

Jowhar

Jowhar is the capital town of the Middle Shabelle Region. The town lies along a major road 90 km north of Mogadishu.

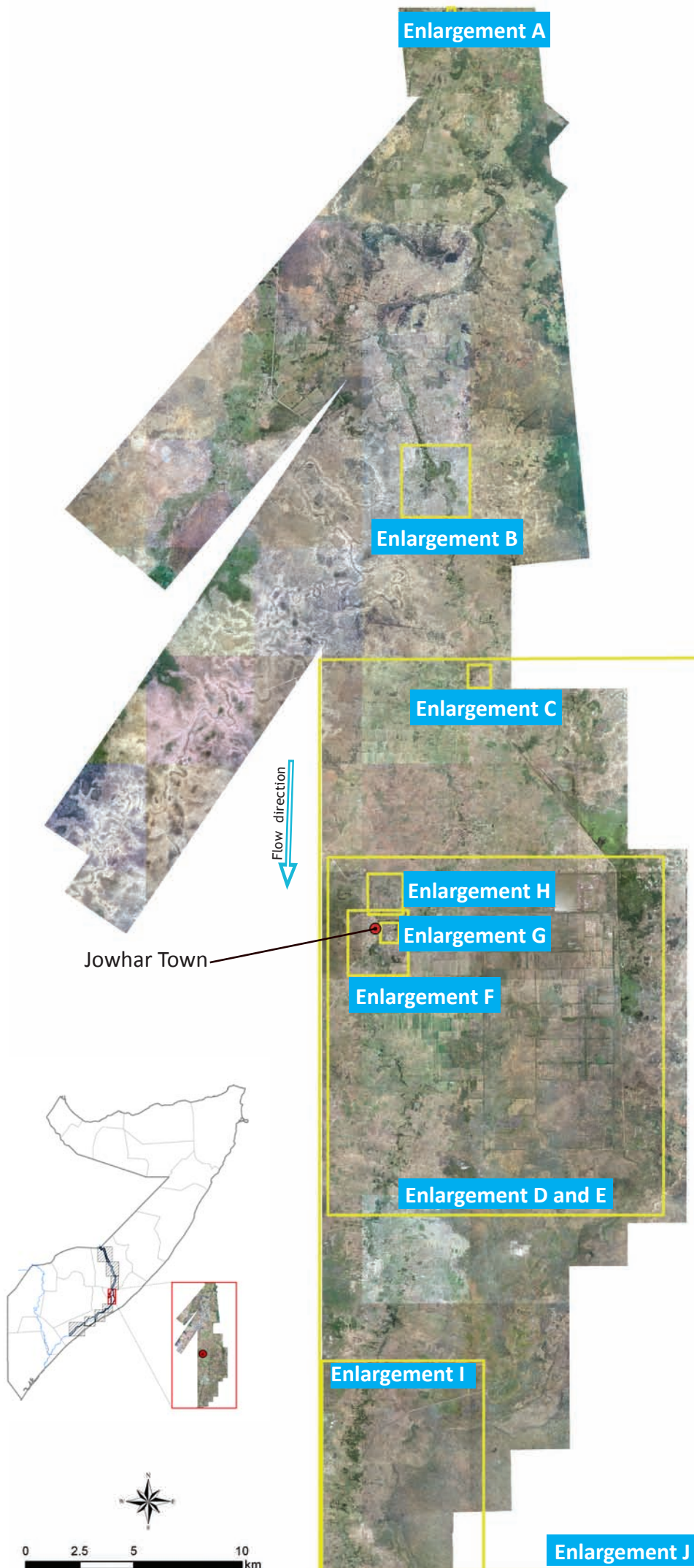
Jowhar was founded by an Italian Duke, Luigi Amedeo Savoia, who first came to the African continent in 1883. He liked the place and decided to raise funds to build dams, roads, a railroad, schools, hospitals, a church, and a mosque. The Italians, who believed in the economic potential of the region, also built a railroad system that linked Jowhar to Mogadishu.

Jowhar only became the regional capital in the mid-1980s when Mogadishu was taken out of Middle Shabelle to form its own region, Banaadir. There is an airstrip in the north of the town.

Jowhar waa magaalada caasimadda u ah Gobolka Shabeellaha Dhexe. Magaaladu waxay jirtaa 90 km xagga waqooyiga waddada weyn ee Mogadishu ka timaada.

Jowhar waxaa asaasay nin reer boqor ah oo Talyaani ah, Luigi Amedeo Savoia, kaasoo markii ugu horreysay Qaaradda Afrika yimid sanadkii 1883. Wuxuu jeclaystay meesha wuxuuna go'aansaday inuu dhaqaale u raadiyo si uu u dhiso biyoxireenno, waddooyin, birta tariiinku maro, dugsiyo, cisbitaallo, Kaniisad iyo Masaajid. Talyaanigu waxay rumaysnaayeen fursadda dhaqaale ee gobolka, waxaa kale oo ay dhiseen jid tariin oo isku xira Jowhar iyo Mogadishu.

Jowhar waxay noqotay caasimadda gobolka bartamihii 1980-aadkii markii Mogadishu laga dhexsaaray oo si goon ah oo ay u noqotay gobolka Banaadir. Waxaa ku yaal garoon dayaaradeed xagga waqooyiga magaalada.



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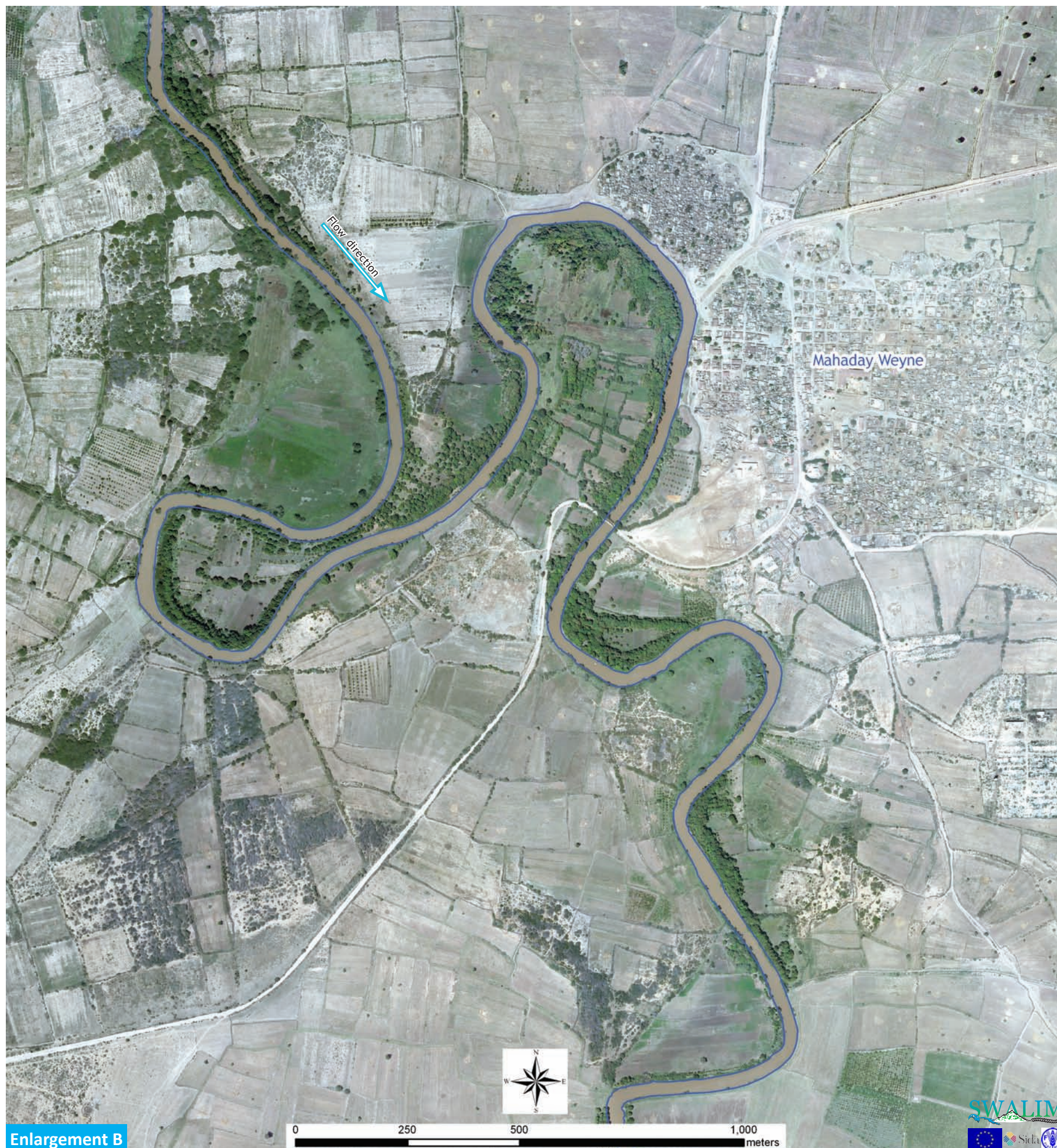
Duduble canal Keliga Duduble



The Duduble canal (or Chinese canal) is mainly used as a flood relief canal. It was built in the 1980s to help reduce flood risk in the Middle Shabelle Region.

Keliga Duduble (ama Keliga Shiinaha) waxaa qaaliban loo isticmaalada si loo dhimo fatahaadda. Waxaa la dhisay bartamihii 1980-aadkii si uu gacan uga geysto yaraynta halista fatahaadda Gobolka Shabeellaha Dhexe.

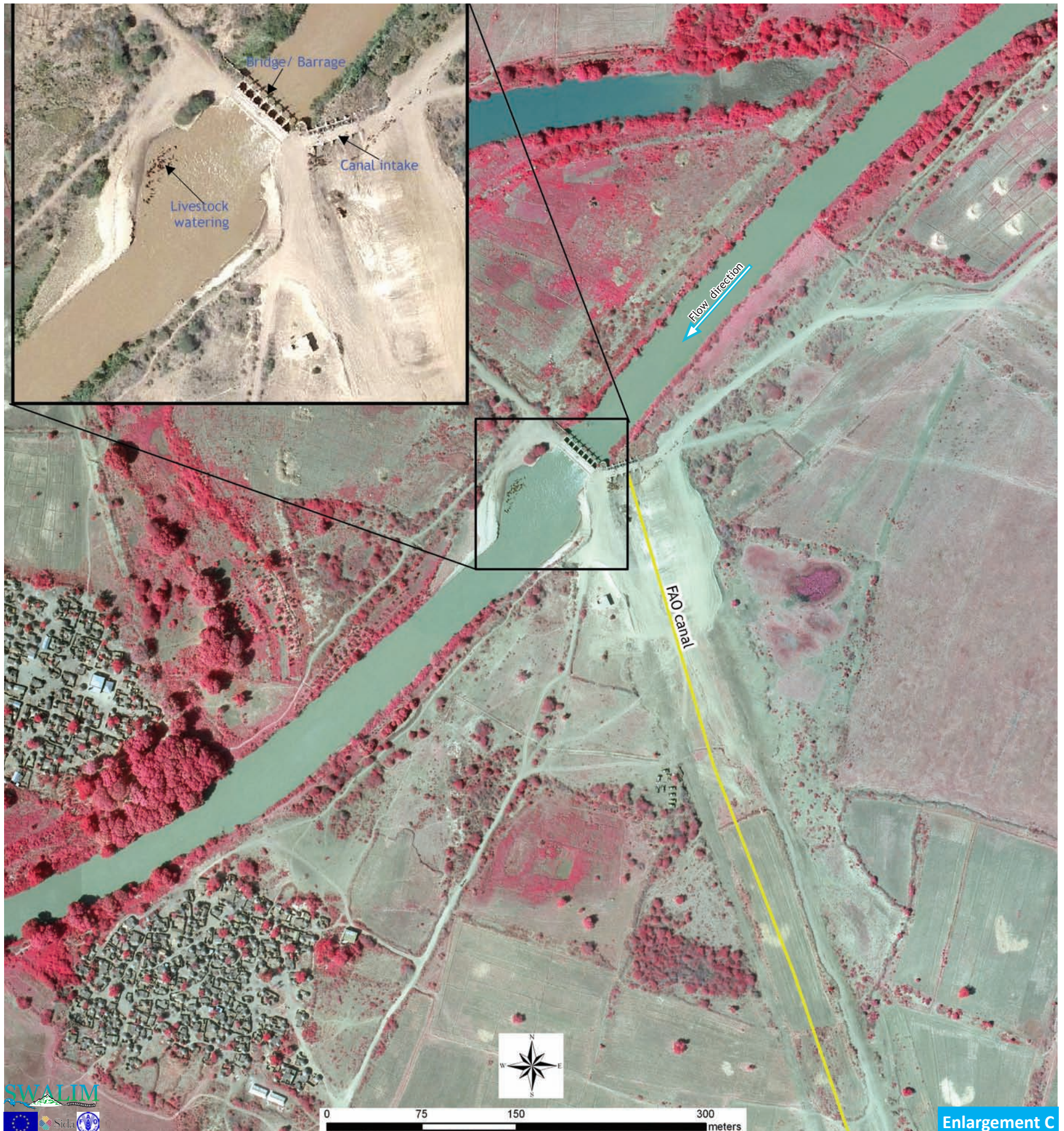
Mahaday Weyne town Magaalada Mahaday Weyne



This is clearly an agricultural area with many kinds of crops cultivated along the river. The closer to the river the greener the vegetation, mainly constituted of mango trees. This zoom also shows the peculiar river meandering at the town of Mahaday Weyne.

Middaan waa degaan dhul beereed cadaan ah oo dalagyo noocyo badan lagu beerto hareeraha wabiga. Dhanka aad ugu dhaw wabiga dhirtu aad ayey u cagaaran tahay, badanaana waa geedaha cambaha. Ballaarintu waxay tusinaysaa leexleexadka wabiga oo yaab leh xagga magaalada Mahadaay Weyn.

Sabuun barrage and FAO canal Biyoxireenka Saabuun/Kaabadda



The Sabuun barrage/bridge was the most important barrage in Middle Shabelle and was combined with the FAO canal. When it was operational, it served as a relief canal that filled a reservoir located 20 km from the river on the eastern side of Jowhar. The stored water was then used to irrigate sugarcane plantations during the dry season. Unfortunately, the FAO canal and the reservoir are no longer in use as the system collapsed due to lack of maintenance.

Biyoxireenka Saabuun/Kaabadda waa biyoxireenka ugu ahmiyadda badan Shabeellaha Dhexe waxaan la jira Keli fatahaad yaraynta (Keliga FAO) loo isticmaalo. Markii uu shaqaynayey waxaa loo adeegsan jirey keliga ka hortag fatahaadda hadana wuxuu buuxin jirey War weyn oo ku tiil meel jirta 20km dhanka bariga magaalada Jowhar. Biyihii lagu qabto waxaa loo isticmaali jirey in lagu waraabiyo beeraha qasab-sonkorta xilliga ay jiilaalka tahay. Nasiib darro, Keliga FAO iyo warta labadaba lama isticmaalo waayo waxaa waxyeello gaar tahay dagaalka ahliga ah.

Old sugarcane plantations Beerihii hore ee qasab-sonkorta

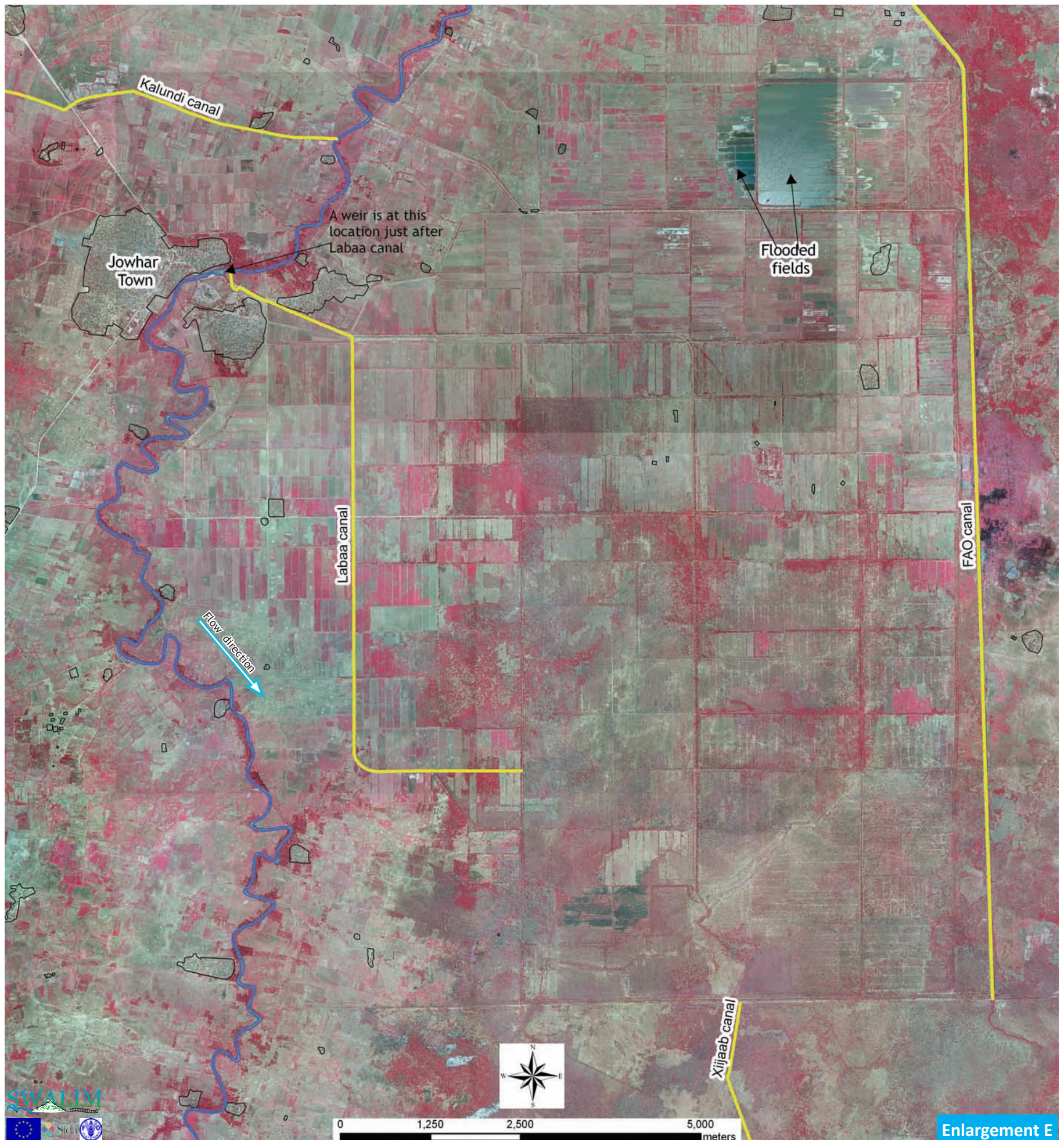


Enlargement D

The old sugarcane plantations of Jowhar with a network of irrigation canals. Some of the primary canals are marked by the yellow lines.

Beerihii hore ee qasab sonkorta Jowhar oo leh muuqaalka keliyo waraab oo shabaq la moodo. Keliyada koowaadka qaarkood waxaa lagu calaamaday xariijimo hurdi (jaale) ah.

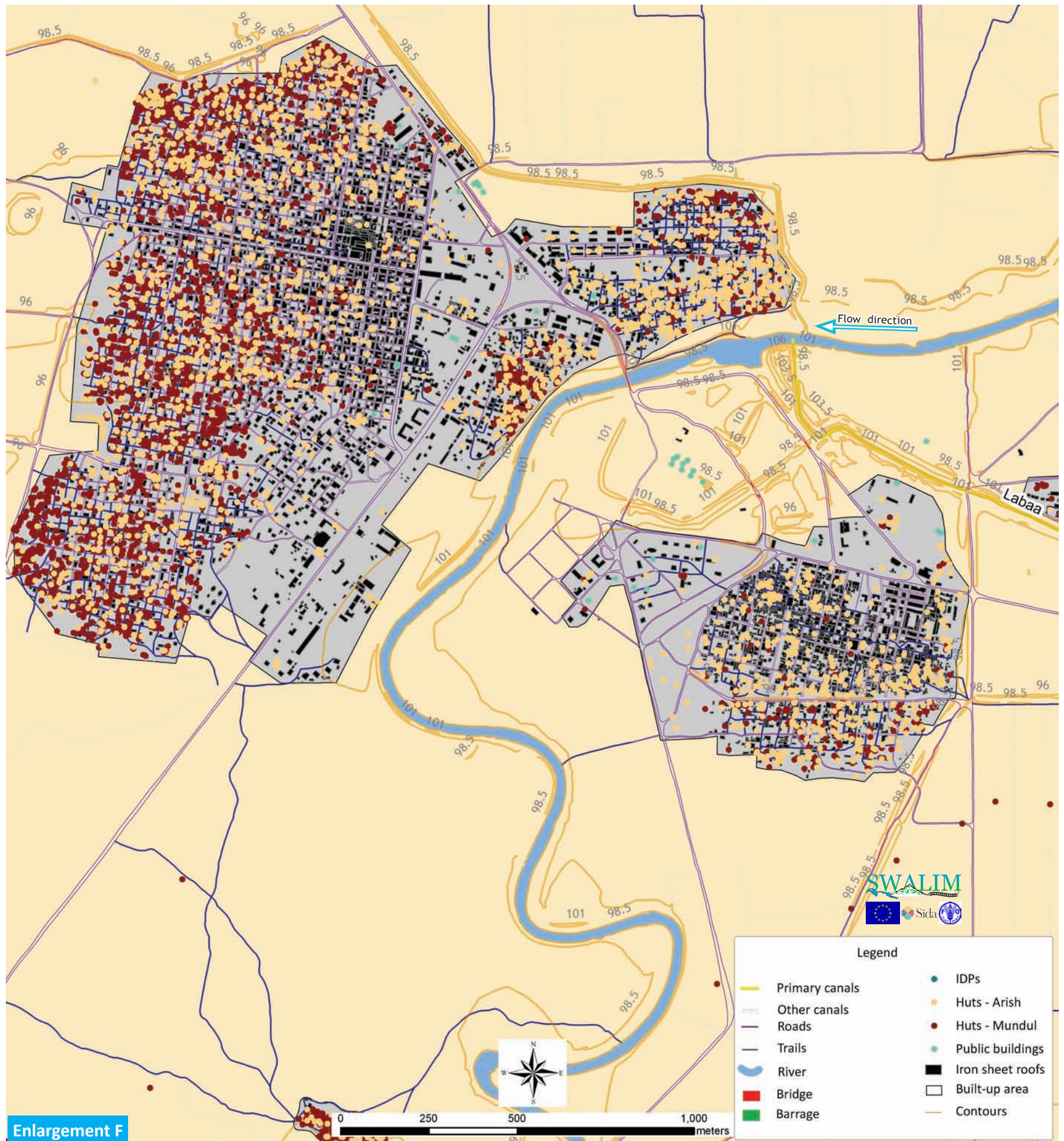
Old sugarcane plantations in infrared Beerihii hore ee qasab-sonkorta oo shucaa casaan leh



This image shows the same frame as the one on page 60. In this false colour combination, vegetation are much more contrasted and hence easier to identify. The brighter the red the healthier and greener the vegetation.

Muuqaalkaan wuxuu tusinayaa isla qaabka ku yaal bogga 60. Isku dhafka midabka aan dhabta ahayn, dhirta iyo biyaha aad ayey u kala gedisan yihiin si fududna waa lagu kala soo sooci karaa. Midabka cas ee dhalaalaya wuxuu tusaaleynayaa in dhirtu caafimaad wacan tahay oo ay cagaaran tahay.

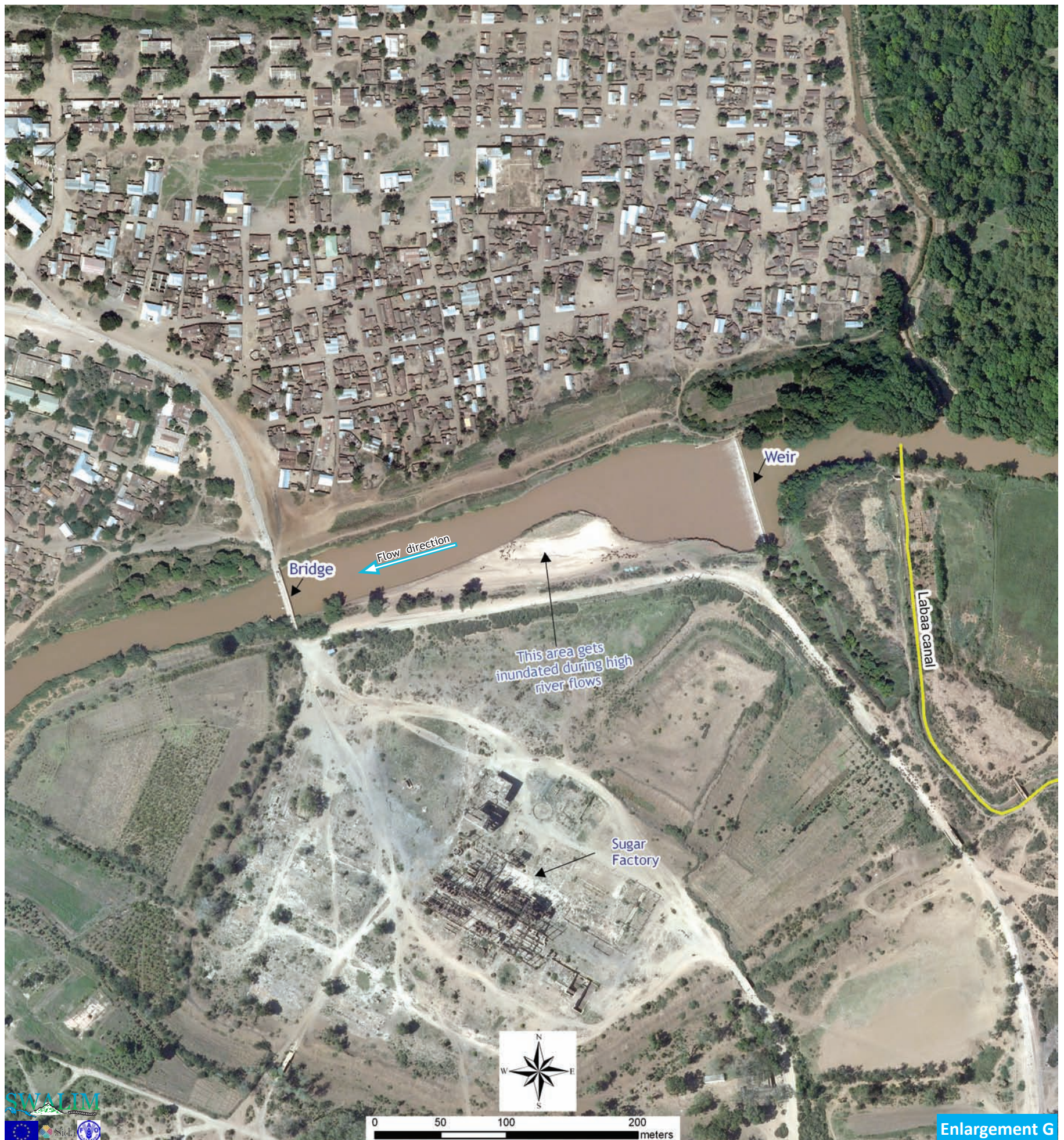
Town map of Jowhar Khariidadda Magaalada Jowhar



The built-up area of Jowhar town with different types of shelters, huts (Arish and Mundul type), iron sheet roofs, public buildings, and IDP tents.

Khariidadda Magaalada Jowhar oo leh dhismeyaal kala duwan, aqallo (noocyo cariish iyo Mundullo ah), guryo dadkoodu jingad yahay, dhismooyin dawladeed, iyo teendhooyin barakacayaal.

Jowhar town Magaalada Jowhar



In this part of the river, a weir was constructed to control water getting into the canals that irrigate the sugarcane plantations. There is also a bridge that connects the main part of Jowhar town to the old sugar cane factory and the eastern side of the town.

Qaybtaan wabiga, biryoxireen ayaa laga dhisay si loogu xakameeyo biyaha keliyada geleya oo lagu waraabiyo beeraha qasab-sonkorta. Waxaa kale oo jira kaabad oo isku xirta qaybta weyn ee magaalada Jowhar iyo warshaddii hore ee sonkorta iyo dhinaca bari ee magaalada.

Irrigated crops in infrared Dalagyada waraabr oo ka muuqda shucaac cas



The intensity of crop fields in this area is clear. Cereals are very common and the gridded pattern indicates the presence of tree crops. The cereals are at different stages of growth, indicating the possibility of all year round cultivation.

Baaxadda dalagga beeraha degaankan waa caddaan. Dalagyada badarka aad ayey u badan yihiin hadana waxaa jiro dalagyo geed-mirood ah oo u muuqanaya sida shabaqa. Dalagyada badarku waxay ku sugan yihiin xaalad korriimo kala duwan ah , oo tusinaya in wax beerashadu ay suurogal tahay sanadka oo dhan.

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

Elevation

In this area of Jowhar, downstream of the town, the elevation is about 90m a.s.l. and the terrain is flat. The small hills in the lower right corner of the map mark the end of stabilised sand dunes.

Hogga

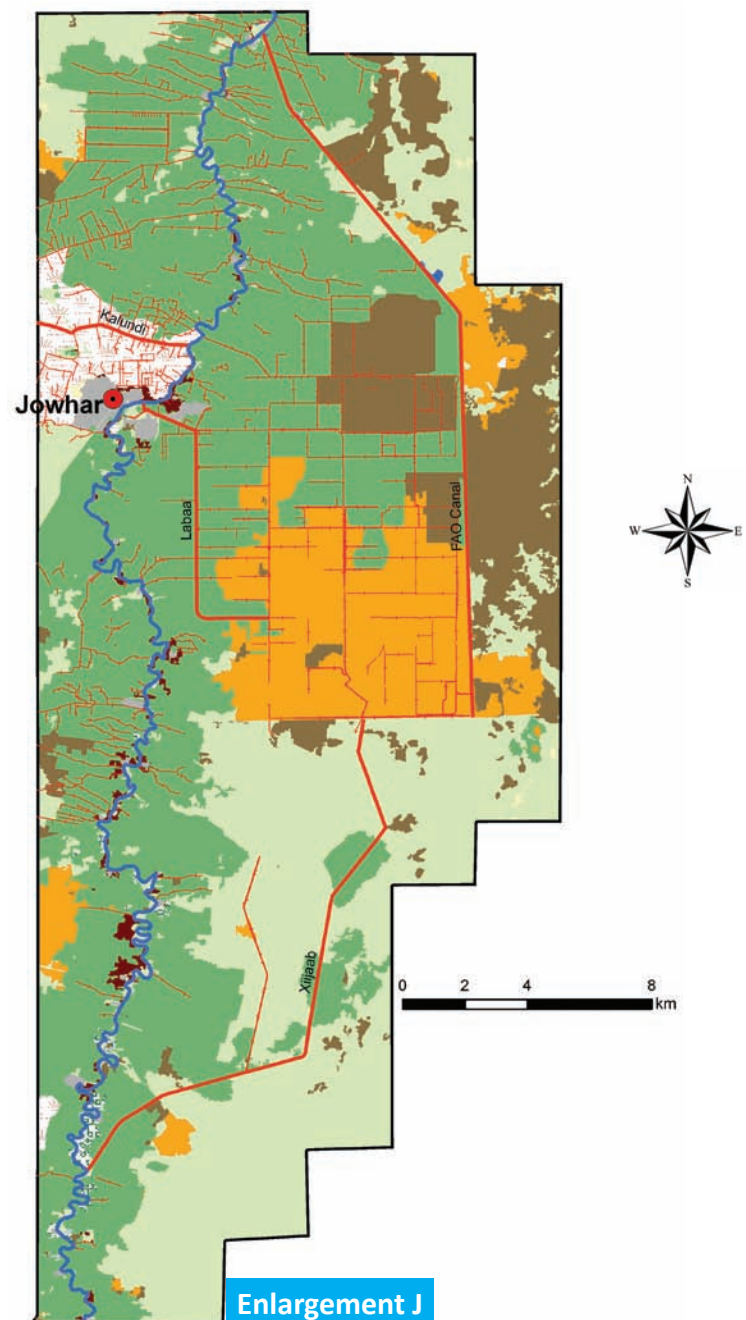
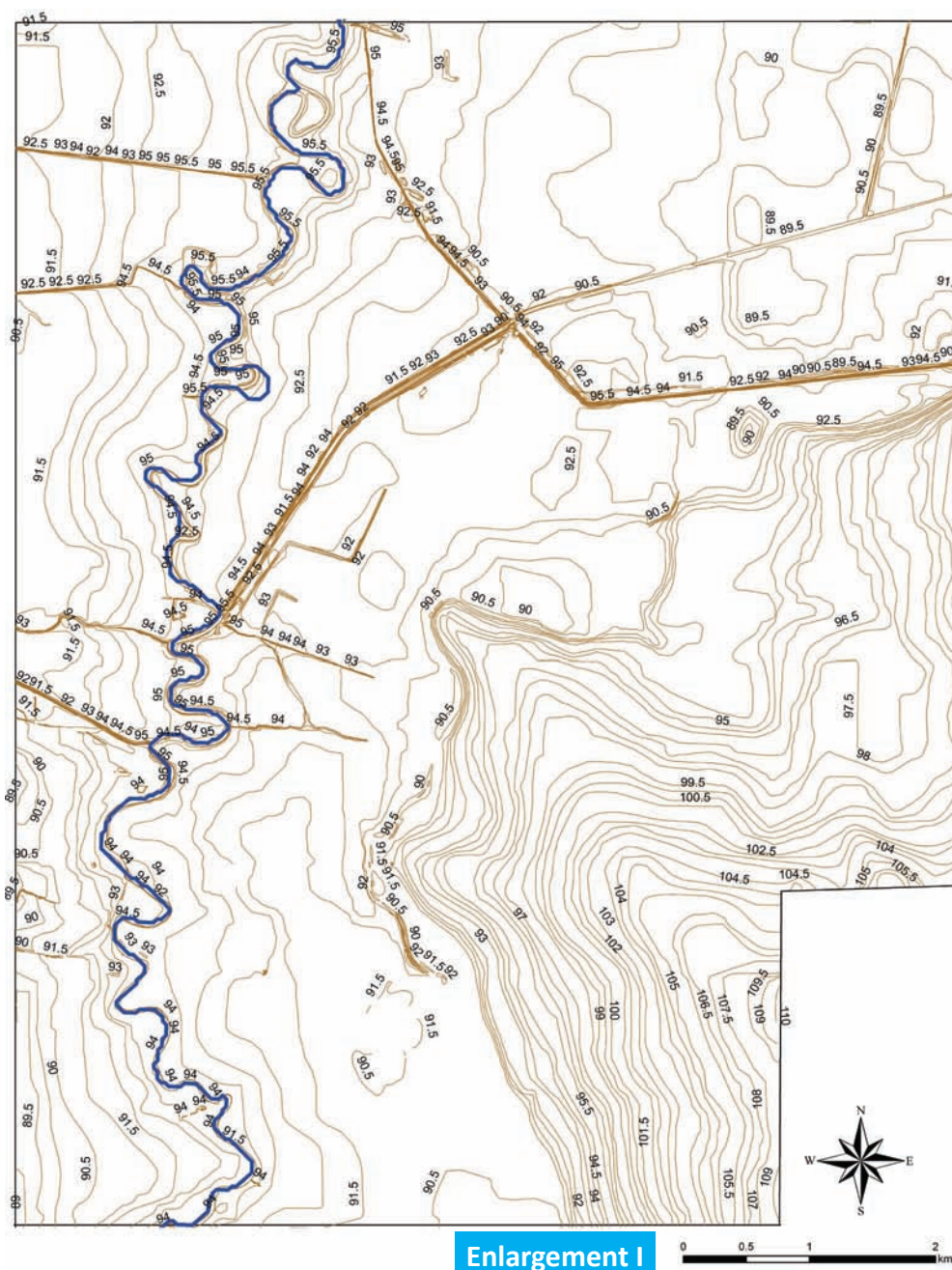
Degaankaan Jowhar, biyoshuka hoos ka jira magaalada, qiyaasta jooggu waa 90m ka kor heerka badda geyiguna waa siman yahay. Buuraha yaryar oo ku yaal dacalka midig ee khariidadda waxay astaynayaan meesha uu ku dhammaadka bacaadka xasiloon.

Land use and land cover

In this section of the river cereals are the dominant crop types. Crop fields occur along the river while the abandoned crop fields occur further away from the river. Mango crop fields are common in this area along the river.

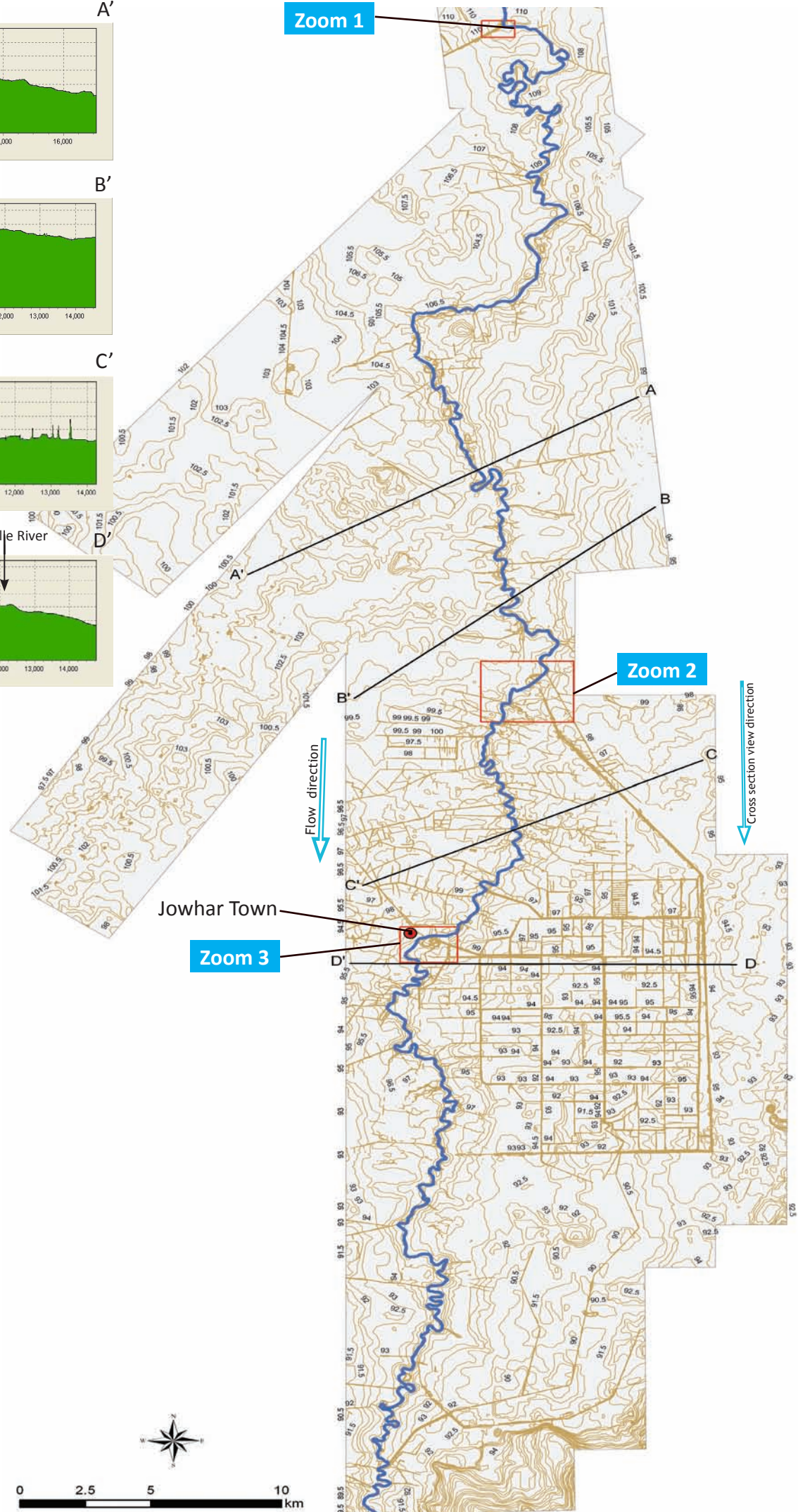
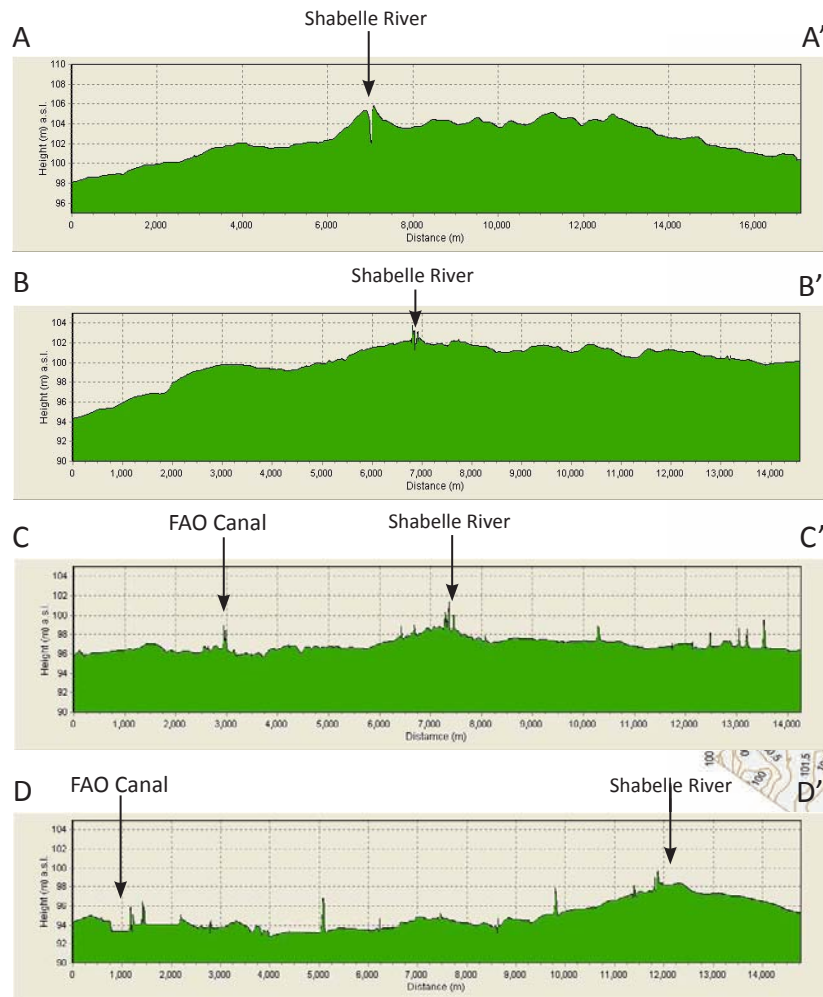
Isticmaalka dhulka iyo hu'ga dhulka

Qaytaan wabiga, badarka ayaa ugu badan noocyada dalagya. Beeraha dalagiyada waxay ku yaalaan hareeraha wabiga, halka beeraha laga tagay ay ku yaalaan meelaha ka fogfog wabiga.



Crops		
Cereals	Mango	Settlement
Mixed crops	Banana	Bare soil
Sesame	Mixed tree crops	River
Rice	Abandoned fields	Main canals
Coconut	Natural vegetation	Minor canals

Morphology Qaab-dhismaha



The contours depict higher elevation close to the river and lower elevation further away from the river. The two branches on the left side are areas where the water diverts during heavy floods.

From this contour map it is also clear that the river forms a smooth and convex bulge in the middle of the plain. This is well shown in cross sections A-A' and B-B'. Cross sections C-C' and D-D' show profiles across the FAO canal and other minor canals.

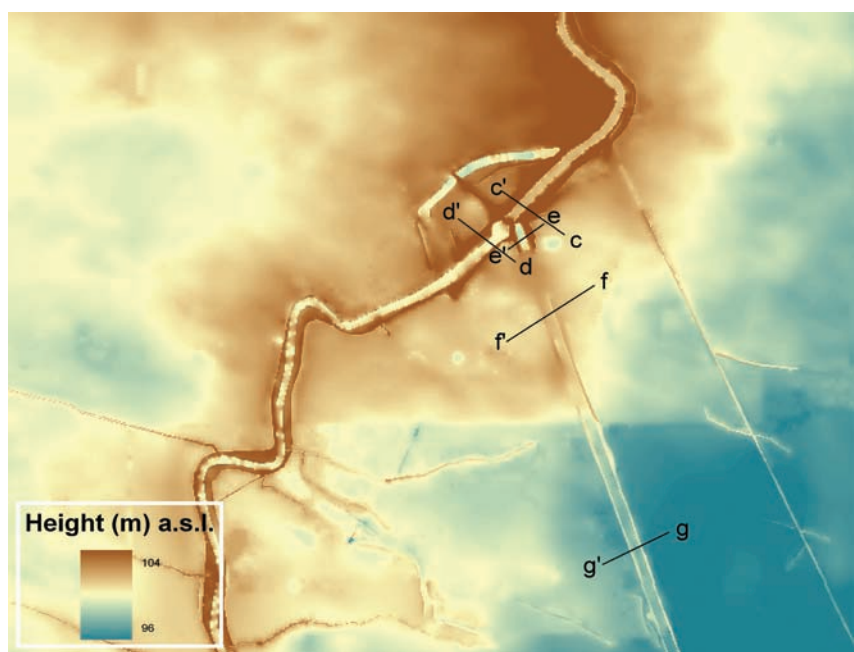
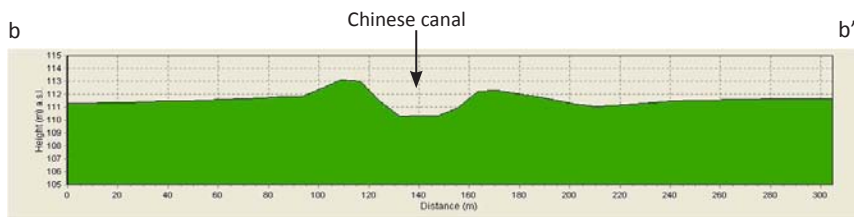
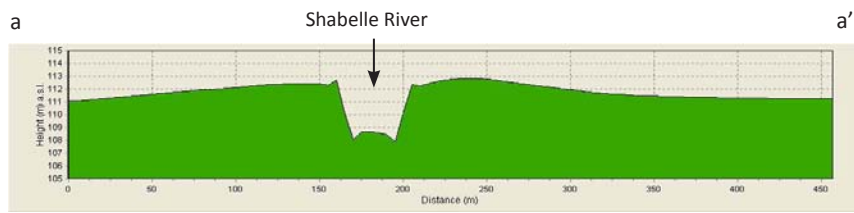
Due to the high resolution of the aerial photo dataset, the contour map clearly shows the irrigation canals in this area.

Meelaha xariijimaha joogga isle'eg leh waxay muujinayaan meelaha joogga sare leh ee u dhow wabiga, iyo joogga hooseeya oo ah meelaha ka fog wabiga. Labada laamood ee dhanka bidixeed ku yaal waa meelo ay biyuhu ka weecdaan waqtiga ay jiraan fatahaado culus.

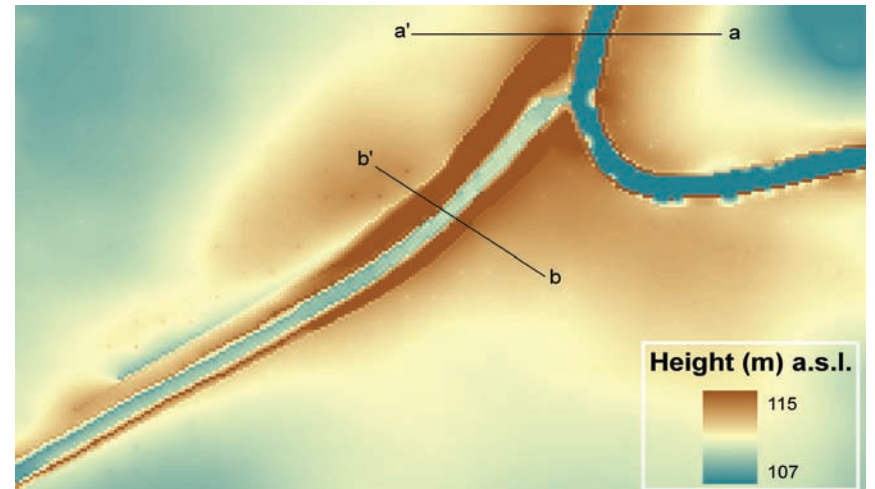
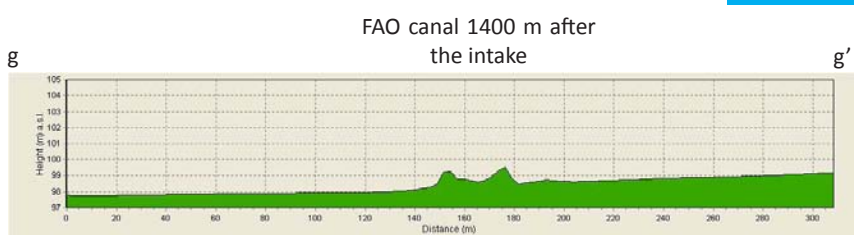
Khariidaddaan xariijimaha joogga isle'eg waxaa sidoo kale ku cad in wabigu uu sameeyo meelo simaan oo doon ah bartamaha bannaanka. Middaan waxaa lagu muujiyey jeexyada gudban ee A-A' iyo B-B'. Jeexyada guduban ee C-C' iyo D-D' waxay muujinayaa dhinaca gudubka ah ee kanaalka FAO iyo kanaalo kale oo yaryar.

Ayadoo ay ugu wacan tahay bayaamin heer sare ah oo lagu sameeyey xogta masawirka, khariidadda meelaha joogga isle'eg leh waxay si caadaan ah u tusinayaan keliyada waraabka.

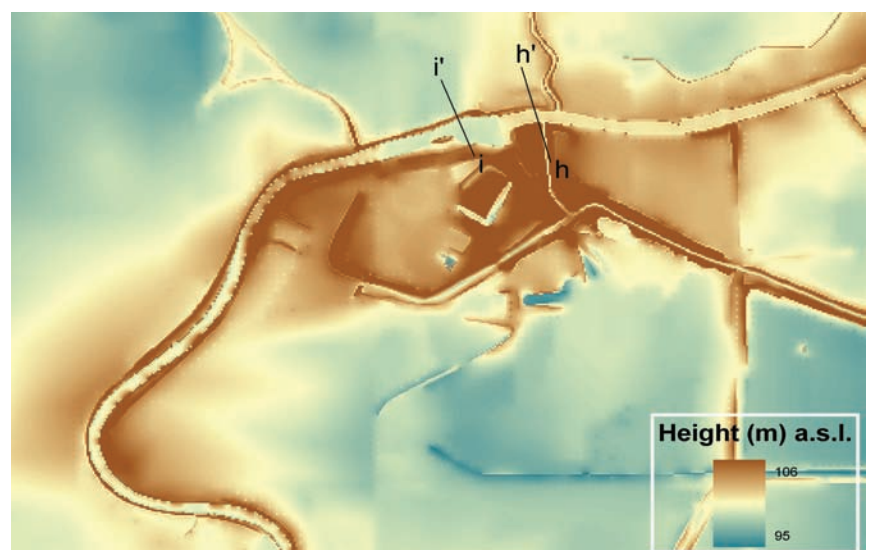
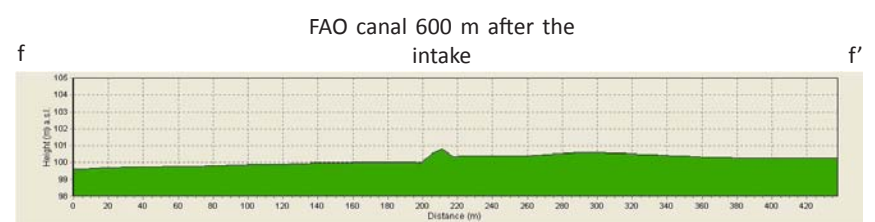
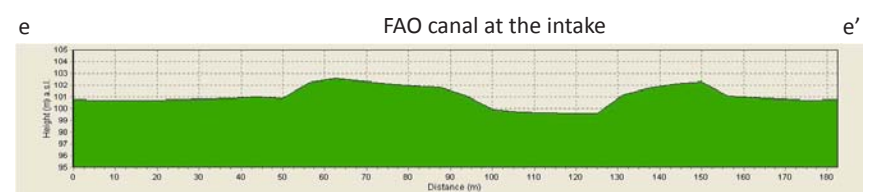
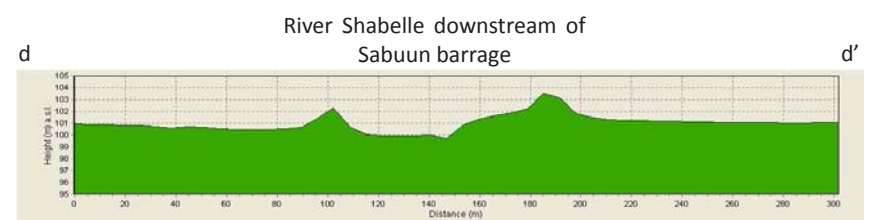
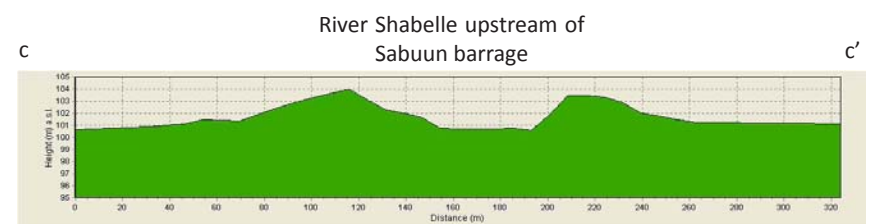
Morphology Qaab-dhismaha



Zoom 2



Zoom 1



Zoom 3

Roads and settlements Waddooyinka iyo degmooyinka

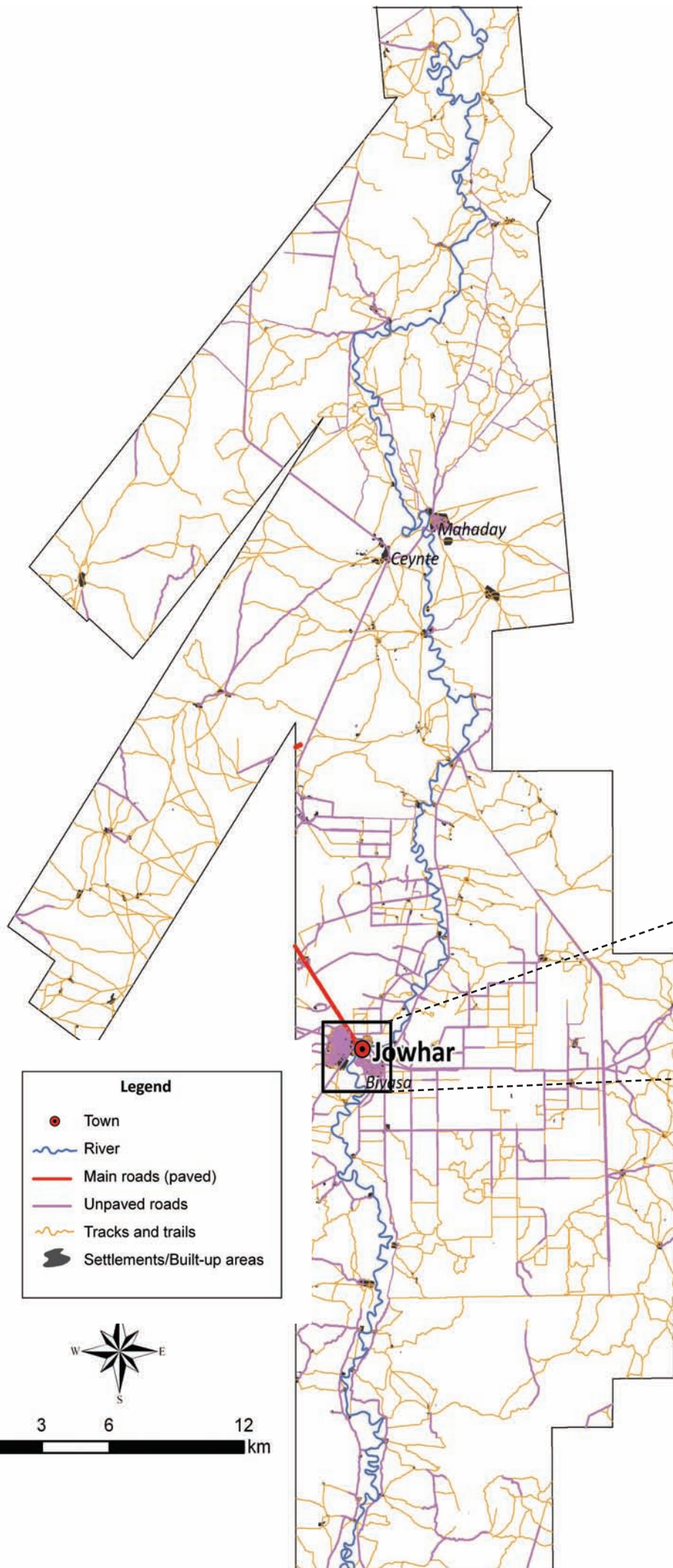
A large proportion of the road network consists of tracks and trails. Most of the sections are unpaved, only the main road is paved.

Qayb ballaaran oo ka mid ah isku jika waddooyinka wuxuu isugu jiraa jidad iyo wadiiqooyin. Meelaha ugu waaxyaha waddooyinka ma aha laami, jidka halbowlaha oo keliya ayaa laami ah.



Goods being transported by animal cart on Jowhar's bridge

Alaabo gaari gacan lagu wado oo maraya buundada Jowhar



Super structure of Mahaday Weyne bridge, located about 30 km upstream of Jowhar

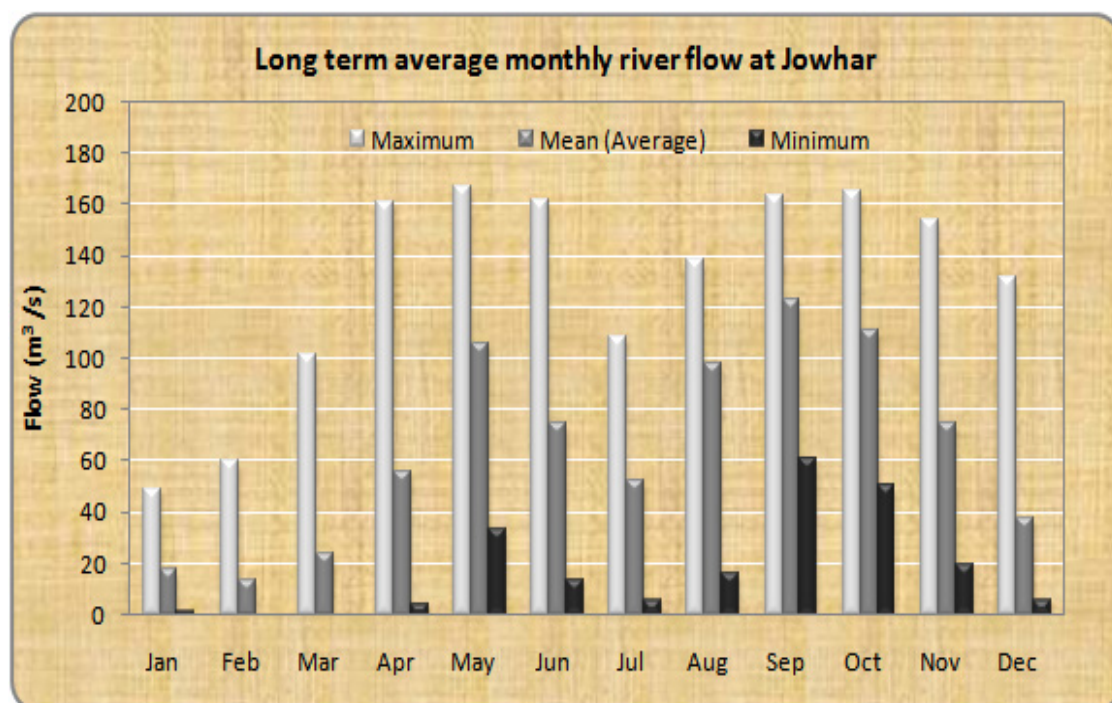
Dhisme oo xoog badan oo ah buundada Mahaday Weyne, oo ku taal qiyaas 30 km biyoshubka kor ka jira Jowhar

Climate and water resources Cimilad iyo khayraadka biyaha

Jowhar town is relatively wet, compared to many other parts of Somalia. The mean annual rainfall is 492 mm, most of which falls in the *Gu* and *Dayr* rainy seasons. The other months are very dry and warm, with maximum temperatures rising to above 35 °C.

Magaalada Jowhar waa qoyan tahay ilaa xad, marka loo eego meelo badan oo Soomaaliya ah. Celceliska roobabkeedu waa 492 mm sanadkii, aqlabiyad ahaan waxa roobabku uu da'aa xilli roobaadyada Gu'ga iyo Deyrta. Bilaha kale aad iyo aad bay qalayl iyo diiramaad u yihiin, markaasoo kulbeeggu gaaro in ka saraysa 35 °C.

Long term average climatic values at Jowhar												
Climatic variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rainfall (mm)	0.0	1.0	14.0	100.0	97.0	41.0	19.0	12.0	6.0	99.0	75.0	28.0
Mean temperature (°C)	27.5	28.5	29.5	29.5	28.3	26.6	25.5	25.8	26.8	27.5	27.2	27.1
Minimum temperature (°C)	21.1	21.5	22.5	23.2	23.0	21.6	20.8	20.8	21.3	22.0	21.8	21.5
Maximum temperature (°C)	34.0	35.2	36.2	35.7	33.6	31.5	30.1	31.0	32.3	32.8	32.6	32.5
Potential evapotranspiration (mm)	167	168	189	150	139	120	124	136	147	148	144	158
Wind speed (km/hr)	7.2	7.6	6.8	4.7	4.7	5.4	5.8	5.4	5.4	7.2	7.2	9.0



River gauge station details

Grid reference: 2:58:20 N, 45:31:50 E
Altitude: 104.0 m a.s.l
Catchment area: 255 300 km²
Daily mean flow: 65.0 m³/s
Current status: Operational

Seasonal variations in river flow at Jowhar is less pronounced than the upstream stations. The previous government had constructed some structures for diverting excess water during high flows and re-directing it to the river during low flows. Much of these structures are however no longer functional. A lot of water is diverted for irrigation around this area.

Isbedelada socodka biyaha wabiga ee Jowhar waa mid saameyn yar ku leh saldhigyada ku yaala xagga sare. Dawladii hore waxay dhista kaabayaal lagu duwo biyaha saa'idka ah xilliga socodka biyaha uu sareeyo ayadoo dib ugu soo celinaysa wabiga marku hoos u dhaco. Hadda kabayaashaas ma shaqeeyaan. Meeshaan biyo badan ayaa loo leexiyaa xagga waraabka sanadka oo dhan.

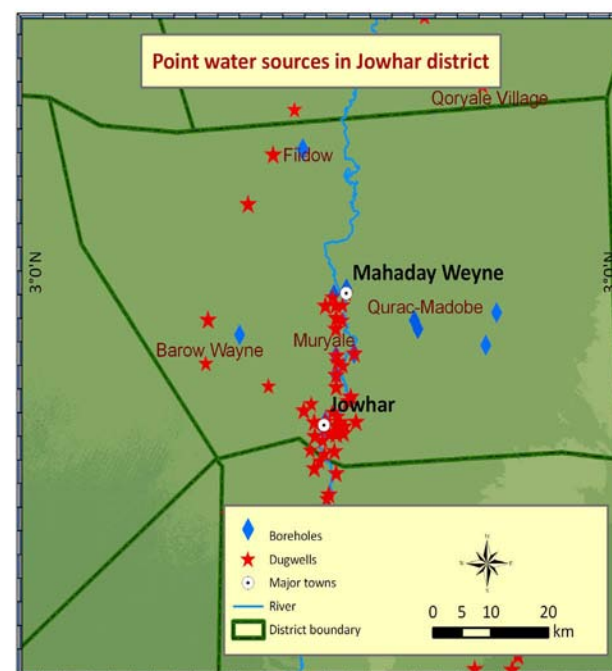


Locals and animals gather for the precious commodity from a shallow well near Jowhar town.

Dadka degaanka iyo duunyaduba waxa ku ururaan ceelasha gaagaaban oo u dhow magaalada Jowhar kuwaas oo wax qaali ah.

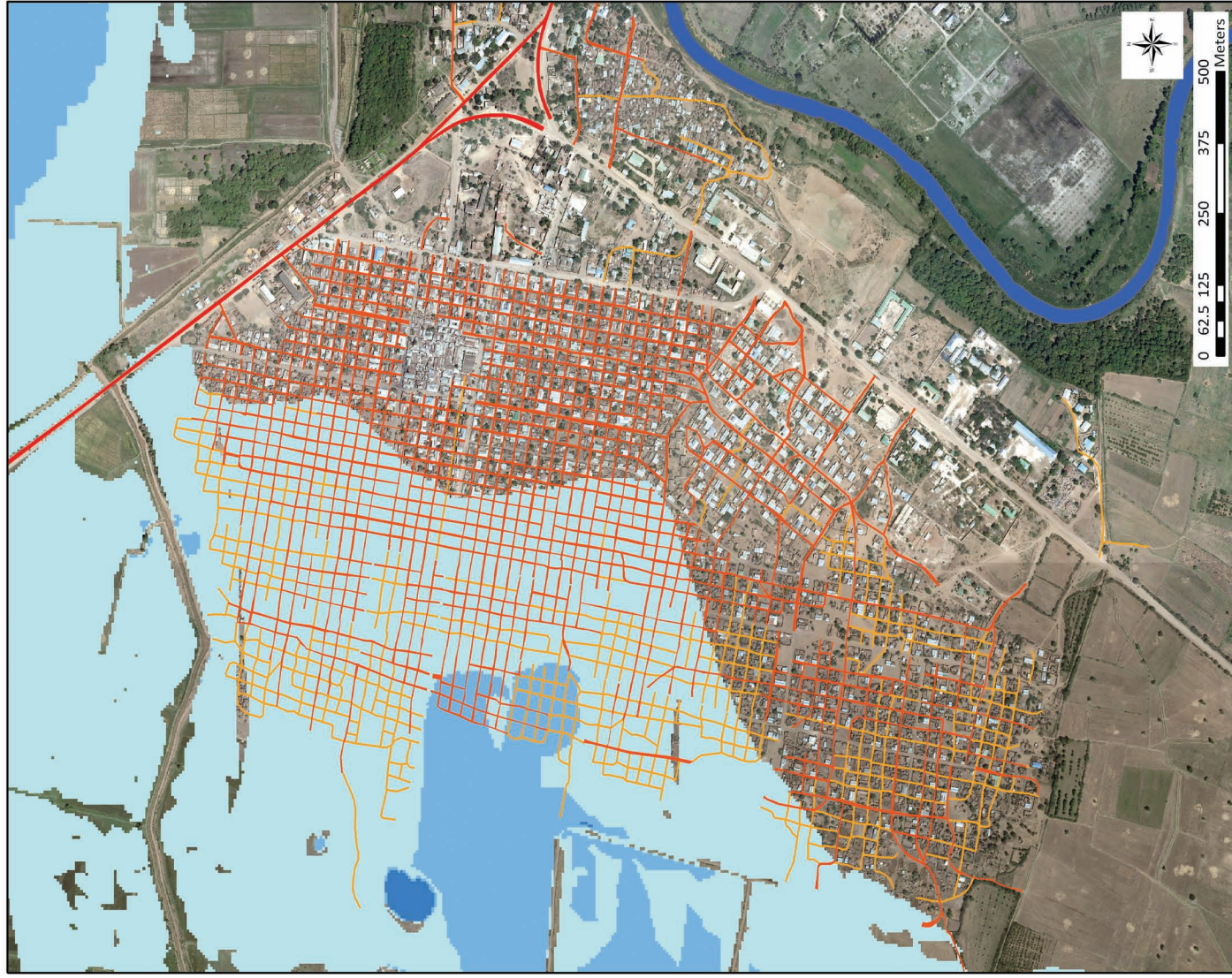
Jowhar town and its surrounding has many shallow wells as the main source of water for domestic consumption. A few boreholes also exist in the area. However, for irrigation purposes, the population rely more on water from the Shabelle River. Hygienically, protected wells provide better water than open water sources, hence the increased use of shallow wells for domestic consumption in the area.

Magaalada Jowhar iyo agagaarkeeda waxay leeyhiin ceelal gaagaaban oo badan kuwaas oo ah ilaha biyaha loo isticmaalo guriga. Meeshaan waxa kale oo ka jira waxooga ceelal riig ah ah. Si kastaba ahaatee, arrimaha xagga waraabka, dadku wuxuu ku tiirsan yahay badanaaba biyaha wabiga Shabeelle. Fayo dhowr ahaan, ceelasha ilayaashan ayaa laga helaa biyo fiican marka loo eego kuwa iska furan, sidaas darteed ceelasha gaagaaban waxa loo isticmaalaa arrimahaguriga.



Flood risk map for Jowhar - 5 year return period

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



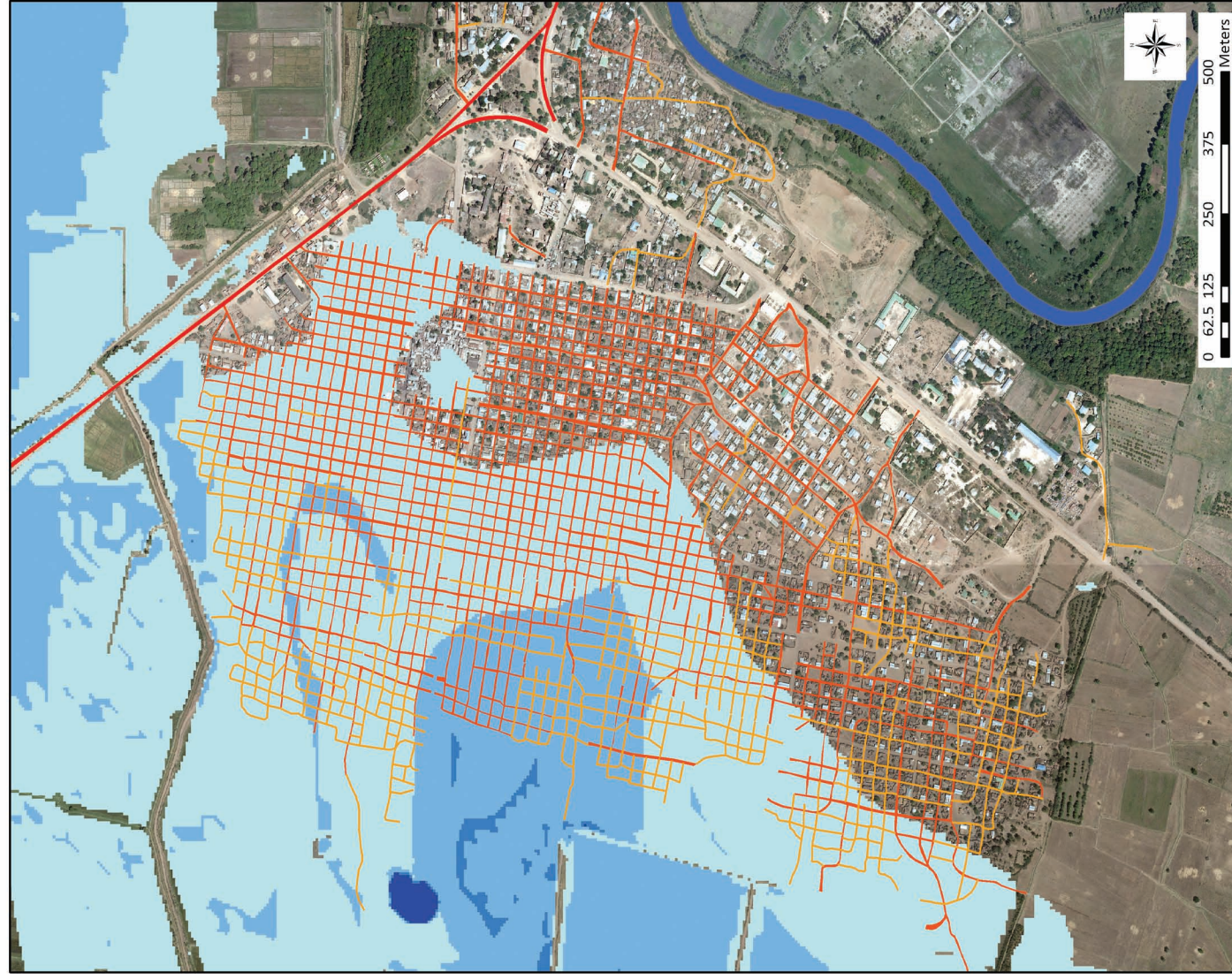
Flood water depth (m)



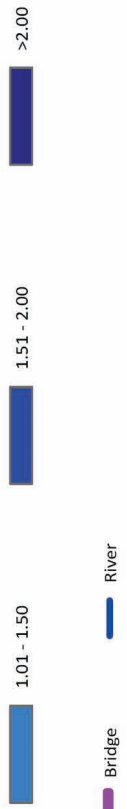
The flood risk scenarios (extent and depth) were generated using HEC-RAS hydrodynamic model. Inputs included observed flow data, river cross sections, DTM. For more information contact SWALIM (enquiries@faoswalim.org)

Flood risk map for Jowhar - 20 year return period

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



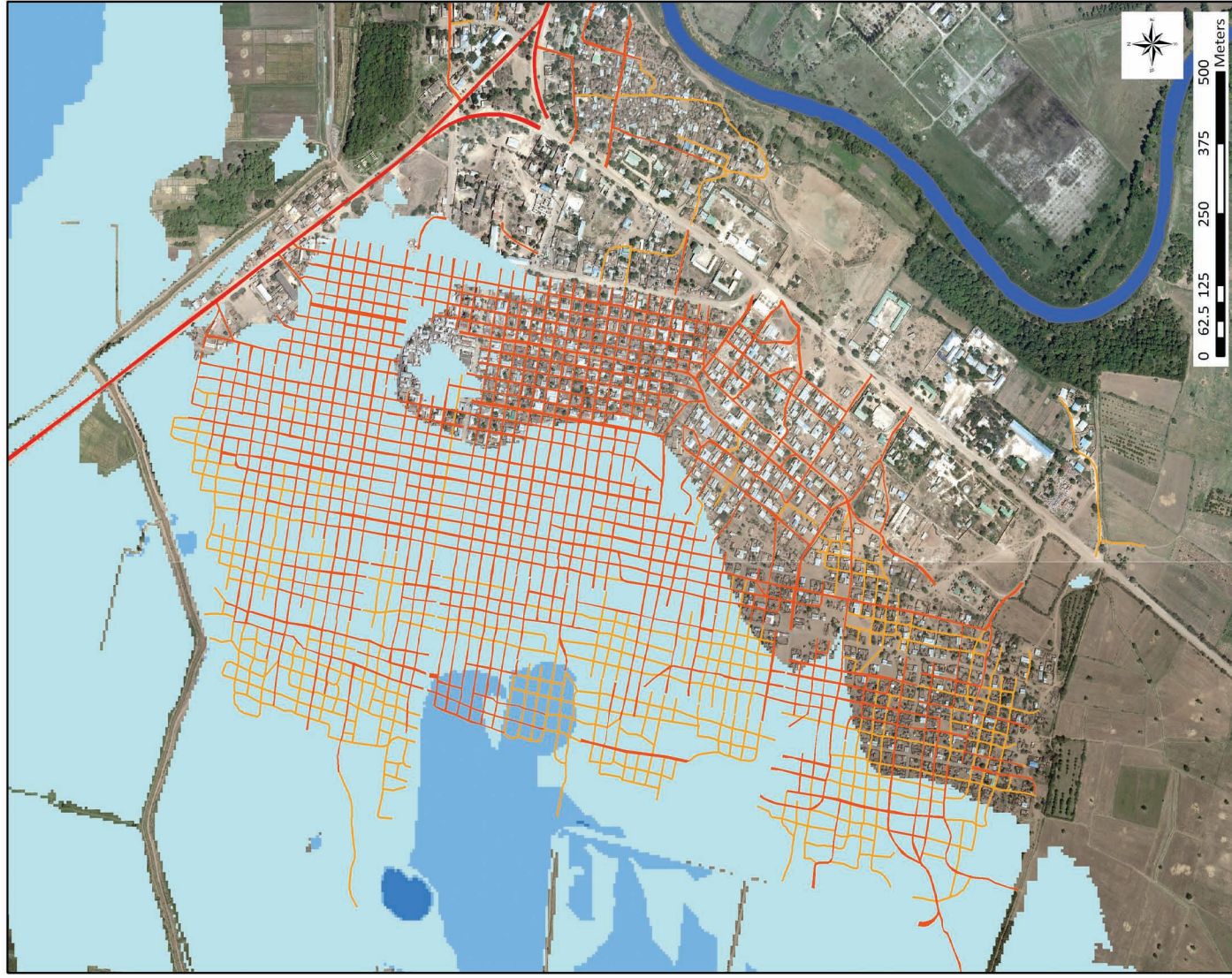
Flood water depth (m)



Flood risk map for Jowhar - 50 year return period

**Kharidadda halista fatahaadda ee Jowhar
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 bahato
SWALIM kala soo xiriir (enquiries@faoswallim.org)*



Flood risk map for Jowhar - 100 year return period

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

