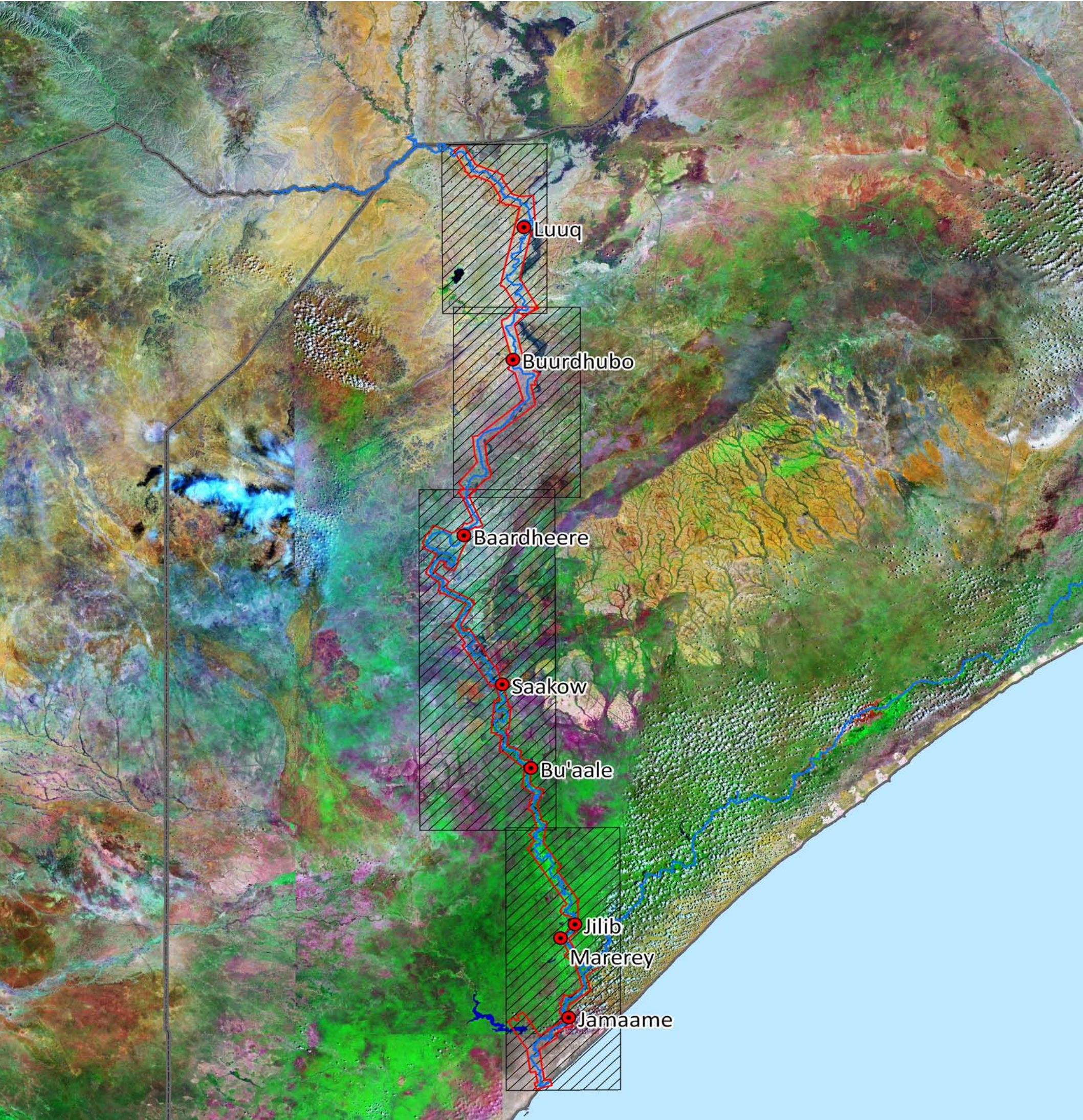


# Part 3

## Detailed characteristics of the Juba River

### Faahfaahinta sifaalaha Wabiga Juba





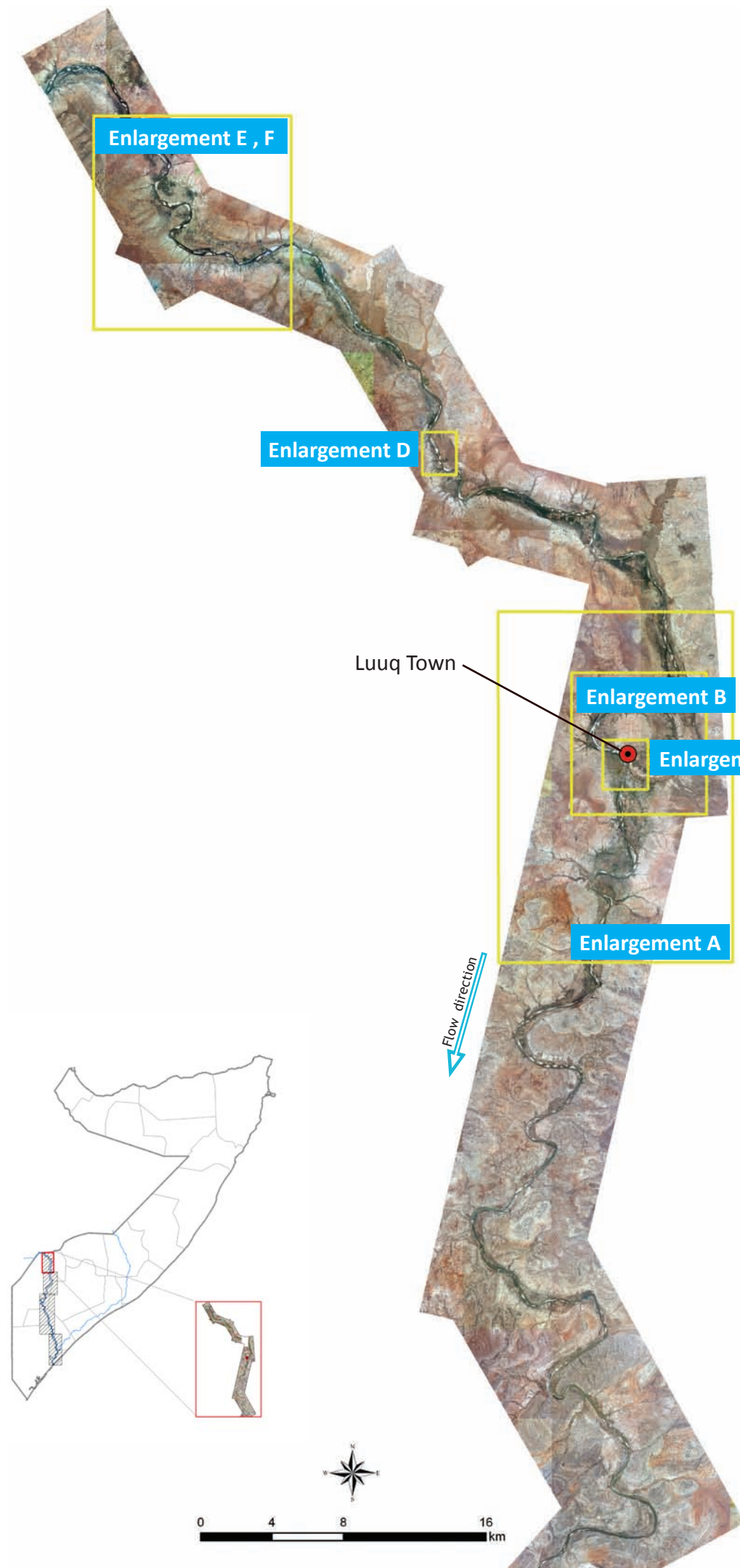
# Luuq

The city of Luuq in Gedo Region is one of the oldest cities in Somalia. It is encircled by the Juba River, which loops in a horseshoe shape. Luuq is also known as Luuq Ganaane.

The Juba River has great influence on the city and the surrounding areas. Entrance to the eastern and western side of the town is situated within 100 m from the river banks. The northern part of the town is completely enclosed by the river at a distance of about 4 km. Only the southern part of the city has open land, free from the river's enclosures.

Magaalada Luuq waxay ka tirsan tahay Gobolka Gedo waxayna ka mid tahay magaalooyinka ugu faca weyn Soomaaliya. Magaalada waxaa xero geliyey Wabiga Juba, kaasoo isku soo laabka wabigu uu u qaab eg yahay qoob faras. Luuq waxaa kale oo loo yaqaan Luuq Ganaane.

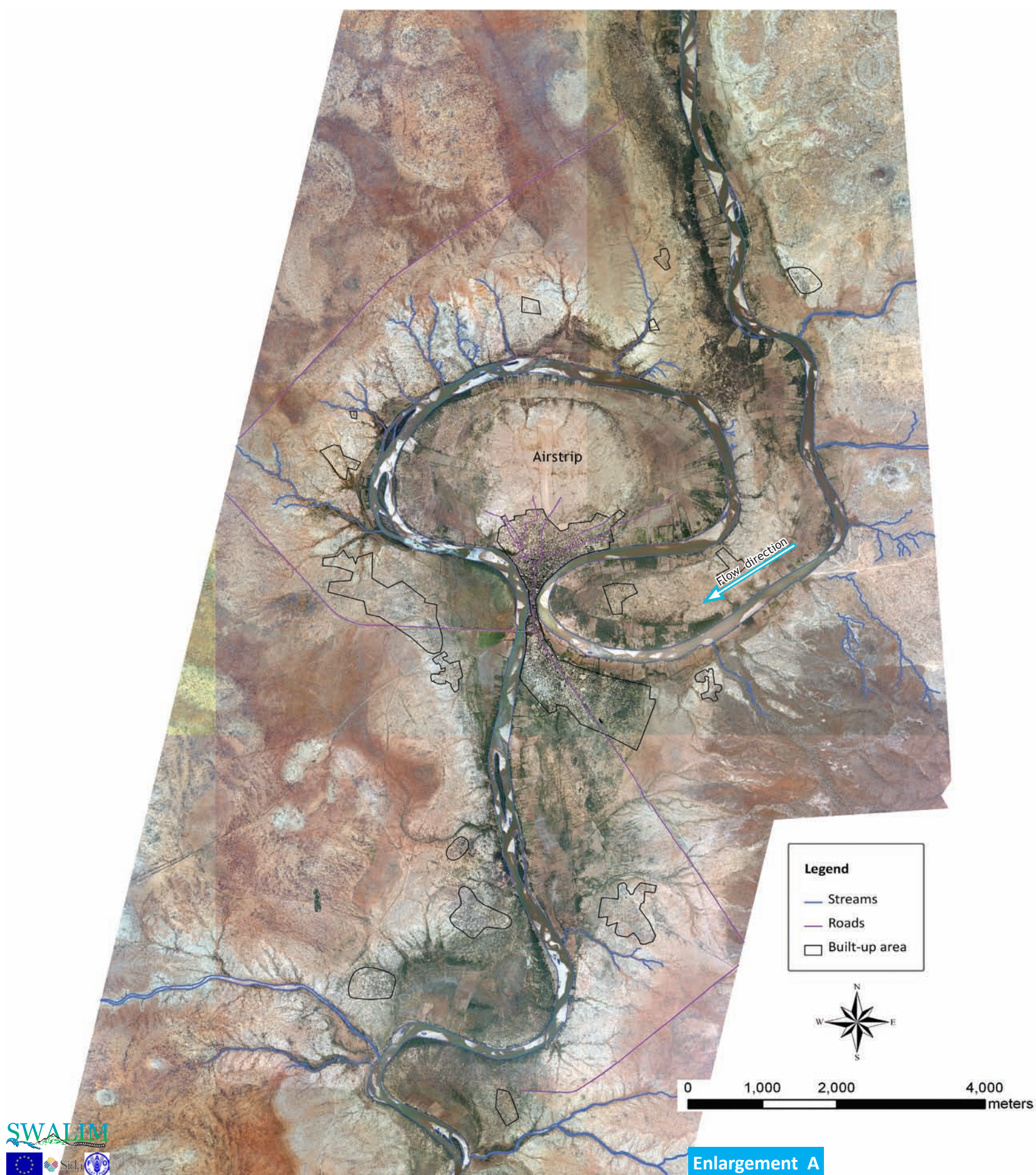
Wabiga Juba wuxuu saamayn weyn ku leeyahay magaalada iyo meelaha ku wareegsan. Magaalada meelaha laga soo galo ee bariga iyo galbeedka waxay u jiraan gebiyada wabiga wuxuun ku dhaw 100 m. Qaybta waqooyi ee magaalada waxay ku xareysan tahay dhamman wabiga ilaa masaafo qiyaastii ah 4 km. qaybta koonfureed oo keliya ayaa dhul irid ah leh, oo ay ka feydan tahay xerada wabiga.



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149	Town map of Luuq	C
150	Crop fields	D
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154	Roads and settlements	n/a
155	Climate and water resources	n/a
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## River meanders Leexleexyada wabiga



At Luuq the Juba River loops and forms the impression of sand being poured out of a bottle. Half of Luuq's settlement is out of the bottle and the other half is still inside the bottle.

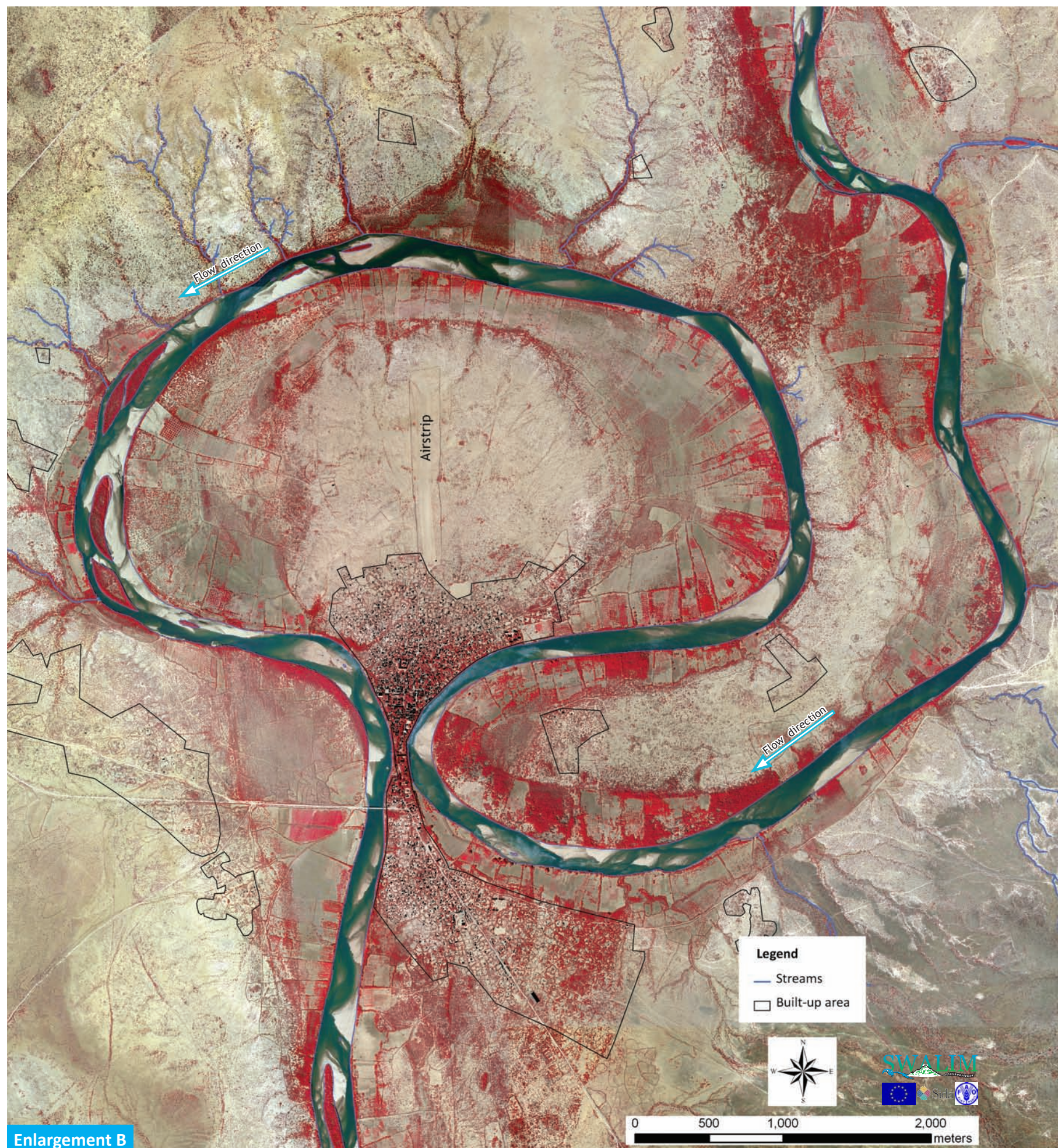
An airstrip is found inside this loop. Crop fields and natural vegetation are the land cover types inside the river loop.

Luuq Wabiga juba wuu isku soo laabaa wuxuuna sameeyaa sansaan ah bacad dhalo laga qubay. Kalabar Luuq xaafadaheeda dhala bannaanka ayey ka jiraan barka kalana weli wuxuu ku jiraa dhalada.

Gegi dayaradeed ayaa gudaha isku laabka ku taal. Beeraha dalagyada iyo dhirta dabiiciga ah waa noocyada h'ga dhulka gudaha isku laabka webiga.



## Luuq town in infrared Magaalada Luuq oo shucaac casaan leh

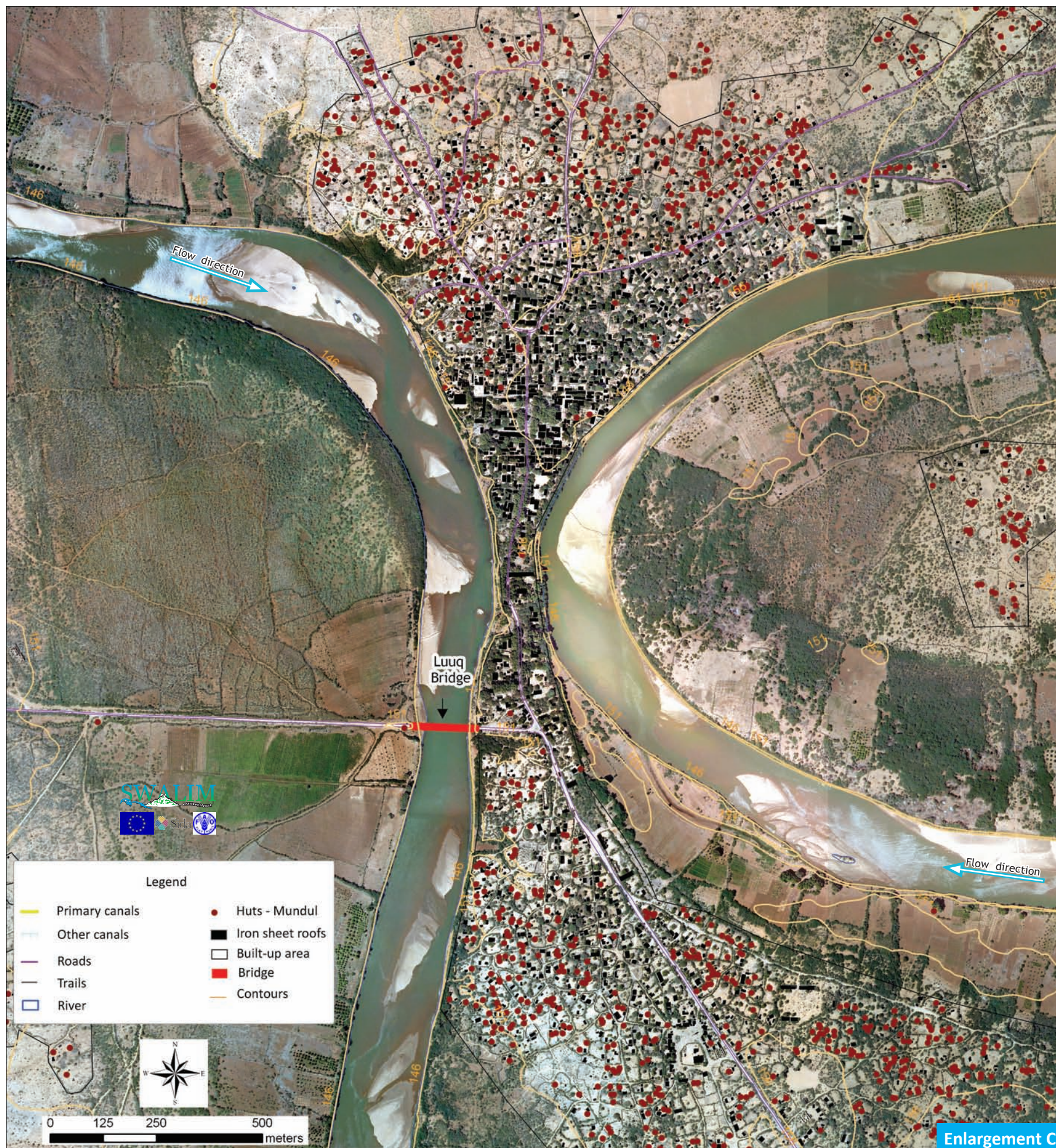


This is an infrared image of the Juba River loop at Luuq. Actively photosynthesizing vegetation is represented by the red colour and comprises crop fields and natural vegetation.

Midkaani waa muuqaalka shucaaca casaanka ah ee Wabi Juba isku laabkiisa Luuq. Dhirta sida xoogga leh u cagaaran waxay la soo baxaysaa midabka casaanka ah waxayna isugu jirtaa dalagyada beeraha iyo dhirta dabiiciga ah.



## Town map of Luuq Khariidadda magaalada Luuq



This photograph is a zoom on Luuq town. Notice that Luuq is squeezed in the middle by the river loop, almost cutting the settlement into two. Notice the gridded pattern of the tree crops along the river. The blocky pattern of other crop fields is also visible in the image.

Masawirkaan waa ballaarin ah magaalada Luuq. Eegg sida Luuq uu ugu soo ciriiriyeey bartamaha isku laabka wabiga, oo sigaya inuu degmada u kala gooyo labo qaybood. Eeg hannaanka dalagyada dhirta loogu beeray jiidda wabiga si aad moodo shabaq. Hannaanka sakadsakada wax aad moodo oo ah beero dalagyo kale ayaa iyagana lagu arki karaa masawirka.



## Crop fields Beeraha dalagyada



The image depicts the typical pattern of the crop fields in relation to the river. The crop fields are oriented perpendicular to the river and comprise of tree crops, cereals and other herbaceous crops. Natural vegetation comprised mainly of shrubs is also common here.

Masawirku wuxuu kuu muujinayaa sida u yahay hannaanka u gaarka ah beeraha dalagyada marka loo fiiriyo wabiga hareerihisa. Beeraha dalagyada waxay u jahaysan yihiin si ku toosan wabiga oo waxay isugu jiraan Geedmirood, badar iyo dalagyo kale oo nagaar ah. Waxaa kale oo si caadi ah halkaan looga helaa dhir dabiici ah oo badanaa ah geed gaab.



## Elevation, land use and land cover Joogga, isticmaalka dhulka iyo hu'ga dhulka

### Elevation

The river channel varies with the changing terrain. Some areas have a very narrow floodplain while other areas are wide. The adjacent terrain is rough and steep with scattered hills on either side of the river channel. The river meanders through this terrain making sharp turns as it negotiates the rocky hilly landscape.

### Joogga

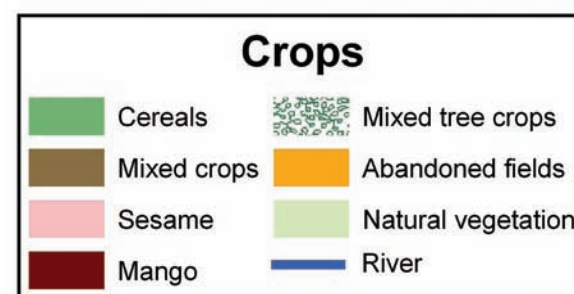
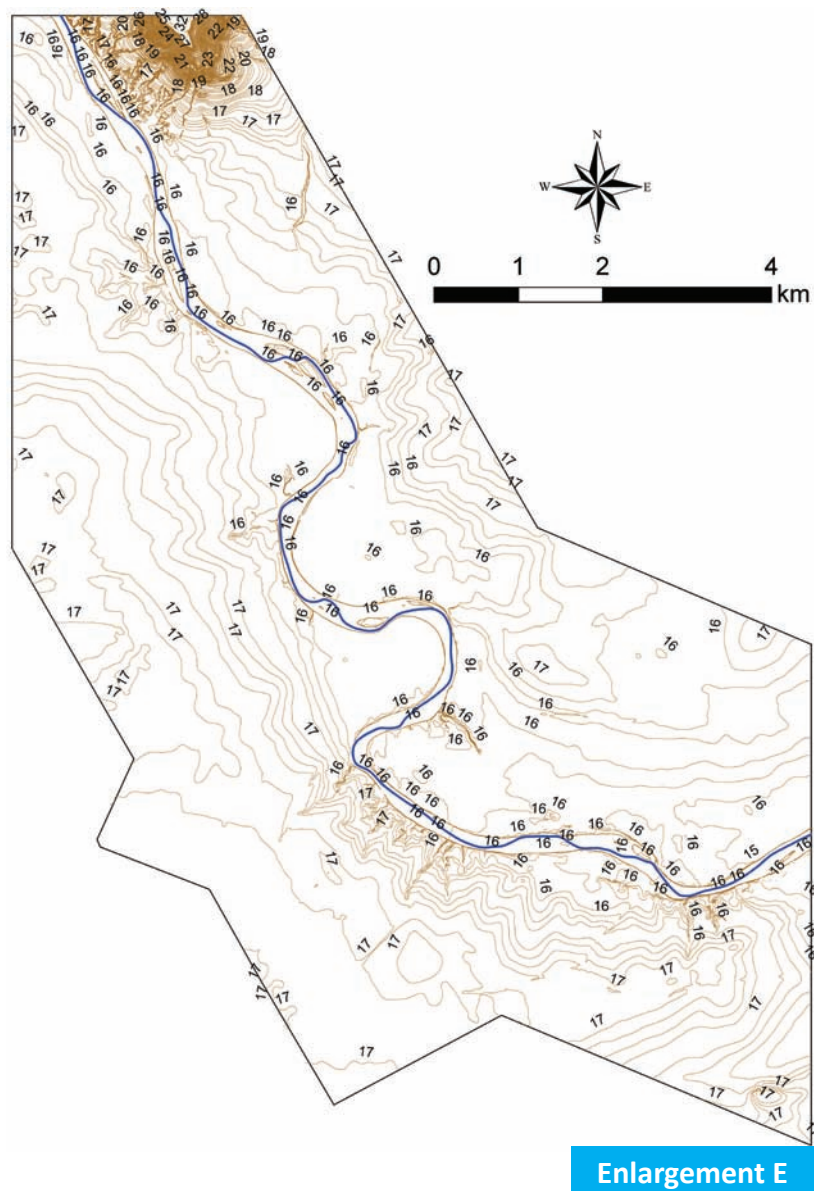
Dooxa wabigu wuxuu isla bedeleyaa dabecdda dhulka. Meelaha qaarkood waxay leeyihiin dhul carro daadkeentay ciriiri ah halka meelo kalana ay leeyihiin dhul carro daadkeentay ballaaran. Dhulka dooxa wabiga la dariska ah waa qallayf waana hoobad leh buuro teelteel ah oo ku kala yaal wabiga labadiisa dhinac. Wabigu wuxuu ku war-wareegsadaa dhuulkaan dhexdiisa asagoo sameeya leexleexyo si cad u go'an inta uu dhexmarayo dhulka buuraleyda dhadhaab ah.

### Land use and land cover

Land cover in this area consists mainly of natural vegetation. Cultivation is limited by the nature of the flood plain which varies along the river channel. Crop fields are mostly confined to sections of the river channel with a wider floodplain. Cultivation is also limited by soil conditions especially because this area has shallow stony soils.

### Isticmaalka dhulka iyo hu'ga dhulka

Hu'ga dhulka deegaankan wuxuu ka samaysan yahay badanaa dhir dabiici ah. Waxa la beerto waxaa koobay dabiicadda bannaanka carro daadkeentayda ah leh taasoo isbedbedsha jiidda dooxa wabiga. Beeraha dalagyada badanaa waxay ku kooban yihiin waaxyo ka tirsan doox wabiga kuwaasoo leh dhul ballaaran oo carro daadkeentay ah leh. Waxaa kale oo waxbeerashada xadaynaya dabiicadda ciidda gaar ahaan sababtu oo ah waxay leedahay carro qoto gaaban oo dhagaxley ah.

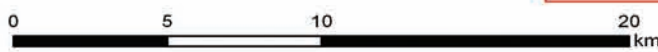
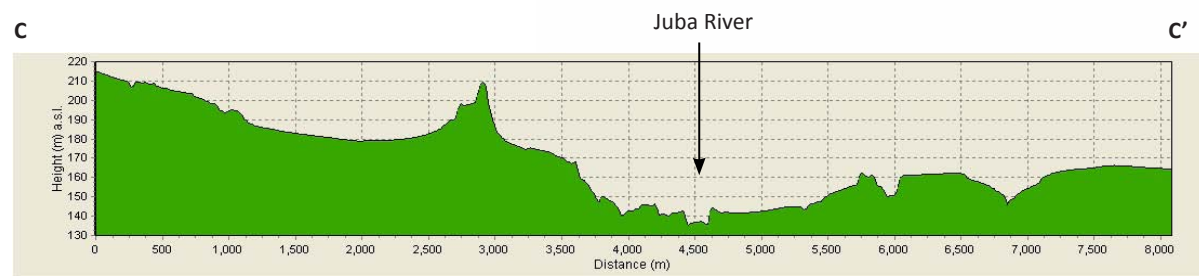
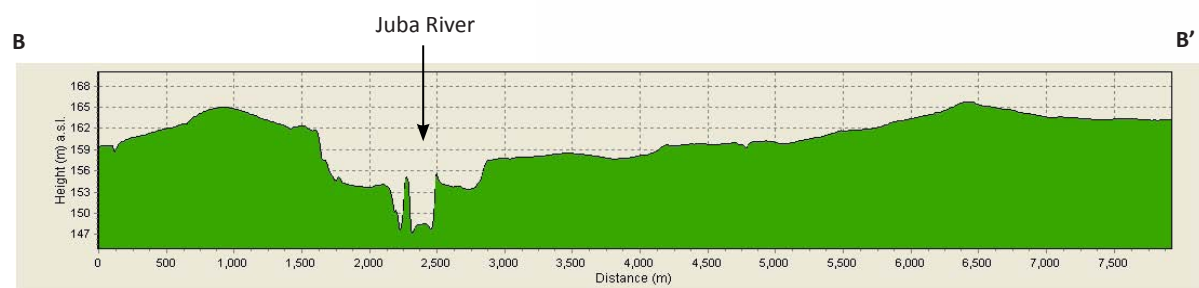
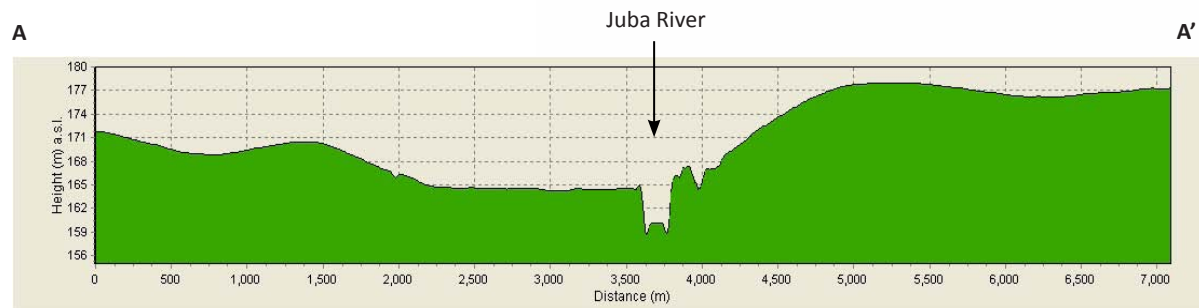
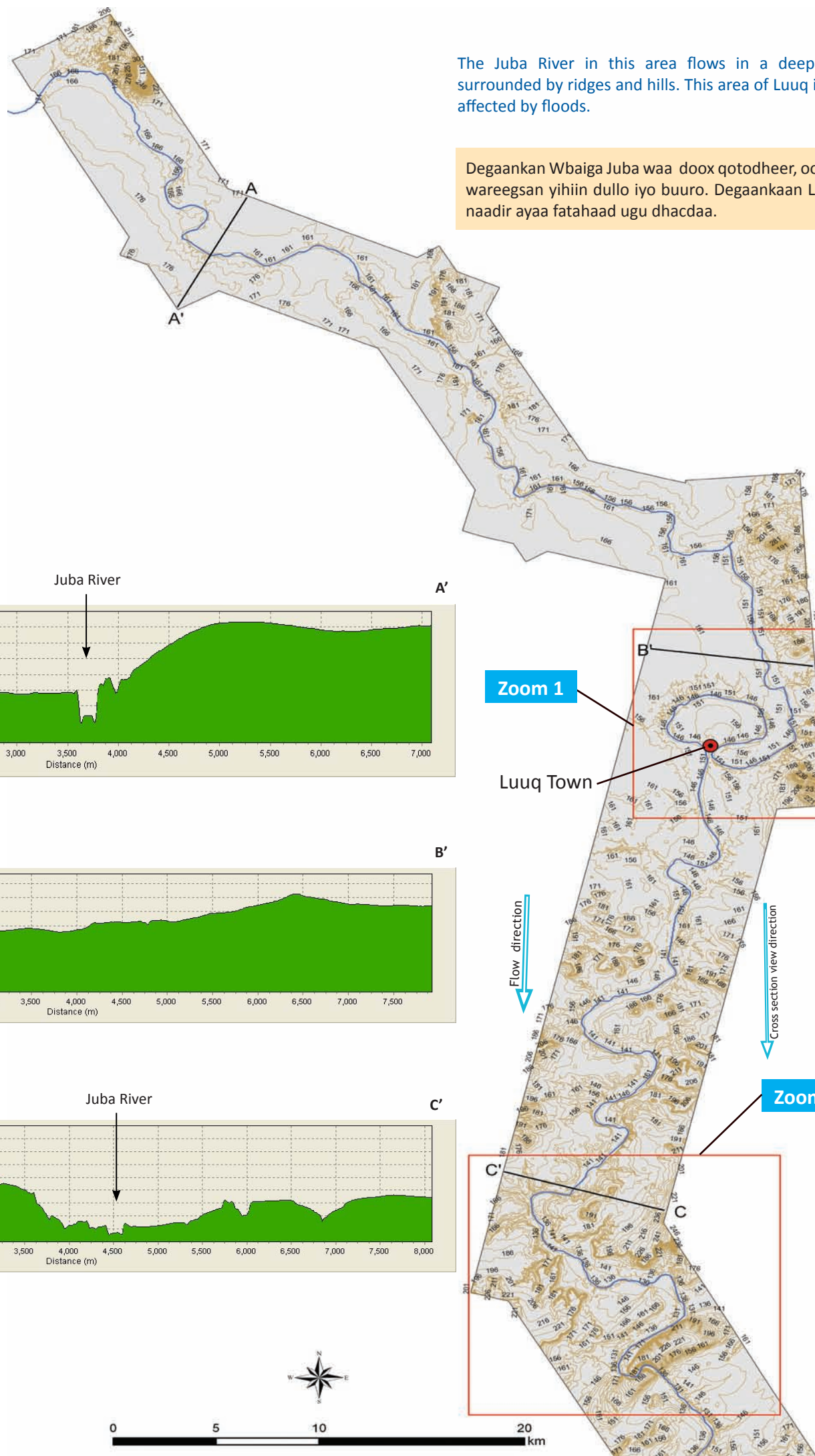




## Morphology Qaab-dhismaha

The Juba River in this area flows in a deep valley, surrounded by ridges and hills. This area of Luuq is rarely affected by floods.

Degaankan Wbaiga Juba waa doox qotodheer, oo ay ku wareegsan yihiin dullo iyo buuro. Degaankaan Luuq si naadir ayaa fatahaad ugu dhacdaa.



Zoom 1

Luuq Town

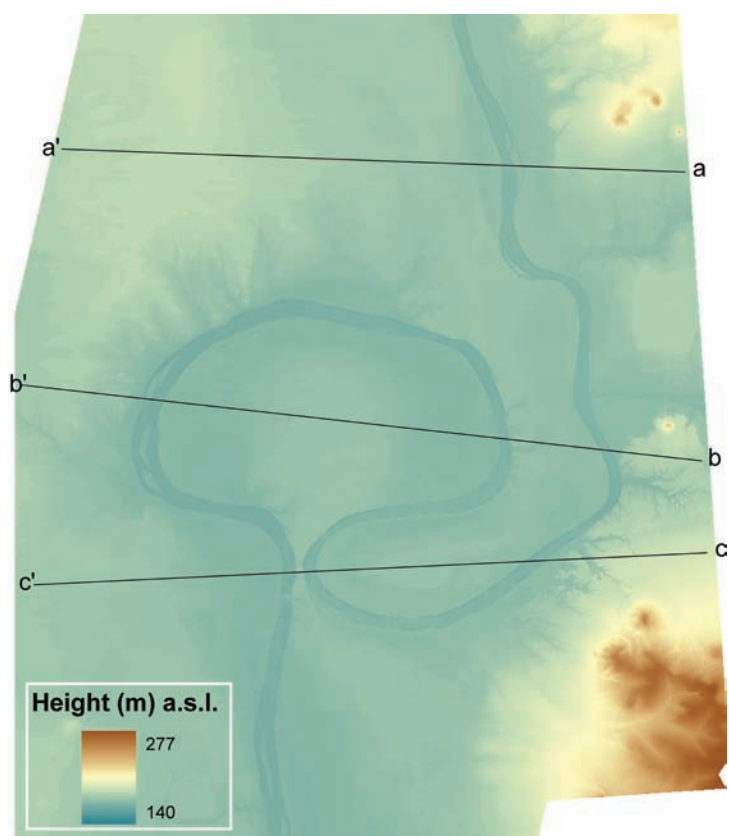
Zoom 2

Flow direction

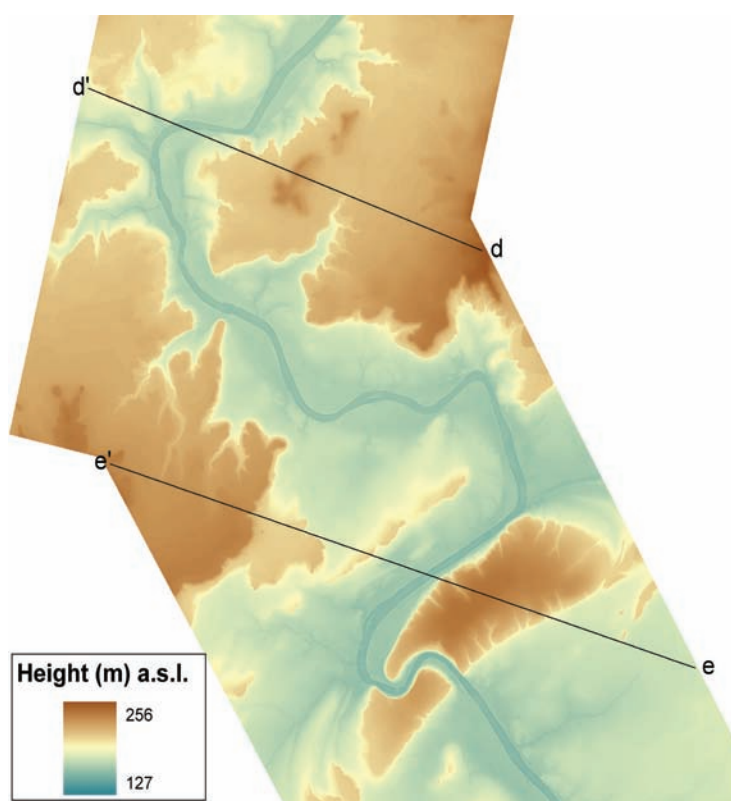
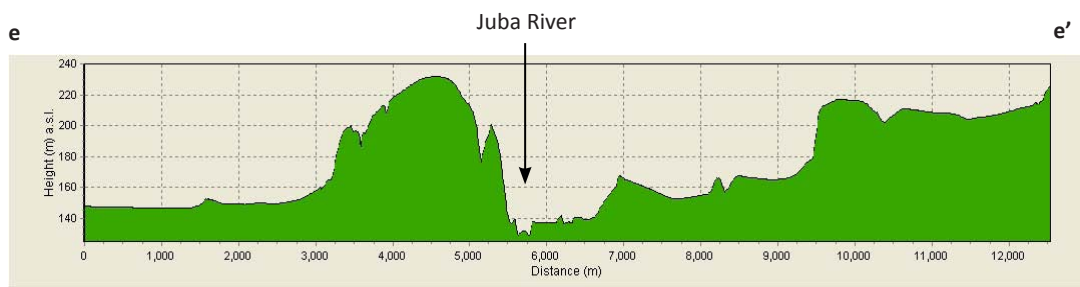
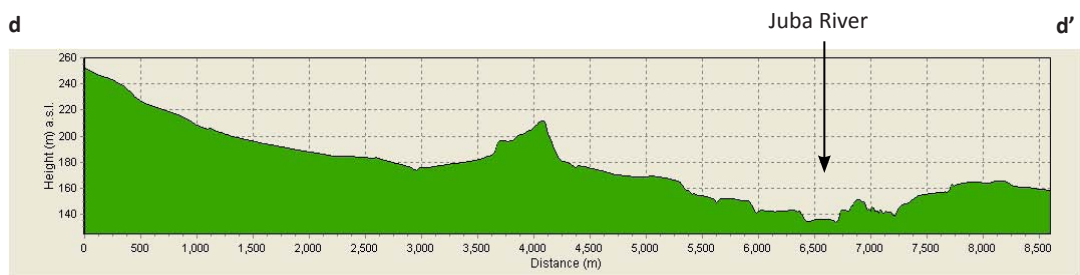
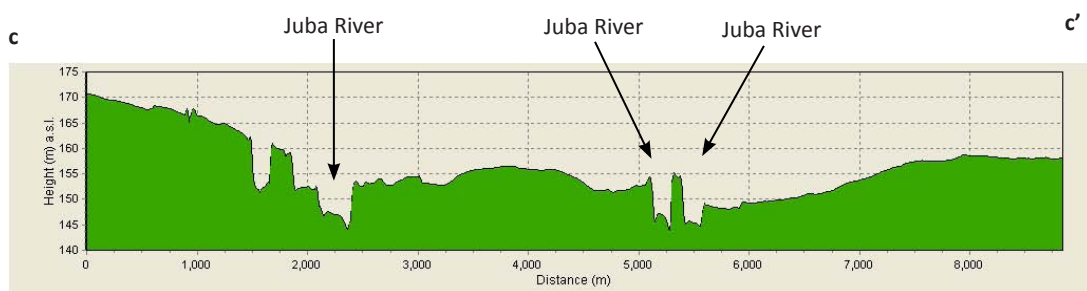
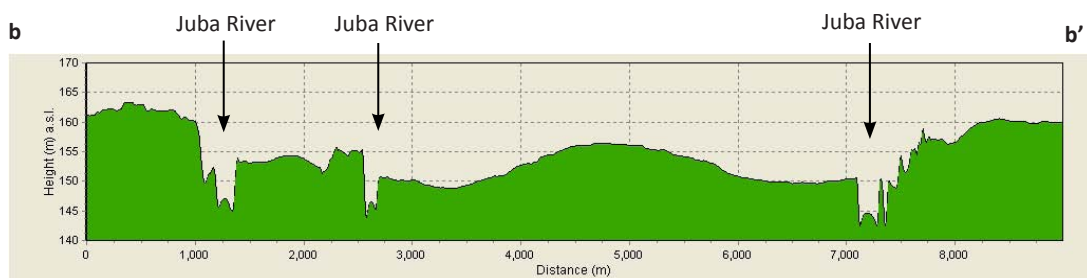
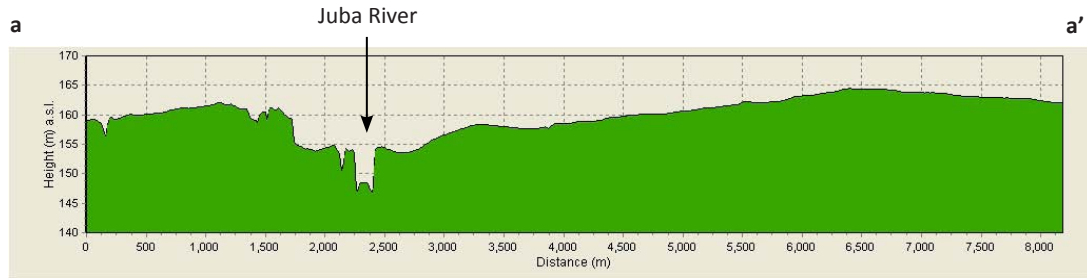
Cross section view direction



# Morphology Qaab-dhismaha



Zoom 1



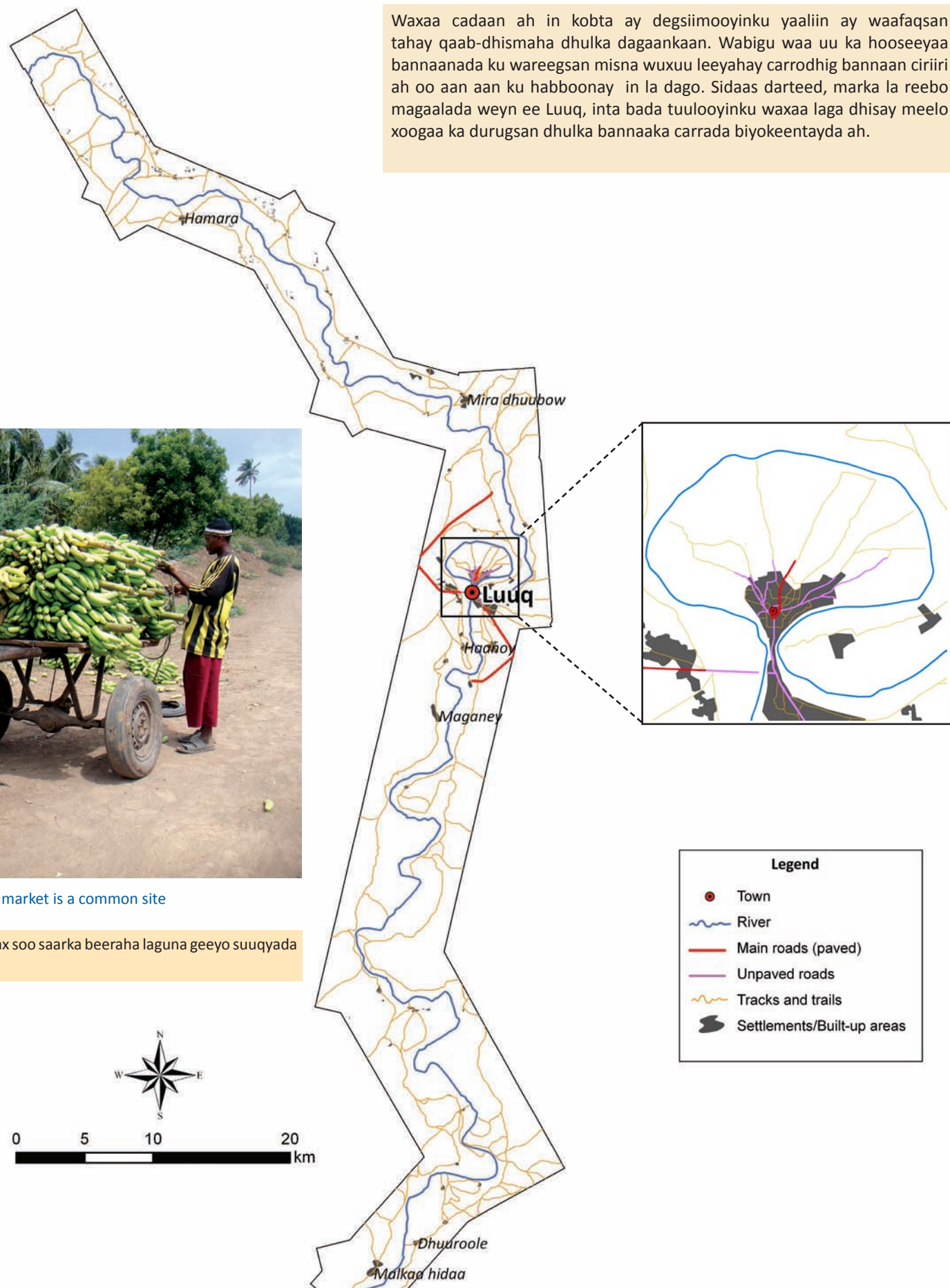
Zoom 2



## Roads and settlements Waddooyinka iyo degmooyinka

It is clear that the location of the settlements is according to the morphology of this area: the river is lower than the surrounding plains and it has a very narrow alluvial plain that is not suitable for settling. Thus, apart from the big town of Luuq, most of the villages are built at some distance from the alluvial plain.

Waxaa cadaan ah in kobta ay degsiimooyinku yaaliin ay waafaqsan tahay qaab-dhismaha dhulka dagaankaan. Wabigu waa uu ka hooseeyaa bannaanada ku wareegsan misna wuxuu leeyahay carrodhig bannaan ciriiri ah oo aan aan ku haboonay in la dago. Sidaas darteed, marka la reebo magaalada weyn ee Luuq, inta bada tuulooyinku waxaa laga dhisay meelo xoogaa ka durugsan dhulka bannaaka carrada biyokeentayda ah.



Transport of farm produce by donkey to the market is a common site

Dameerahu waa gaadiidka loo isticmaalo wax soo saarka beeraha laguna geeyo suuqyada ahna meel caadi

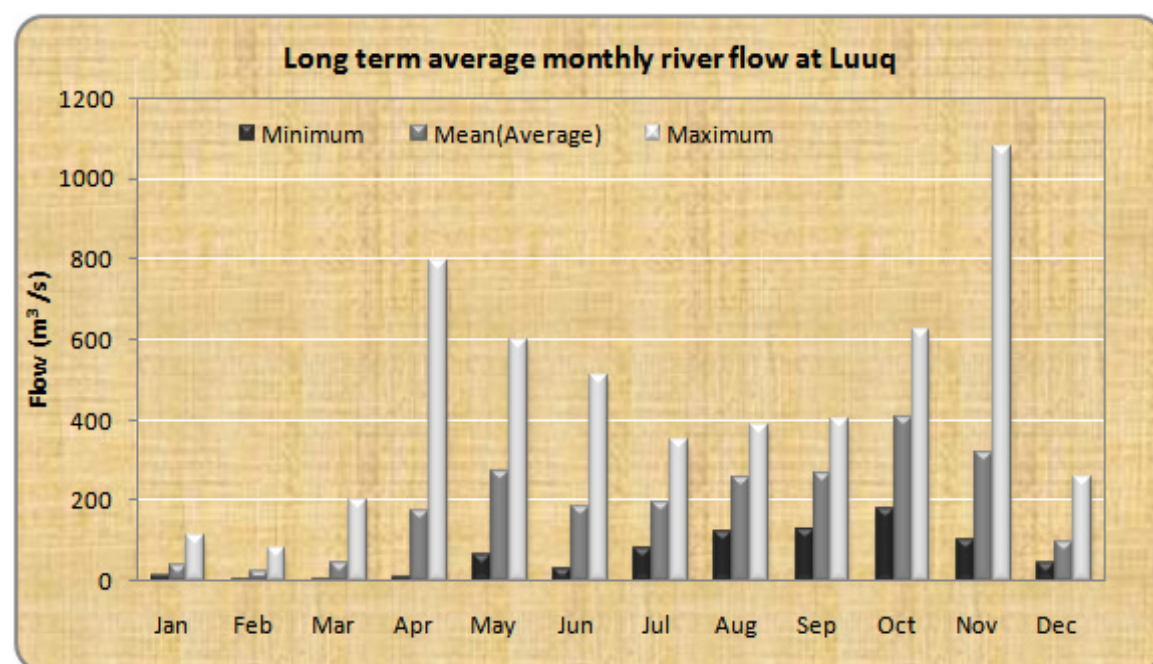


## Climate and water resources Cimilad iyo khayraadka biyaha

Luuq and its environs are generally dry, receiving mean annual rainfall of only 271 mm. Most of the rains fall in four months, April and May then in October and November. The other eight months are either dry or receive minimal rainfall to support any agricultural activity. Maximum temperatures can reach as high as 40 °C in this area.

Guud ahaan Luuq iyo deggaankeeda waa mid qalayl ah, waxayna heshaa roobab celcelis ahaan dhan sannadkii 271 mm oo qura. Badanaa roobabkaas waxa ay ku da'aan muddo 4 bilood ah, Abriille iyo Maajo iyo Oktoobar-Nofeembar. Sideeda bilood ee kale waa qalayl ama waxay heshaa roob aad u yar kaas oo aan taageerin hawlaha wax beerashada. Dagaankan kulbeegga ugu sarreeya wuxuu gaari karaa ilaa 40 °C.

Long term average climatic values at Luuq												
Climatic variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rainfall (mm)	1.0	1.0	18.0	82.0	52.0	2.0	1.0	1.0	3.0	48.0	48.0	14.0
Mean temperature (°C)	31.5	32.3	33.2	31.8	30.3	29.5	28.2	28.2	29.6	30.5	30.5	30.5
Minimum temperature (°C)	23.8	24.5	25.3	25.0	24.8	23.8	23.1	22.6	23.5	23.7	23.7	23.0
Maximum temperature (°C)	38.6	39.6	40.5	38.3	36.0	35.0	33.5	33.8	36.0	37.1	37.5	37.8
Potential evapotranspiration (mm)	226	196	217	177	192	198	192	186	204	183	177	189
Wind speed (km/hr)	10.8	7.2	6.5	5.4	9.4	13.7	13.7	10.8	10.1	7.2	7.2	7.2



### River gauge station details

Grid reference: 3:47:30N, 42:32:30E

Altitude: 141.0 m a.s.l

Catchment area: 207 000 km<sup>2</sup>

Daily mean flow: 198.0 m<sup>3</sup>/s

Current status: Operational

River flow in Luuq has two peaks, in April and May and October and November. They coincide with the peaks for the *Gu* and *Dayr* rainy seasons. The months of January to March are characterised by very low flows, and the river can hardly support irrigation even though it does not dry up completely.

Socodka biyaha wabiga Luuq waxay gaaraan labada fiq sare oo kala ah Abril-May iyo Oktoobar-Nofambar. Waxayna ku beegmaan xilliga roobabka gu'ga iyo Dayrta. Bilaha Janaayo ilaa Maarso waxa lagu sifeeyaa in socodka biyahu uu aad u hooseeyo, makaasna Wabigu si dhible ayuu u caawin karaa waraabka in kastoo wabigu uunan gabi ahaan qalalin.

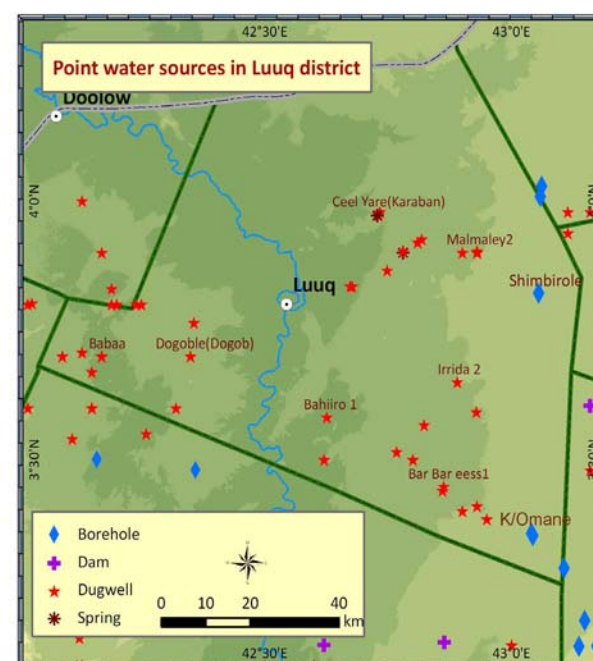


Animal watering point located in Gedo. The source of water is a shallow well

Dar xoolahu ka cabaan oo Gedo ku yaal. Isha biyaha laga helo waa ceelasha gaagaaban

Many of the strategic water points in Luuq district are located outside the district capital. The town, being surrounded by the Juba River relies more on the river for water supply. The average depth of shallow wells is 5 - 10 m. The salinity of the water varies from source to source, but generally EC is in the range of 450 - 5 000 μS/cm.

Tiro badan oo ilaha biyaha lamama maarmaan ka ah ee degmada Luuq waxay ku yaalaan meelo ka baxsan xarunta degmada. Magaalada oo uu ku wareegsan yahay wabiga Juba waxay aad ugu tiirsan biyaha wabiga ay ka hesho. Gunta ceelasha gaagaaban waxay gaarta 5 - 10 m celcelis ahaan . Milixda biyaha waa ay kala duwan tahay marka loo eego ceel ceel, laakiin guud ahaan EC - da waxay u dhexaysaa 450 - 5 000 μS/cm.





**Flood risk map for Luuq - 5 year return period**

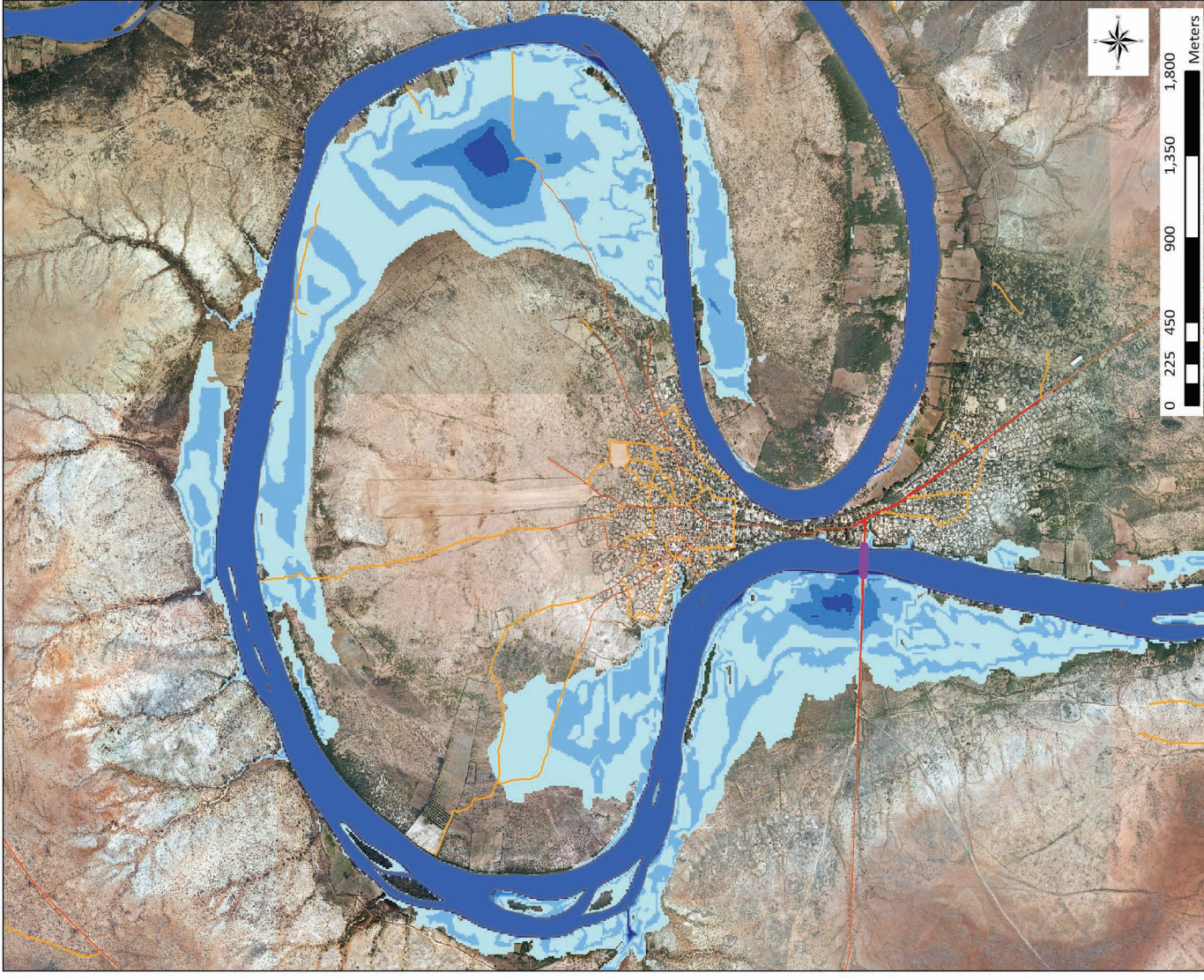
**Kharidadda halista fatahaadda ee Luuq  
 5 sanaba soo noqota mar**

*The flood risk scenarios (extent and depth) were generated using HEC-RAS hydrodynamic model. Inputs included observed flow data, river cross sections, DTM. For more information contact SWALIM (enquiries@faoswalim.org)*



**Flood risk map for Luuq - 20 year return period**

**Kharidadda halista fatahaadda ee Luuq  
 20 sanaba soo noqota mar**



Flood water depth (m)

- 0.01 - 0.50
- 0.51 - 1.00
- 1.01 - 1.50
- 1.51 - 2.00
- >2.00

— Paved road   
 — Unpaved road   
 — Trails   
 — Bridge   
 — River

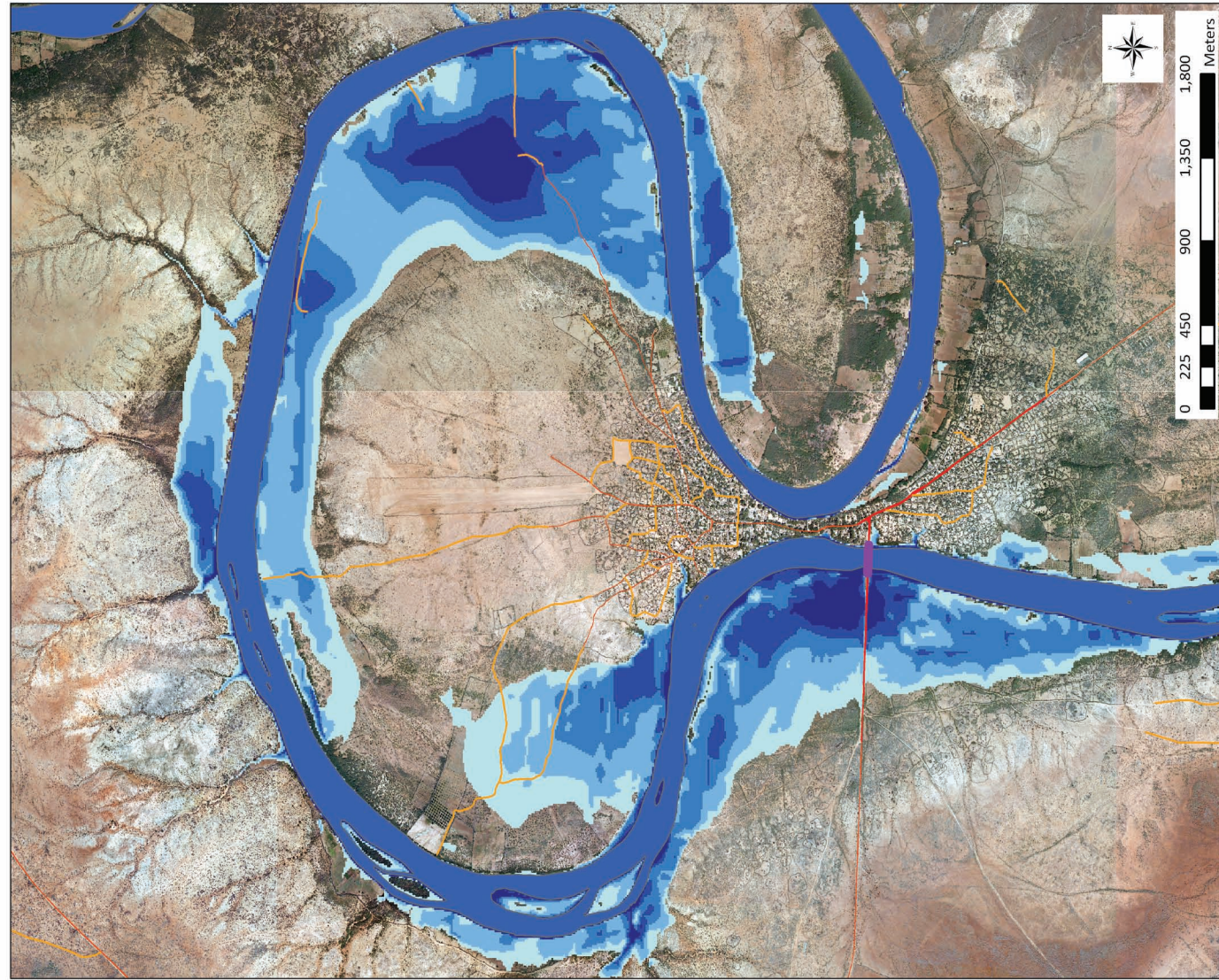
0 225 450 900 1,350 1,800 Meters



**Flood risk map for Luuq - 50 year return period**

**Kharidadda halista fatahaadda ee Luuq  
 50 sanaba soo noqota mar**

*Dacdooyinka fatahaadeed oo halis ah (baaxad iyo mool) waxaa la soo saaray ayadoo la adeegsanayo HEC-RAS qaabka biyosocodka lagu cabiro. Waxa ku jira meesha waa xogta socodka wabiga oo laga cabiray jeexyada gudban, DTM. Haddii aad macluumaad dheeraad ah aad u baahato SWALIM kala soo xiriir (enquiries@faoswalim.org)*

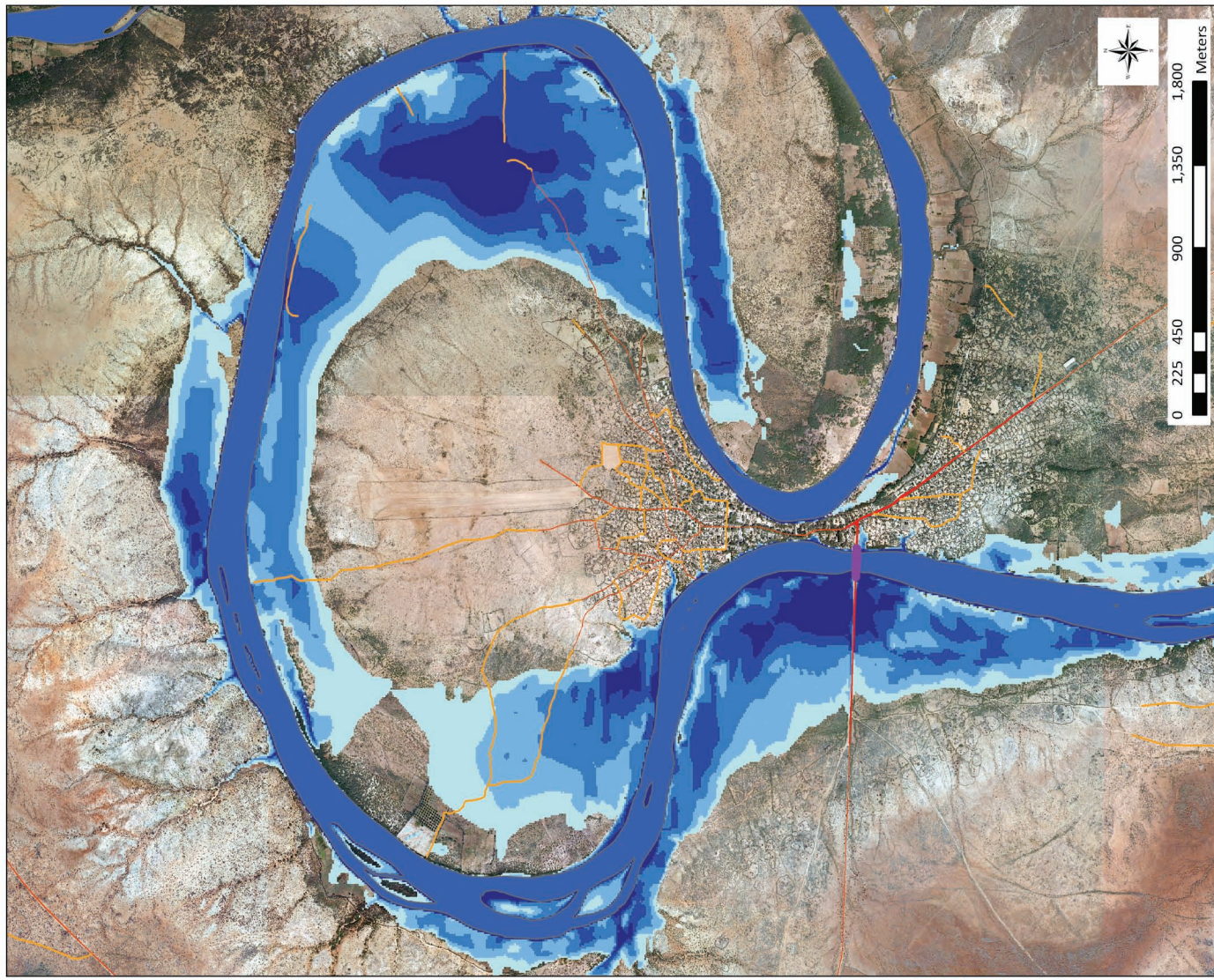


Flood water depth (m)

- 0.01 - 0.50
- 0.51 - 1.00
- Paved road
- Unpaved road
- Trails
- Bridge
- River

**Flood risk map for Luuq - 100 year return period**

**Kharidadda halista fatahaadda ee Luuq  
 100 sanaba soo noqota mar**



Flood water depth (m)

- 1.01 - 1.50
- 1.51 - 2.00
- >2.00
- Paved road
- Unpaved road
- Trails
- Bridge
- River