approved PC-1		Revised PC-1		Diff.
	Items	Total	Items	Total	
15	Rate and Taxes	2.025	Rate and Taxes	2.833	(+) 0.808
16	Stationary	1.500	Stationary	5.000	(+) 3.500
17	Electricity	5.000	Electricity	5.000	0.000
18	-	-	Transportation of Goods	5.000	(+) 5.000
20	-	-	Others	8.000	(+) 8.000
21	-	-	Repair of Transport	7.000	(+) 7.000
22	-	-	Repair of Machinery	1.000	(+) 1.000
23	-	-	Purchase of other assets	1.000	(+) 1.000
24	-	-	Postage & Telegraph	1.000	(+) 1.000
25	-	-	Electronic & Communication	1.000	(+) 1.000
Total		999.525	Total	1038.833	(+) 39.308

COMPARATIVE STATEMENT

SUMMARY OF COST

(Rs. in million)

Sr. No.	Approved PC-1		Revised PC-1		Diff.
	Items	Total	Items	Total	
1	Conservancy & Works	865.253	Conservancy & Works	879.099	(+) 13.846
2	Machinery, Tools, Stores & Equipment	244.348	Machinery, Tools, Stores & Equipment	246.092	(+) 1.744
3	Establishment	44.074	Establishment	28.620	(-) 15.454
4	Commodities & Services	999.525	Commodities & Services	1038.833	(+) 39.308
5	EPC (Aquarium and Lighting)	300.000	EPC (Aquarium and Lighting)	260.000	(-) 40.000
Total:		2453.200	Total:	2453.200	0.000

18. RELATION WITH OTHER PROJECTS

Scheme ID	Scheme Name
01192304459	Revamping of Lahore Zoo

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	yes the project is linked with the sgd ie., life on land.
Use of Gender Disaggregated Data				
1	Was gender disaggregated data used to determine rationale / need of the project for select beneficiaries?	NO		the safari zoo administration was consulted regarding the gender data to determine the requirement of facilities such as washrooms.
Social Impact				
1	Do project objectives/justification include focus on marginalised groups (women, PWDs, minorities, transgender, poor etc.)?	NO		the safari zoo is open to individuals from all walks of life hence no particular focus on a specific section was implemented.
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		the safari zoo is open to individuals from all walks of life hence no particular focus on a specific section was implemented.
2	Does the PC-1 include specific provisions for capacity building / training of marginalised group (if applicable)?	NO		the safari zoo is open to individuals from all walks of life hence no particular focus on a specific section was implemented.
Results Based Monitoring				
1a	Does the PC-I include a Results Based Monitoring Framework (RBMF)/Logical Framework?	YES		yes the framework is enclosed in the pc-1 document
1b	Does the Framework include measurable targets / indicators relating to impact on marginalised groups?	NO		the safari zoo is open to individuals from all walks of life hence no particular focus on a specific section was implemented.

2	Were SDG indicators used for determining targets included in the PC-I?	NO	15- Life On Land	the project is linked with the sgd no. 15 i.e., life on land.
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?	YES		wildlife department wwf iucn academia houbara foundation
Monitoring & Evaluation				
1	Does the project provide a role to communities in project monitoring and/or implementation (if relevant)?	NO		no the project does not envision community monitoring.
2a	Does the project include formation of a Steering Committee and/or Project Implementation Committees?	YES		yes a project steering committee is included in pc-1.
2b	Is there a provision to ensure representation of women in these committees?	NO		the members of the steering committee are based on designation, hence no special consideration was given to include women.

CONSERVANCY AND WORKS

Revised PC-1			
Sr. No.	Description	2023-24	Amount
1	Lion House	25.932	25.932
2	Leopard House	16.210	16.210
3	Giraffe House	50.029	50.029
4	Rhino House	38.071	38.071
5	Elephant House	108.092	108.092
6	Ungulates House	22.074	22.074
7	Hospital Building	34.204	34.204
8	Office Building	8.898	8.898
9	Sick Cages	6.676	6.676
10	Information Center 2 x 4500	63.832	63.832
11	Information Center 2	68.254	68.254
12	Food Court	13.174	13.174
13	Parking Area	100.472	100.472
14	Desert Safari	5.079	5.079
15	Salt Range	73.057	73.057
16	1st Main Gate	10.000	10.000
17	Gazebo Area	9.131	9.131
18	View Points	31.473	31.473
19	Asphalt Road	22.658	22.658
20	Fair Ways	35.881	35.881
21	General Area Partition	28.143	28.143
22	Repair of Existing Housing	50.000	50.000
	Total Cost	821.340	821.340
	Add 2% Contingency	15.871	15.871
	Grand Total Cost:	837.211	837.211
	5% PST	41.888	41.888
	Grant Total in Million:	879.099	879.099

MACHINERY, STORE AND EQUIPMENTS

Revised PC-1					
Sr. No.	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	6	9.158	54.948	54.948
14	23 Seater Electric Vehicles (Soft Trams)	12	9.204	110.440	110.440
15	Purchase of Motorcycle 100 CC	4	0.209	0.856	0.856
16	Purchase of printers	2	0.080	0.160	0.160
17	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
18	Procurement and installation of Projector (Minimum loops 2800-3000)	1	0.300	0.300	0.300
19	Generator 5KVA 1 Nos., 3 Nos. 20KVA (non-Chinese); 1 Nos. 100KVA	5	0.500 1.000 5.000	6.500	6.500
20	LED TV 65", 4K UHD (02 for surveillance room and 01 for committee room)	3	0.450	1.350	1.350
21	Toyota Fortuner (Petrol)	1	25.000	25.000	25.000
Total				246.092	246.092

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

Revised PC-1						
Sr. No.	Name of Post	Scale	No. of Post	2023-24	2024-25	Total
1	Project Director	PPS 10	1	0.000	4.267	4.267
	Director Marketing and Communication	PPS 10	1	0.000	4.267	4.267
2	Director of Veterinary Care	PPS 10	1	0.000	4.267	4.267
3	Senior Manager – Elephant Care	PPS 10	1	0.000	4.267	4.267
4	Wildlife Rehabilitation and Behaviour Expert	PPS 9	1	0.000	4.070	4.070
5	Wildlife Husbandry Expert	PPS 7	1	0.000	1.507	1.506
6	Safari Zone Manager	PPS 7	2	0.000	3.012	3.011
7	Education Officer	BPS 17	1	0.000	0.818	0.818
8	Medical Laboratory Technologist	BPS 17	1	0.000	0.818	0.818
9	Mahawat	BPS-2	4	0.000	1.327	1.327
	Total		14	0.000	28.620	28.620

COMMODITIES AND SERVICES**(Rs. in Million)**

Sr. No.	Item	2023-24	2024-25	Total
1	Purchase of Zoo Exhibits	600.000	0.000	600.000
2	Purchase of Furniture and Fixture	20.000	0.000	20.000
3	Procurement of Sculpture	40.000	0.000	40.000
4	POL Charges	3.000	2.000	5.000
5	Cost of other store (incl. existing safari zoo framework agreement for feed and medicine)	8.000	2.000	10.000
6	Publicity & Advertisement Charges	35.500	2.500	38.000
7	Cost of Chemical and Medicines	5.000	2.000	7.000
8	Maintenance of Garden (Landscaping, Plantation, Tracks, etc.)	150.000	0.000	150.000
9	Services Rendered (Security Staff, & IT equipment for ticketing, surveillance system, information centre and data centre) (Annexed)	60.000	0.000	60.000
10	Contingent Paid Staff	5.000	5.000	10.000
11	Consultancy	55.000	0.000	55.000
12	Foreign / Exposure Visits for Animal Procurement (on site / off site inspection)	7.000	0.000	7.000
13	Rate and Taxes	2.833	0.000	2.833
14	Stationary	4.000	1.000	5.000
15	Electricity	3.000	2.000	5.000
16	Transportation of Goods	4.000	1.000	5.000
17	Others	6.000	2.000	8.000
18	Repair of Transport (incl. fabrication)	7.000	0.000	7.000
19	Repair of Machinery	0.500	0.500	1.000
20	Purchase of other assets	0.500	0.500	1.000
21	Postage & Telegraph	0.500	0.500	1.000
22	Electronic & Communication	0.500	0.500	1.000
Total		1017.333	21.500	1038.833

SUMMARY OF COST

Revised PC-1				
Sr. No.	Items	2023-24	2024-25	Total
1	Conservancy & Works	879.099	0.000	879.099
2	Machinery, Tools, Stores & Equipment	246.092	0.000	246.092
3	Establishment	0.000	28.676	28.676
4	Commodities & Services	1017.833	21.500	1039.333
5	EPC (Aquarium and Lighting)	260.000	0.000	260.000
	Total:	2403.024	50.176	2453.200

PROJECT STEERING COMMITTEE: -

1	Secretary, Government of Punjab, Forestry, Wildlife & Fisheries Department	Chairman
2	Secretary Livestock and Diary Development	Member
3	Member Environment, 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

The committee shall be responsible for purchase of all listed animals / birds as per provisions of PPRA Rules. The procuring agency may revise list, species and number / ratio of animals and birds to be procured. Procuring agency shall approve bidding documents and technical criteria of animals and birds to be procured.

**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. 0% 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 OF VETERINARY CARE PPS-10

Duties and Responsibilities:

- i. Responsible for the overall leadership and management of the Animal Care & Veterinary Care teams
- ii. Responsible for the health and well-being of the animal residents, including habitats, enclosures, hospital, and nutrition.
- iii. Development and implementation of daily, weekly, monthly and annual health protocols (routine examination, deworming, vaccinations, medications, supplementation etc.).
- iv. Nutrition management of zoo animals.
- v. Research work on wildlife management, health care, nutrition, rearing or any other aspect which could help improve in-situ and ex situ conservation of wildlife.
- vi. Monthly stock position analysis and give recommendations on keeping healthy stock with proper sex ratio, culling, sale, shifting to and from other parks and zoos.
- vii. Design Training courses, refresher courses of zoo staff especially veterinarians for proper health care, shiftings, nutrition and husbandry of zoo exhibits.
- viii. Coordination with national and international zoos, research and education institutes for better health care and husbandry of zoo exhibits

Required Qualification and Experience

- i. DVM from a recognized University
- ii. At least 12 years of experience in wildlife practice including working in wildlife anesthesia, wildlife shifting, health care, research, husbandry and nutrition).
- iii. Maximum age limit of 50 years.

RECRUITMENT ELIGIBILITY CRITERIA & TERMS OF REFERENCE OF SENIOR MANAGER – ELEPHANT CARE PPS-10

Duties and Responsibilities:

- i. Participate with elephant management and maintain professional level skills related to the ongoing care and assessment of individual elephants.
- ii. Training, mentoring and development of elephant care staff.
- iii. Participate with elephant management and maintain professional level skills related to the ongoing care and assessment of individual elephants.
- iv. Elephant care team management and program development: husbandry management protocols; records keeping and reporting.

Required Qualification and Experience

- i. Bring significant Asian and/or African bull elephant management experience
- ii. Possess broad background in the management of elephants in human care
- iii. Provide a training/mentoring component for the elephant care team
- iv. At least 5 years of experience in elephant management particularly in captive / sanctuary facility.
- v. At least Bachelor's degree in related field

Maximum age limit: 50 years.

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 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.

RECRUITMENT CRITERIA FOR MAHAWAT

The recruitment criteria and job description as notified under the Punjab Forestry and Wildlife Service Rules, 1978, as amended from time to time.

TENTATIVE LIST FOR ACQUISITION OF ANIMALS

Supply of Wild Animals through International Competitive Bidding

(Rs. In Million)			
Sr. #	Animal	Quantity	Estimated Cost
1.	Giraffe	03 trio	135
2.	Rhinoceros	01 trio	75
3.	Elephant	02 Pair	540
4.	Black Jaguar	01 Male	22
5.	Wildebeest	07 (2M, 5F)	52.50
6.	Springbok	06 (2M, 4F)	15
7.	Nyala	20 (5M, 15F)	150
8.	Thomson Gazelle	08 (2M, 6F)	20

Supply of Wild Animals through National Competitive Bidding

(Rs. In Million)			
Sr. #	Animal	Quantity	Estimated Cost
1.	Oryx, Addax	12 (4M, 8F), 12 (4M, 8F)	64
2.	Zebra	15 (5M, 10F)	60
3.	Urial, Blue Bull Spotted Deer	30 (10M, 20F) 20 (8M, 12F) 15 (5M, 10F)	40
4.	Ostrich	20 (8M, 12F)	08
5.	Different Kinds of Birds	LS	30

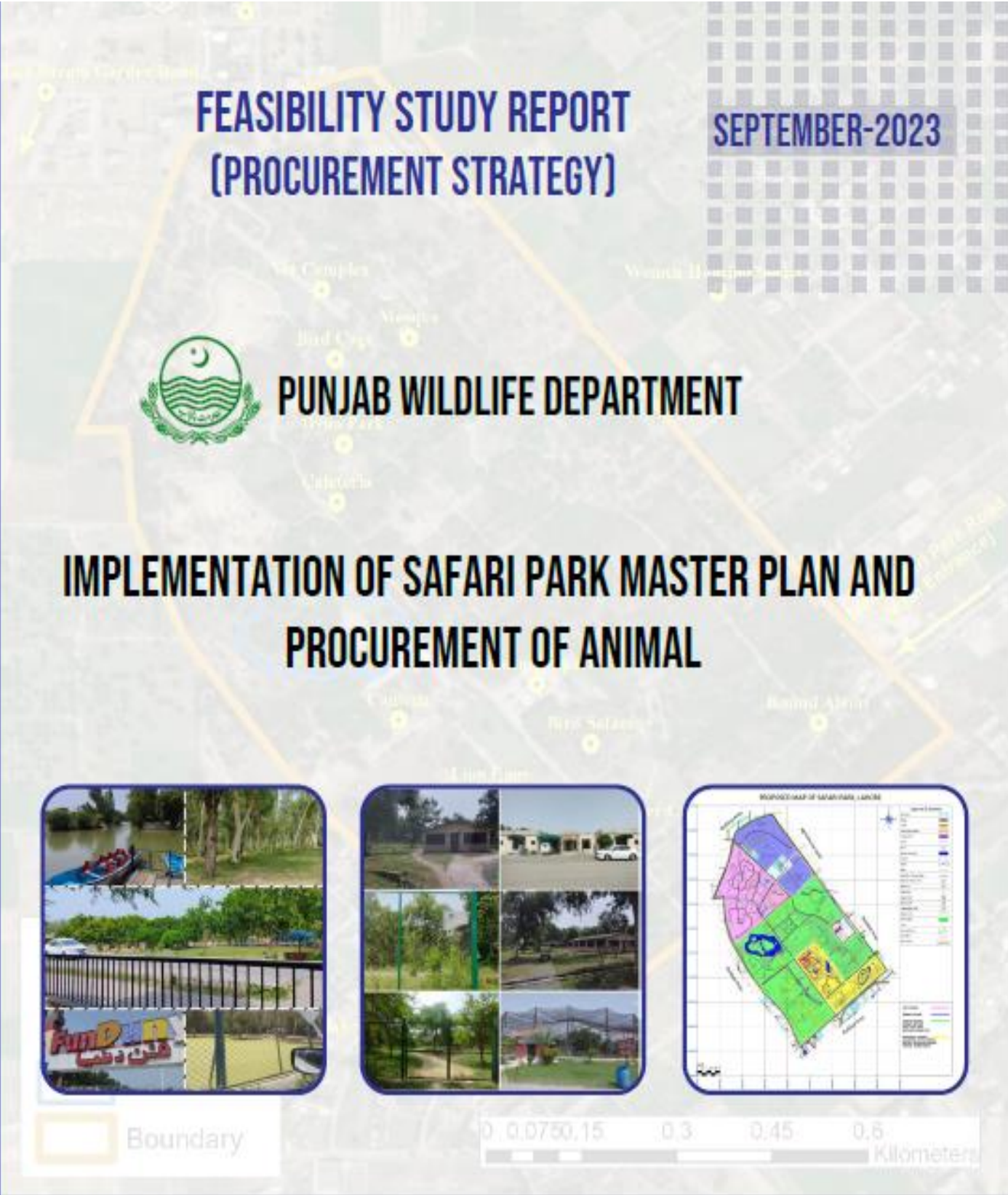
*The proposed number and species of animals may be varied as per availability and site requirement.

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



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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 cover 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.

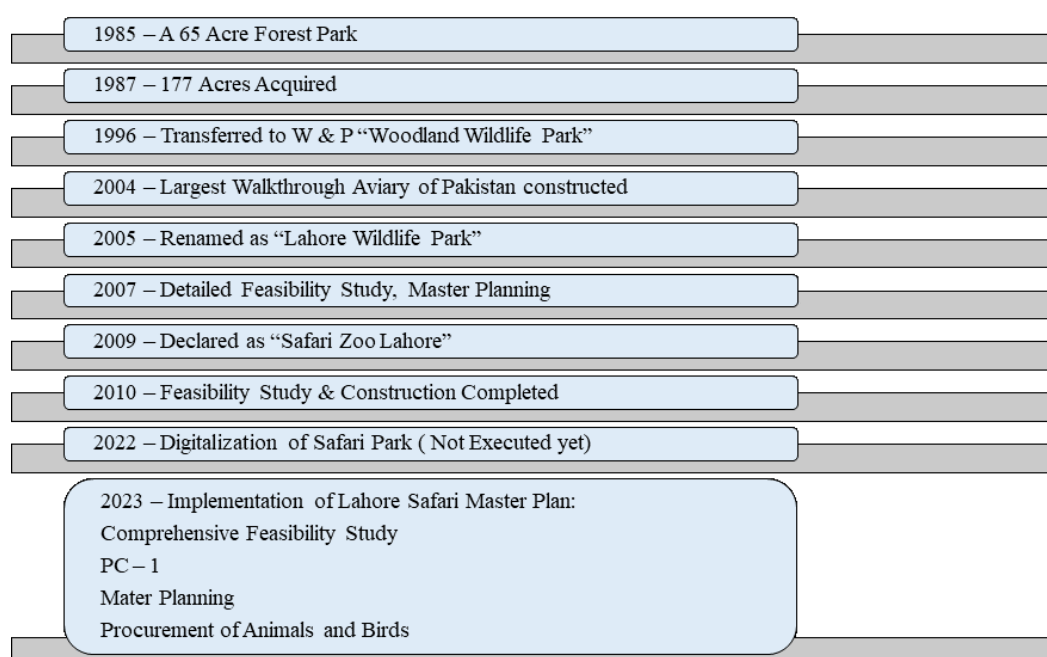


Figure 1: LAHORE Safari Park Timeline

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.

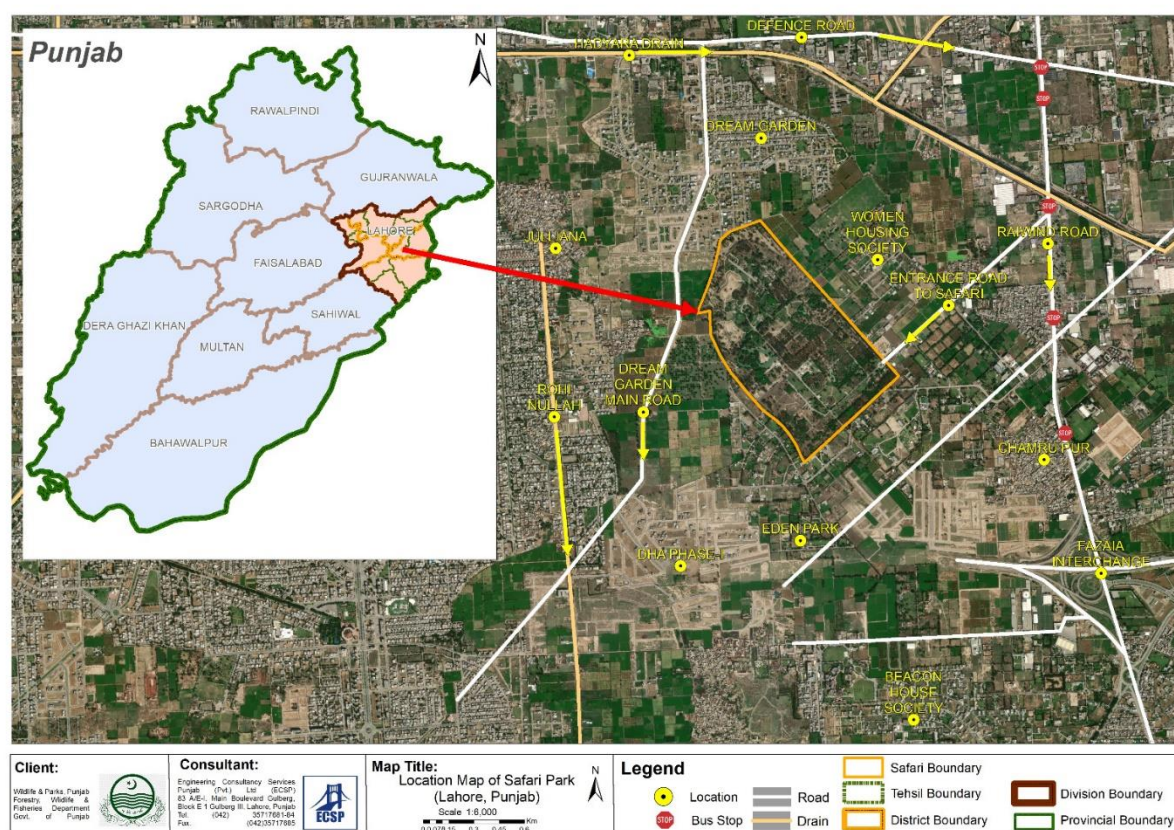


Figure 2: LOCATION MAP OF LAHORE SAFARI PARK

4 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.

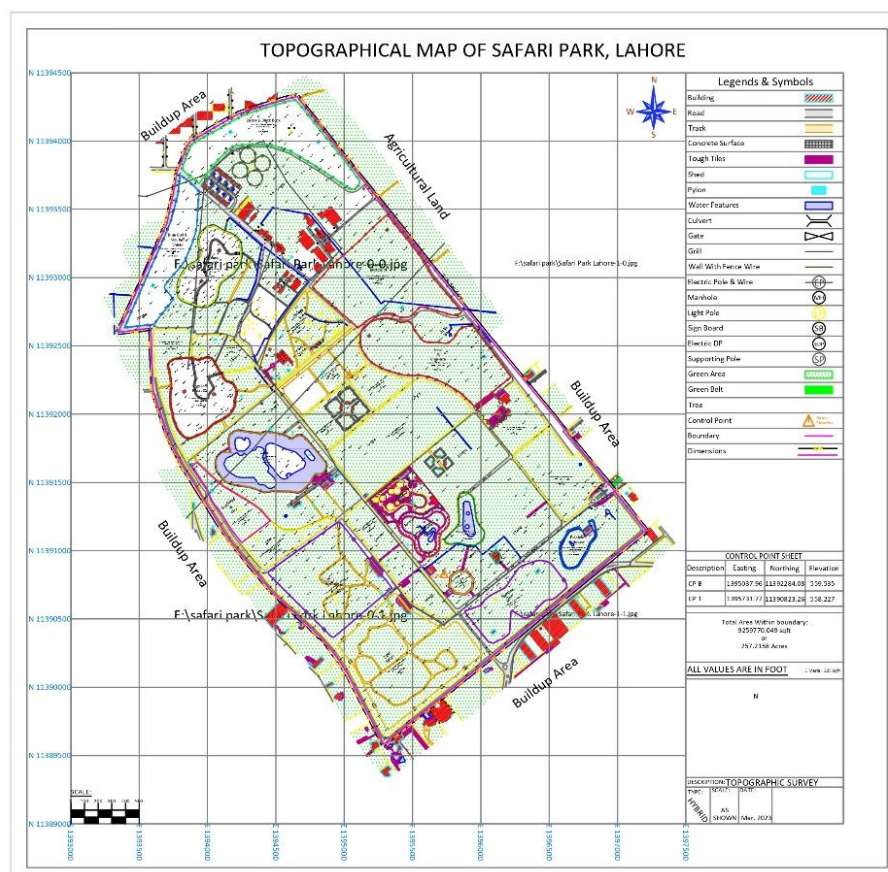


Figure 3: EXISTING TOPOGRAPHICAL MAP OF SAFARI PARK, LAHORE

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.

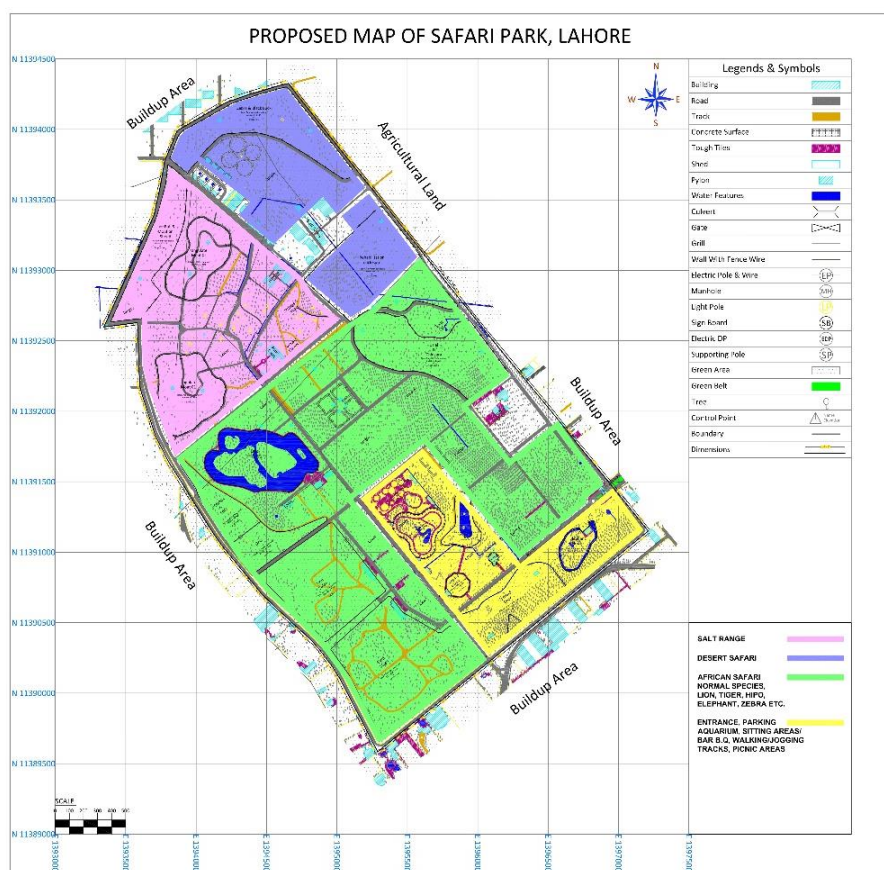


Figure:4 PROPOSED MASTER PLAN OF SAFARI PARK, ALHORE

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.

5 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 made 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)

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- (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) 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.
- (iii) 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.
- (iv) Successful achievement of the desired results of the aforementioned procurement strategy are dependent upon multiple unknown factors and therefore cannot be ascertained.
- (v) For the procurement of animals (local & international), 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 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.

- 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:

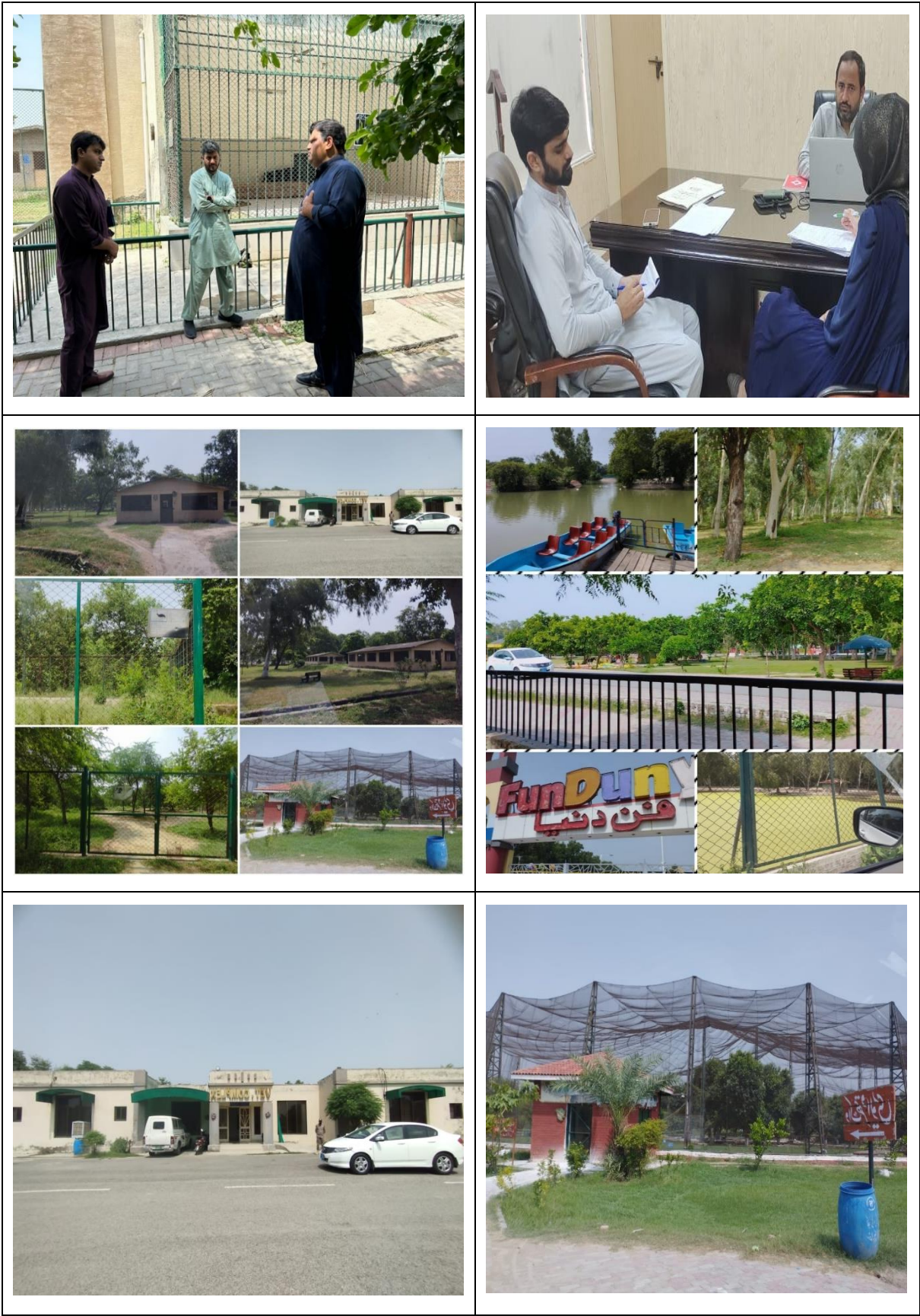
Concerns:

- 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

**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		

Annexure16 - 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

Annexure16 - 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

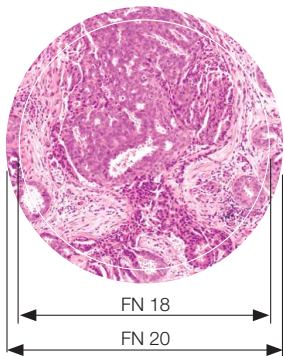
Observe

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



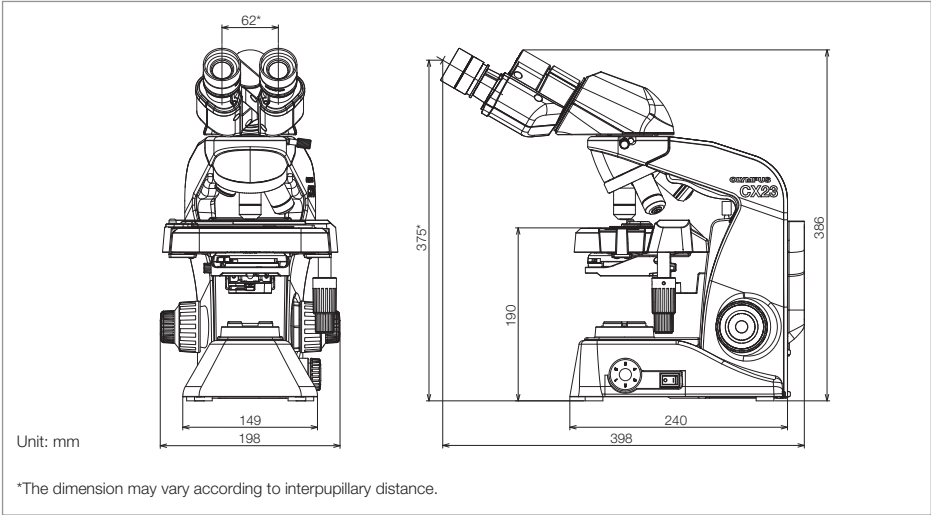
Built-in security slot

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
	Eyeiece (anti-fungal)	10X Field Number (FN): 20 15X Eyeiece (FN): 12 (optional)		
	Tube inclination	30°		
	Light path selector	None		Eyeiece/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), eyeiece micrometer Dust cover, darkfield stop (CH2-DS+CH2-FH) Field Diaphragm (CX23-FS)* Dedicated wooden case (CH20-WB2)		Reflection mirror (CH20-MM), eyeiece 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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• Specifications and appearances are subject to change without any notice or obligation on the part of the manufacturer.

FCR PRIMA T2 Specifications

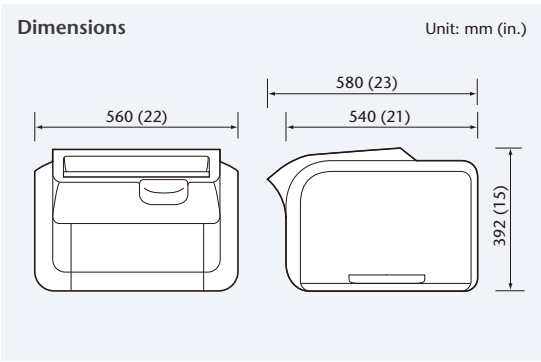
Standard Components	FCR PRIMA T2 Image Reader (Model: CR-IR 392)
Applicable Console	FCR PRIMA Console, FCRView, CR Console, Console Advance
Main Connectable Imagers	DRYPIX PRIMA/Smart/Lite/Plus/4000
Supplies	Imaging Plate ST-VI: 35 × 43 cm (14"× 17"), 35 × 35 cm (14"× 14"), 10"× 12", 8"× 10", 24 × 30 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 50-60Hz AC120-240V ±10% 1.9A (max)
Environmental Conditions	Operating Conditions: • Temperature: 15-30°C • Humidity: 15-80%RH (No dew condensation) • Atmospheric pressure: 750-1060hPa

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



Weight
39 kg

392 mm

540 mm

560 mm

Processing Capacity

73 IPs/hr.

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

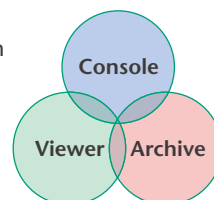
All-in-one workstation



FCR PRIMA Console / FCRView

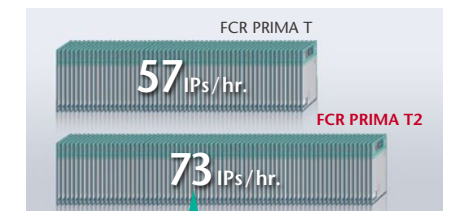
FCR PRIMA Console and FCRView are all-in-one workstation which meet various radiographic imaging needs. The features include image acquiring, processing, viewing and archiving.

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



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"× 17" and 14"× 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.



Throughput increased about 30% compared with FCR PRIMA T

*The above value is for IPs of 18 × 24 cm. *In the normal mode (10 pixels/mm)

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.



0.30m²

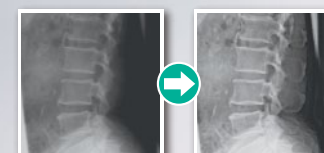
Stable High-Quality Images

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.



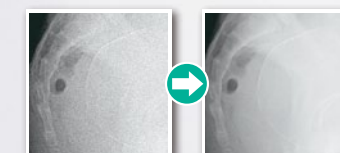
MFP[®] Multi-Frequency Processing

Enhances FCR images. All diagnostic scopes will be enhanced except for noise. *Optional software



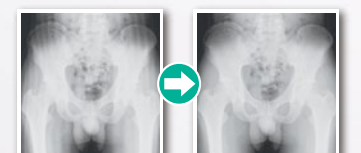
FNC Flexible Noise Control

Provides a non-grainy image by mainly isolating and suppressing the noise for the signal.

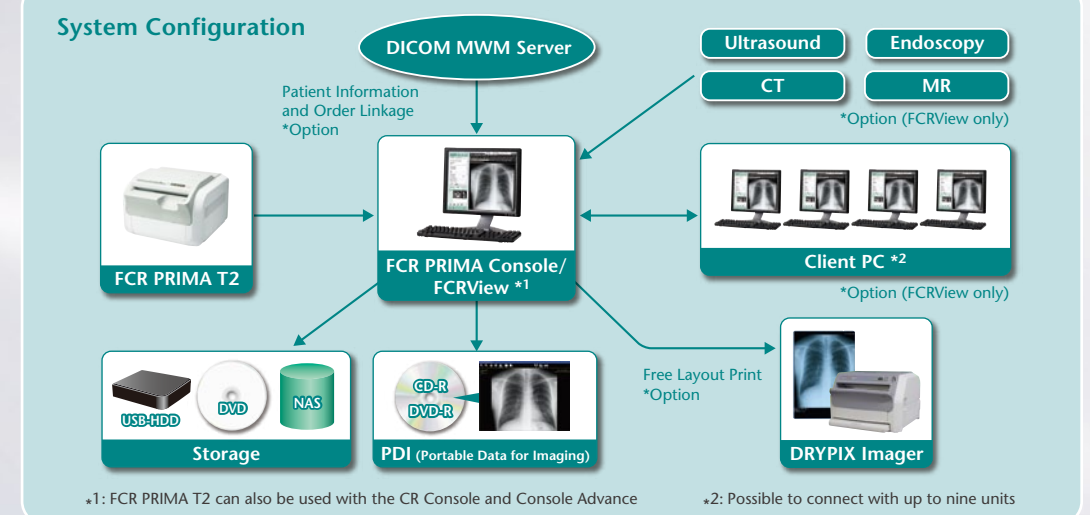


GPR Grid Pattern Removal

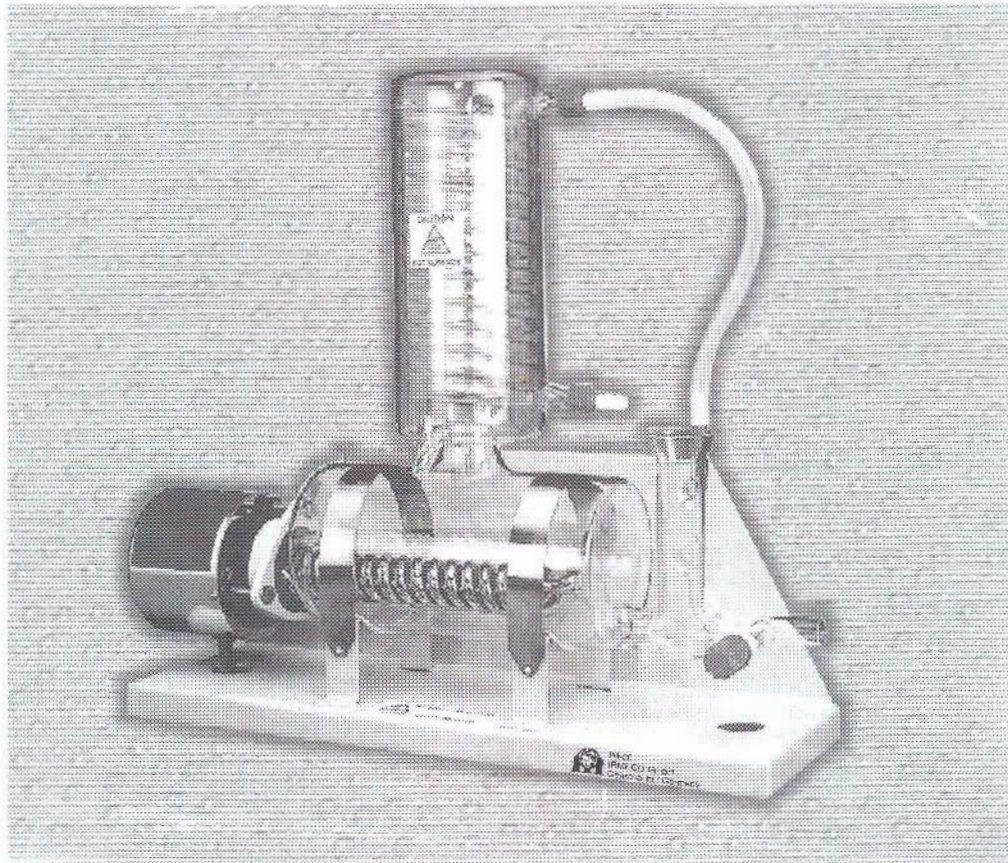
Removes the stationary grid patterns thus preventing Moiré from being generated resulting in easier diagnosis.



System Configuration

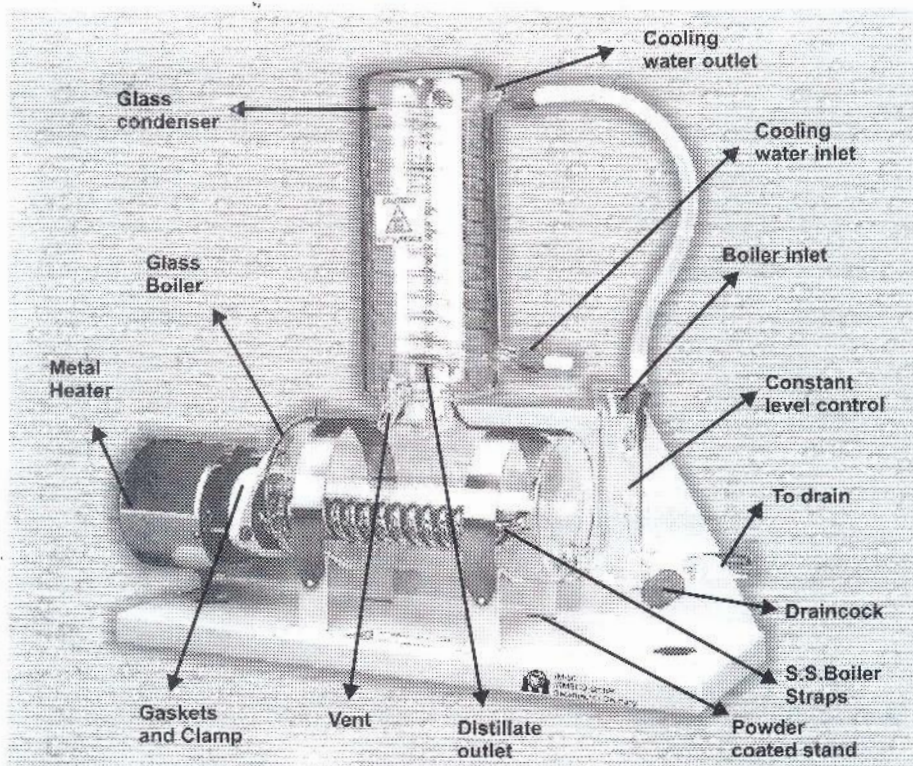


Condensor and Boiler manufactured by
"Iwaki Glass"



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	ConductivityµS/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:



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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 Eye Point 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
	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

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