

**2. Degraded wetlands in the Khubelu catchment rehabilitated. The proposed outputs are:**

- Grasses (Vetiver and local grasses) for biological rehabilitation of gullies tested
- CCs capacitated in implementation and maintenance of biological rehabilitation of wetlands
- Designs of physical gully control structures tested
- Rehabilitated wetlands monitored and maintained

**Implementation by CCs in cooperation with the Soil Conservation Department in Mokhotlong**

**3. Erosion from road drainage prevented. The proposed outputs are:**

- Designs of environmentally safe cross-drainage structures tested
- Guidelines and design standards for road drain discharge structures
- Road Department technical staff capacitated in environmentally sound drainage

**Implementation by Roads Department**

**4. Results of monitoring of wetlands in the Khubelu Catchment, research and collection of lessons learned available for replication in other catchments. The proposed outputs are:**

- Stakeholder roles and strategies in wetlands, water and natural resource management clarified and agreed
- MRC monitoring system (including wetlands GIS) established and operating
- Hydrological station and weather station established in the upper Khubelu catchment and operational
- Research results on wetlands hydrology in the highlands influencing future wetlands protection programmes
- Research results on programme impact on livelihood, mining, livestock and range management practices influencing programmes in other catchments
- Feasibility Study for establishing the upper Khubelu catchment as a protected area.

**Implementation by Department of Water Affairs in cooperation with National University of Lesotho and other Wetlands Committee stakeholders**

The 'Sponges Study' was carried out for ORASECOM by PEMconsult a/s in association with DHI and TCC (Pty) Ltd Lesotho. The study was funded by the French Global Environmental Facility (FFEM)

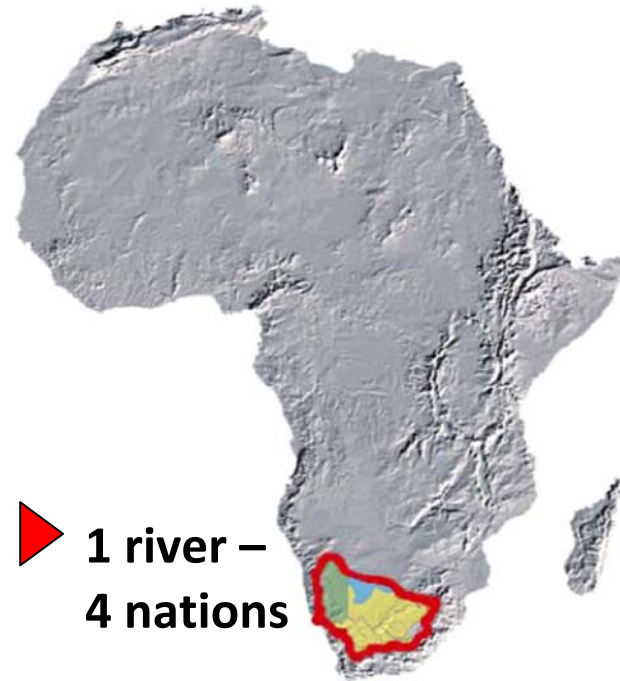


# ORASECOM

Orange-Senqu River Commission



Botswana | Lesotho | Namibia | South Africa



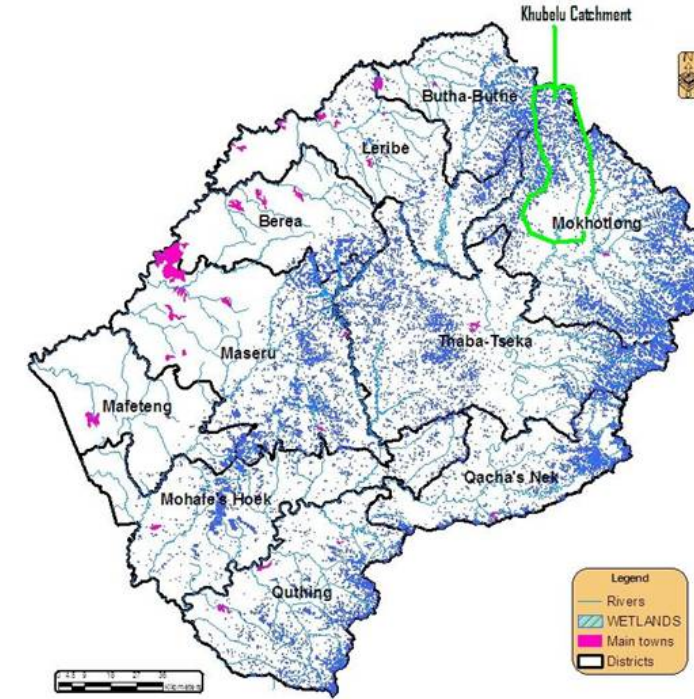
**Introduction**

The Orange-Senqu River system supports ecosystems and important socio-economic activities across all four nations ranging from subsistence and commercial farming to large-scale commercial and industrial activities.



The water sources of the Senqu River are located in the rugged mountains of the Highlands of Lesotho where the terrain, rainwater and run-off form a myriad of wetlands. Lesotho's alpine wetlands are rare ecological features in Southern Africa, distinct both floristically and structurally from other wetland systems in the region. The palustine wetlands in the highlands, often referred to as 'Sponges', are found at high altitude, at valley heads.

Map of Lesotho showing Wetlands and Khubelu Catchment



The wetlands perform an important hydrological function, regulating flows by storing and then releasing rain-water slowly through springs and streams. Water quality is controlled through sediment and toxin retention, nutrient removal and transformation, production and export of organic matter.

As such, the Sponges both directly and indirectly support livelihoods and income for the country. The waters are currently harnessed by the Lesotho Highlands Water Project to support Lesotho's largest source of foreign income.

Despite the socio-economic importance of the wetlands, the systems continue to be degraded, mainly because of uncontrolled livestock grazing and trampling, badly planned or carelessly implemented infrastructure development, siltation and erosion, encroachment by cultivation and overexploitation of resources.

**ORASECOM and the "Sponges" Study**

In 2000, Botswana, Lesotho, Namibia and South Africa established the Orange-Senqu River Commission (ORASECOM) to strive towards greater cooperation, strengthened regional solidarity and enhanced socio-economic development advocating the sustainable management of the Orange-Senqu River and its sources.



Ha Seema Wetland (Feb 2008)

As part of the French Global Environmental Fund (FGEF) support to the ORASECOM Programme, Consultants were appointed in 2008 to carry out a study of the wetlands with the aim of assuring the long-term availability and quality of water from the Upper Orange-Senqu catchment area by establishing a holistic protection and conservation action plan for the sustenance of the 'Sponges'.

The Khubelu Catchment area in the north-western part of Mokhotlong District was found suitable as a pilot area for the 'Sponges Study'. The Khubela River is a major tributary to the Orange-Senqu and is located immediately upstream of the proposed Lesotho Highlands Water Project (LHWP) Phase II Dam.

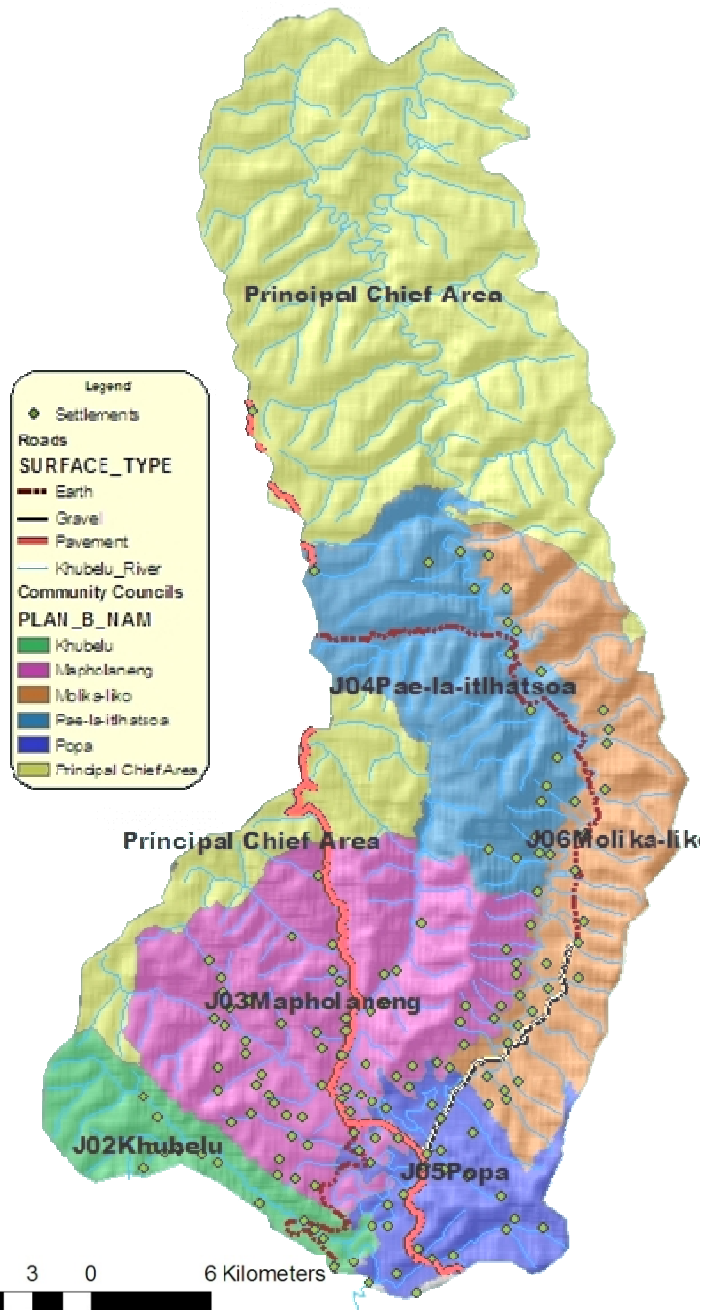
**The Khubelu Wetlands**

Representative wetlands in the middle and upper part of the Khubelu catchment were studied in detail. The vegetation on the wetlands is predominantly short mixed sedge and grass meadows interspersed by taller vegetation.



The Khubelu catchment is managed by five Community Councils (CCs) and 40% of the area outside the CC boundaries is controlled by the Principal Chief of Malingoaneng. The catchment population is approximately 20,000.

Map of Khubelu showing the Community Councils and Areas under the Principal Chief



**Main Uses of Khubelu Wetlands**

- Grazing
- Water for animals
- Domestic Water use
- Grasses
- Cultural and spiritual
- Mining
- Hydro-power

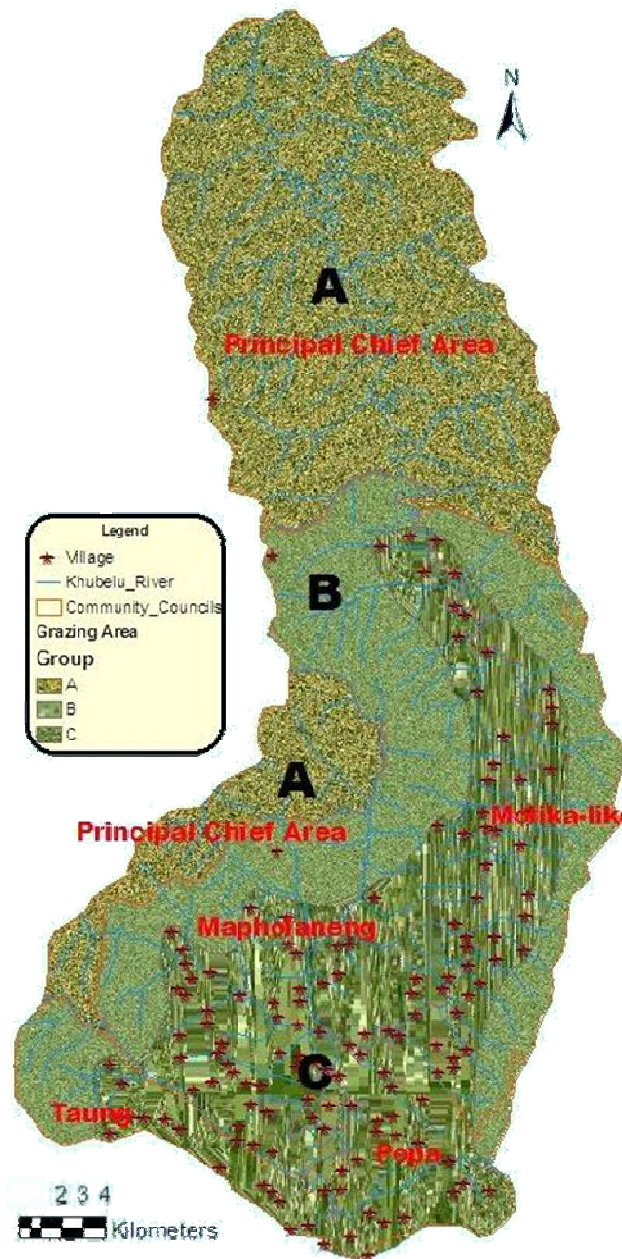
The wetlands form an integrated part of the rangelands in the Khubelu catchment and since the population mainly depends on income from livestock, the functions of the wetlands are very important to sustain the livelihood especially for the poorer segments of the population who depend on subsistence farming.

The area is grazed by livestock owned by catchment residents as well as livestock from outside the catchment benefiting from grazing permits in the cattle post areas. An estimated 10,000 cattle, 50,000 sheep, 25,000 goats, 1,000 donkeys and 500 horses are sustained by the rotational grazing system in the catchment.

**Terminology for Grazing Areas:**

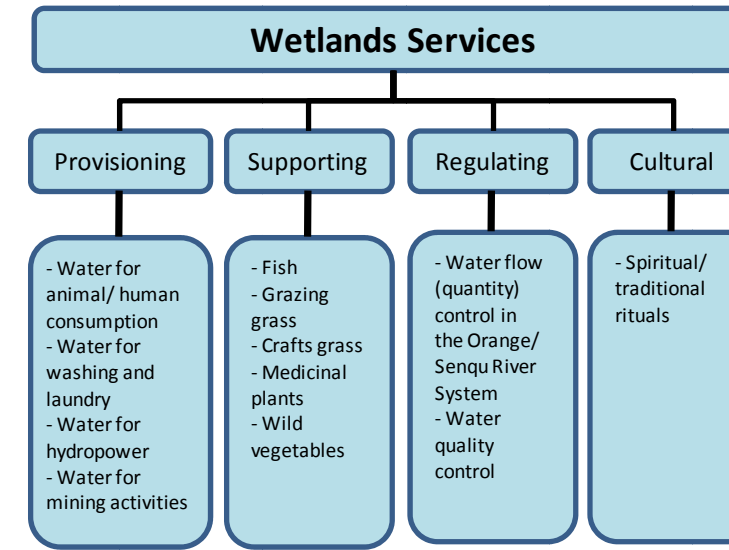
- Summer grazing areas with cattle posts in the upper catchments areas located outside the boundaries of the CCs. Grazing controlled by the Principal Chiefs;
- Grazing areas and cattle posts in the middle catchments located inside the CC boundaries with recommended grazing between May and September controlled by the CCs (presently the principal chief also issues permits for area B);
- Grazing areas located close to the villages with recommended grazing between June and November controlled by the CCs

Map of Khubelu showing the Grazing Areas



**The benefits from well managed wetlands**

Wetlands benefits/ services in the Khubelu Catchment can be grouped into four categories as illustrated in the following diagram:



These wetlands services are important for the population of the Khubelu catchment as well as the population in the entire Orange-Senqu basin.

The cost of degradation of the catchment have been estimated in terms of the effect on water storage (M 50 million increase in the construction cost for the proposed Lesotho Highlands Phase II Dam) and decreasing productivity of wool and mohair resulting in loss of income of M 200,000 annually for the Khubelu livestock owners.

The other services are equally important but are difficult to quantify in monetary terms with the available data.

**Threats from overgrazing and infrastructure**

The wetlands in the highlands of Lesotho are under threat from overgrazing, especially in the grazing areas B and C and the accessible parts of area A



Difference between protected and overgrazed rangeland. (Grazing Area B close to Letseng-la-terae)

The degraded wetlands provide an opportunity for ice-rats and moles to dig holes that further accelerate the erosion process



Construction of infrastructure especially roads has an impact on the wetlands. The inappropriate design of drainage structures has led to erosion of the natural drainage channels.



Erosion from road drainage

**Required interventions to protect, rehabilitate and conserve the wetlands**

The 'Sponges Study' proposes a comprehensive integrated programme for the protection, rehabilitation and conservation of the wetlands with the overall objective:

*'Holistic protection and conservation of the 'Sponges' in the Khubelu catchment that will demonstrate a methodological approach for the sustainable management of the wetlands benefiting the population as well as the environment and securing long-term availability and quality of water from the Upper Orange-Senqu catchment area.'*

The specific objectives and the outputs addressing the main aspects of the programme are proposed as follows:

- Improved livelihood for the population in the Khubelu catchment based on sustainable range management.**  
**The proposed outputs are:**
    - Managed Resource Committee (MRC) established
    - Grazing plan based on re-established range management areas (A-B-C) according to CC boundaries and the responsibilities of chiefs and CCs
    - MRC and capacitated herders, livestock owners, grazing associations, CCs and chiefs manage rangelands in a sustainable manner
    - Capacitated District Administration supporting sustainable land-use planning and effective livestock and range management
- Implementation by the five CCs in cooperation with the Principal Chief, livestock owners, grazing associations and Department of Range Management.**