**INTRODUCTION**

**BACKGROUND**

WWF-Pakistan’s BMZ funded mangrove conservation project focuses on protection and restoration of mangrove in the Indus delta while addressing key challenges to mangroves. Local communities of the Indus delta are highly dependent on mangroves for shelter, fodder, fuelwood, timber, livelihood, etc. This higher dependence increases pressure on the mangroves ecosystem. Community rely heavily on mangroves for grazing their livestock mainly camels which affects the dense patches of mangroves as well as in the newly planted habitats. The camel owners usually take thirsty animals to swim between the creeks where dense patches of mangroves are located and leave them there to graze. This all leads towards serious increase of grazing pressure on the forest and without having an alternate the practice would continue to affect the mangroves. There is still however a limited information available to see the extent of the impacts of camel as well as other livestock grazing in the Indus delta, intensity of camel grazing in particular and other livestock in general and ecosystem impact of this practice. There is also a limited information available to determine the drivers, actual needs and alternate option a practice that could otherwise help to protect and sustainably manage mangroves forest. The current study therefor aims to assess grazing pressure of the mangroves of Indus delta including camel and other livestock identification of highly affected area to support in the development of an informed grazing management plan.

**SCOPE OF WORK**

- Conduct a desk review to determine existing work at regional and global scale on livestock grazing impacts and drivers on mangroves habitats and management measures with special focus of camels
- Design and conduct surveys to assess grazing pressures of camels and other livestock. this should include not limited to assessment of animal browsing behaviour, use of different habitats in the creek areas, amount of fodder consumed per camel as well as other livestock per day, available forage capacity of the grazing areas, classification of low, medium and high grazing areas and its comparison with a control undisturbed site etc.)
- Identify and classify low, medium and high grazing pressure sites for comparative analysis with associated maps and shape files.
- Assess impact of livestock grazing on the ecology and soil conditions of the area and associated biodiversity with a comparative analysis of a control site, low, medium and high grazing pressure site
- Design and conduct surveys for livestock census, its trend of increasing/decreasing using the previous census data and their distribution across the Indus delta (focusing on the Project sites)
- Conduct interviews and Focus Group Discussions (FGDs) to determine livestock grazing practices, temporal trends, vulnerabilities, preferred grazing areas and existing management practice prevalent in the area
- Conduct structured interviews and FGDs based perception survey with camel owners and other community to determine camel grazing impacts on mangroves with quantifiable variables
- Draft a socially acceptable and ecologically sustainable grazing management plan for Indus Delta mangroves. This should include but not limited to recommendations for sustainable management of camels and other livestock grazing practices, reduction of pressure on mangroves, alternatives to reduce the grazing pressures on mangroves, etc.

DELIVERABLES:
- Socially acceptable and ecologically sustainable grazing management plan for Indus Delta mangroves
- Report on the scale of grazing pressure on mangroves incorporating aforementioned sections with associated analysis and GIS-based maps
- The consultant/researcher will be responsible to provide detailed reports in agreed timelines at the start of initiating the study, any delay in submitting reports may lead to cancellation of contract/agreement between both parties.
- A peer reviewed publication jointly drafted by the consultant and team of WWF-Pakistan

LOGISTICS

The consultant will be responsible to cover the entire field and logistics support including coordination, field visits, food and traveling to conduct this study. WWF-Pakistan however will support in the local travelling within the project area and offer free accommodation to the consultant at its Garho Office subject to the availability of a room.

REQUIREMENTS

The successful candidate will meet the following conditions:

Minimum requirements

- At least a Master’s Degree in a relevant field;
- Minimum 3 years of research experience in the relevant field;
- Excellent writing and analytical skills established through report and peer reviewed publications
- Knowledge of Sindhi language will be added advantage;
- Track record of publishing in international journals will be added as an advantage.
Competencies

- The consultant should have demonstrated expertise, experience and to carry out the aforementioned tasks:
- Familiarity with qualitative research methodologies, information collection
- Understand relationships between mangroves, communities and climate vulnerabilities
- Excellent knowledge and understanding of the Indus Delta, mangroves and coastal communities
- Proactive and able to work with minimal supervision and a high degree of initiative, reliability, flexibility, motivation, and resourcefulness
- Professionalism: flexibility to make ad-hoc changes as and when the need arises; ability to perform under stress; willingness to keep flexible working hours.
- Excellent data collection and analysis skills

DOCUMENTS TO BE INCLUDED WHEN SUBMITTING THE PROPOSAL

Interested individual must submit the following documents/information to demonstrate their qualifications:

- Past Work of the individual along with references if applicable;
- Detailed work plan along with operational/implementation plan of the research;
- Curriculum Vitae of the Lead and supplementary researchers, if applicable.

*All the data acquired in this study will be sole property of WWF-Pakistan and if any material is to be published it must be approved by a relevant personal of WWF-Pakistan.