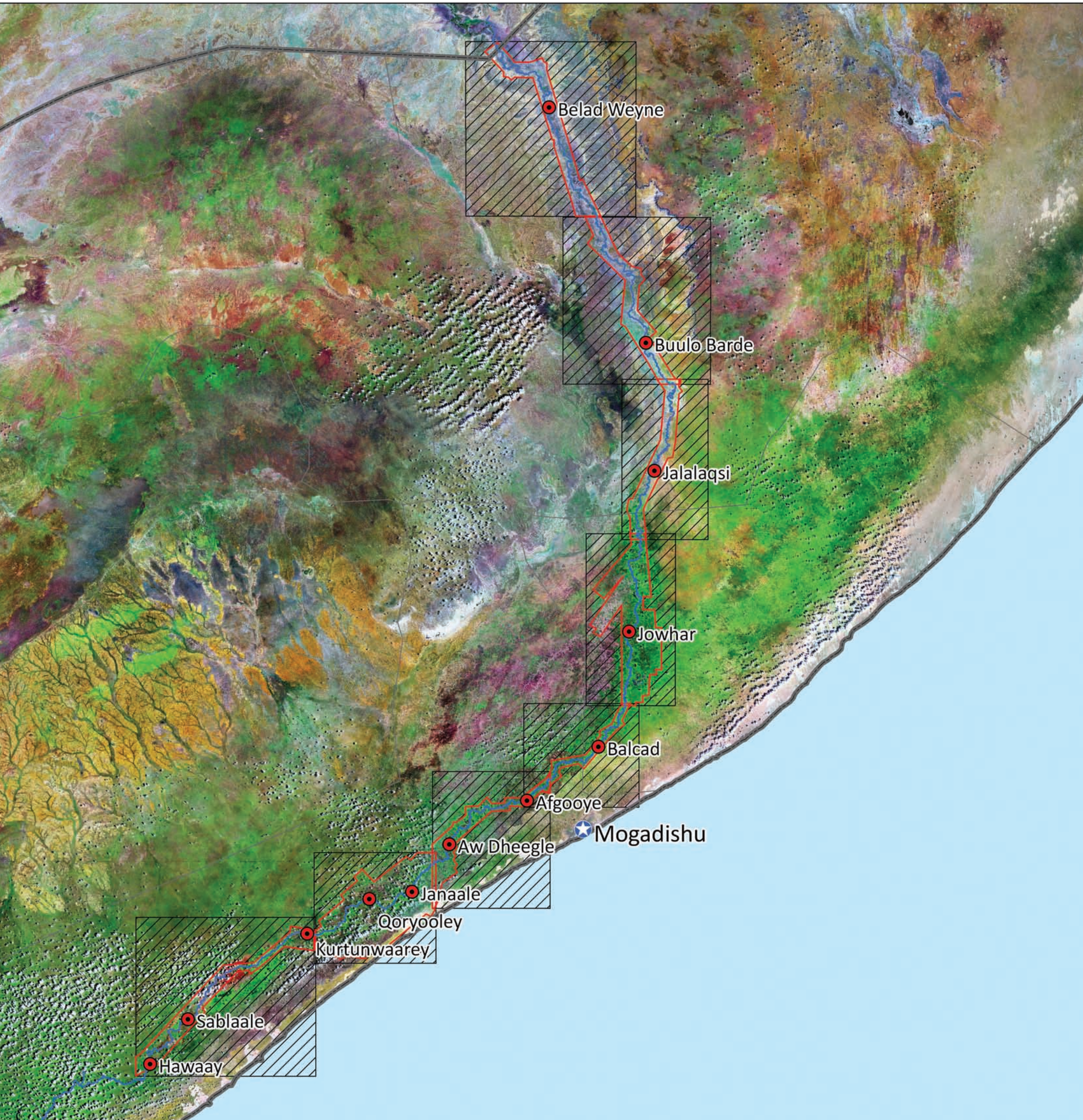


# Part 2

## Detailed characteristics of the Shabelle River

### Faahfaahinta sifaalaha Wabiga Shabeelle



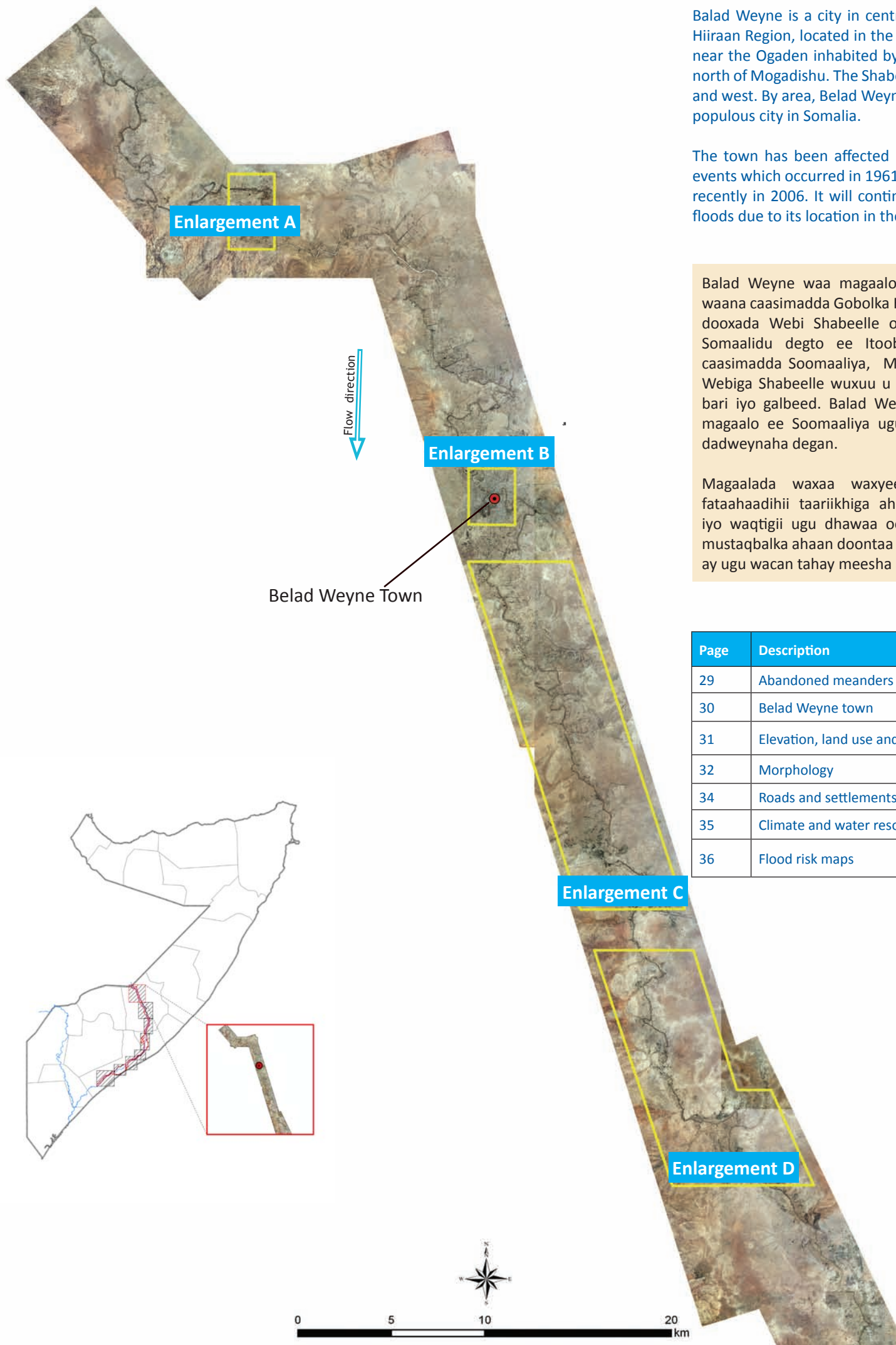
# Belad Weyne

Belad Weyne is a city in central Somalia. It is the capital of the Hiiraan Region, located in the central valley of the Shabelle River near the Ogaden inhabited by Somali Ethiopians, some 332 km north of Mogadishu. The Shabelle River divides the town into east and west. By area, Belad Weyne is one of the six largest and most populous city in Somalia.

The town has been affected by the major historical river flood events which occurred in 1961, 1977, 1981, 1997, 2005 and most recently in 2006. It will continue to be vulnerable to any future floods due to its location in the river plain.

Balad Weyne waa magaalo ku taal bartamaha Soomaaliya waana caasimadda Gobolka Hiiraan. Waxay ku taal bartamaha doxada Webi Shabeelle oo u dhaw gobolka Ogaden oo Somaalidu degto ee Itoobiya, waxay waqooyi ka jirtaa caasimadda Soomaaliya, Mogadishu, qiyaas ahaan 332 km. Webiga Shabeelle wuxuu u qaybiyaa magaalada labo dhinac bari iyo galbeed. Balad Weyne wuxuu ka mid yahay 6-da magaalo ee Soomaaliya ugu waaweyn xagga baaxadda iyo dadweynaha degan.

Magaalada waxaa waxyeelo u geystay dacdooyinkii fataahaadihii taariikhiga ahaa ee 1961, 1977, 1981, 2005 iyo waqtigii ugu dhawaa oo ahaa 2006. Magaaladu waxay mustaqbalka ahaan doontaa mid halis ugu jirta daadad ayadoo ay ugu wacan tahay meesha ay kaga taal doxada webiga.



Page	Description	Enlargement
29	Abandoned meanders	A
30	Belad Weyne town	B
31	Elevation, land use and land cover	C, D
32	Morphology	n/a
34	Roads and settlements	n/a
35	Climate and water resources	n/a
36	Flood risk maps	n/a

## Abandoned meanders Leexleexyada wabigu ka guuray



The abandoned meanders are highlighted by the red dotted lines. These are old river flow paths. Due to the different soil qualities, some of these paths still retain soil moisture better and thus are preferable places for agriculture. The brownish colour of the river reflects the high sediment content, even in the middle of the dry season when the photo was taken.

Dhul leexleexyada wabigu ka guuray waa hore waxaa lagu bidhaamiyey astaan xarriqo-dhibco-dhibco casaan ah (dotted lines). Kuwaan waa marinnadii hore oo webigu ku qulquli jirey waayihii hore. Tayada carrada oo kala duwan awgeed, qaar ka mid ah marinnadaan webigu marijrey, si wanaagsan ayey qoyaanka biyaha u qabsadaan, sidaas darteed waa meelo la doorbido in la beerto. Midabka xareedda ah ee webigu wuxuu ku tusinayayaa walxaha dhoobada ah oo ku badan biyaha webiga, sida ka muuqata sawirkan waqtigii la qaadayey oo ahayd qiyaastii Jiilaalka bartankiisa.

## Belad Weyne town Magaalda Belad Weyne



Enlargement B

Belad Weyne town is a commercial centre serving the eastern parts of Ethiopia and Somalia. The main road passing through this town connects the southern regions to the northern part. The two bridges provide access to all parts of the town, with the bridge on the western side linking to Bakool region.

Magaalda Belad Weyne waa xarun ganacsi oo ay ka adeegtan qaybaha bari ee Itoobiya iyo sidoo kale oo Soomaaliya ka tirsan. Wadada guud ee dhex marta magaalada waxay isku xirtaa gobollada koonfureed iyo qaybaha waqooyi ee dalka. Labada buundo (kaabadood) waxaa la isaga gudbaa qaybaha magaalada, weliiba kaabadda koonfureed waxay ku xiriirisa Gobolka Bakool.

## Elevation, land use and land cover

### Joogga, isticmaalka dhulka iyo hu'ga dhulka

#### Elevation

The morphology of this area varies on both sides of the river resulting in an asymmetric valley with a much steeper side on the west. Settlements are located very close to the river for easy access to water.

#### Joogga

Qaab dhismaha dhulka degaankaan waa kala duwan yahay labada dhinac ee wabiga ayadoo ay ugu wacan tahay dooxa webiga oo aan sinayn oo xagga galbeedka uu aad hoobad u yahay. Degmooyinku aad ayey ugu dhaw yihiin wabiga waayo biyaha ayaa si fudud looga dhaansadaa.

#### Land use and land cover

The land cover in this section of the river shows that agricultural areas are located very close to the river channel to facilitate irrigation. No big irrigation schemes exist in this area – farmers convey water to their fields through small hand-dug canals.

Most of the natural vegetation in this area is open and very open shrubs of Acacia species.

#### Isticmaalka dhulka iyo hu'ga dhulka

Huga dhulka waaxdaan wabiga waxay muujinaysaa in dhulka la beerto uu ku yaal inta u dhaw wabiga oo waraabku ka suurogalo. Waaxdaan kuma yaaliin beero waaweyn. Beeraleydu waxay beertooda biyaha ku gaarsiiyaan keliyo yaryar oo gacanta lagu qoday.

Dhirta dabiiciga ah ee degaankaan waa geedgaab qodaxle ah oo kala tagsan ama aad u kala tagtagan.



Enlargement C



Enlargement D

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

# Morphology Qaab-dhismaha

This section of the Shabelle River has mixed morphology with some sections of the river above the flood plain and others below it.

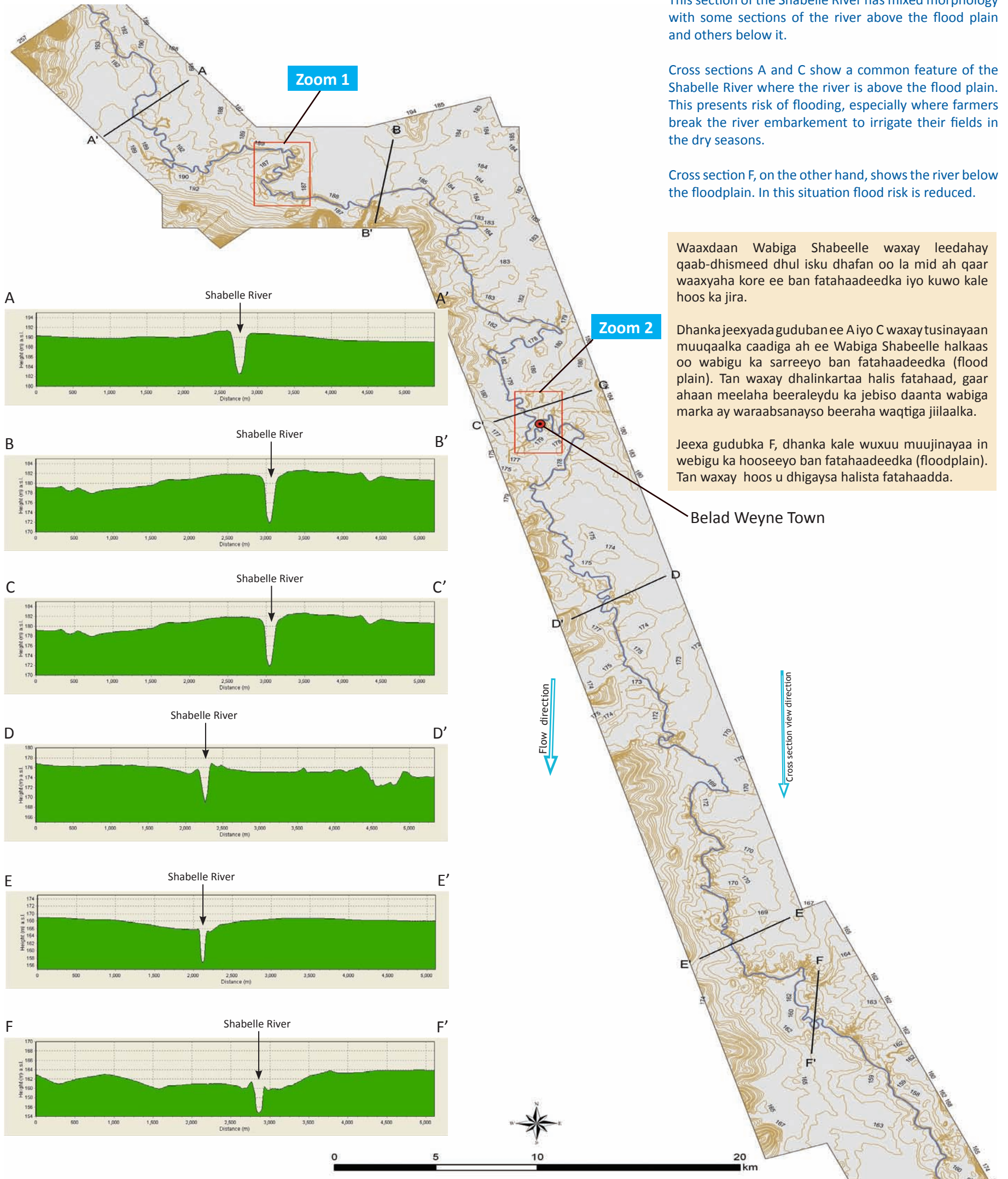
Cross sections A and C show a common feature of the Shabelle River where the river is above the flood plain. This presents risk of flooding, especially where farmers break the river embankment to irrigate their fields in the dry seasons.

Cross section F, on the other hand, shows the river below the floodplain. In this situation flood risk is reduced.

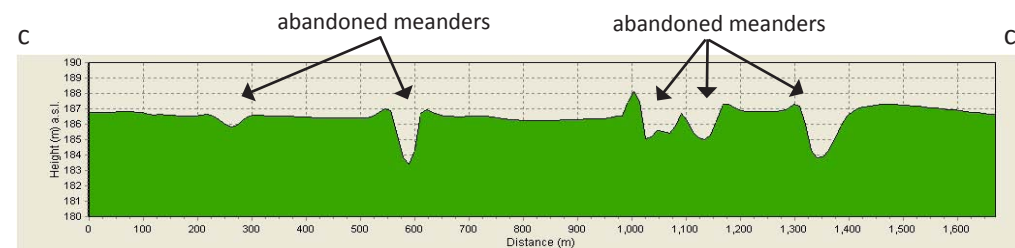
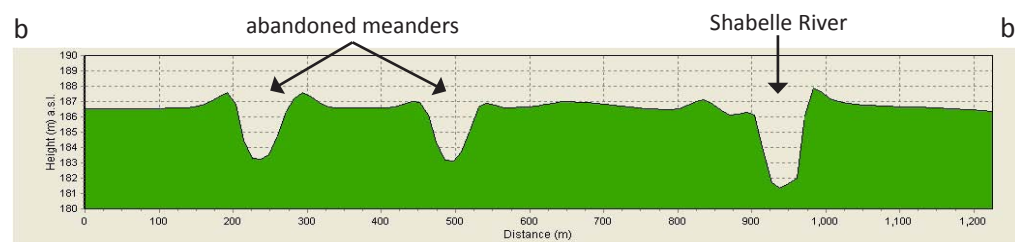
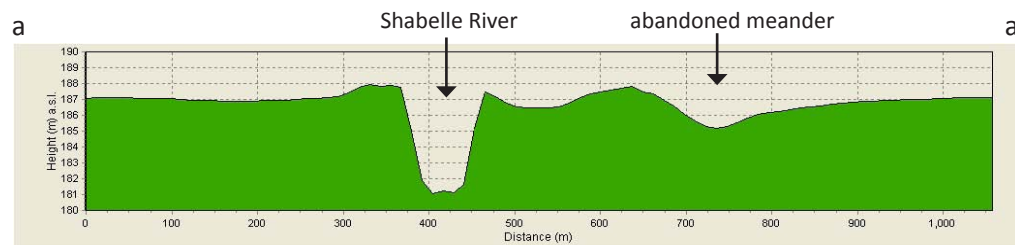
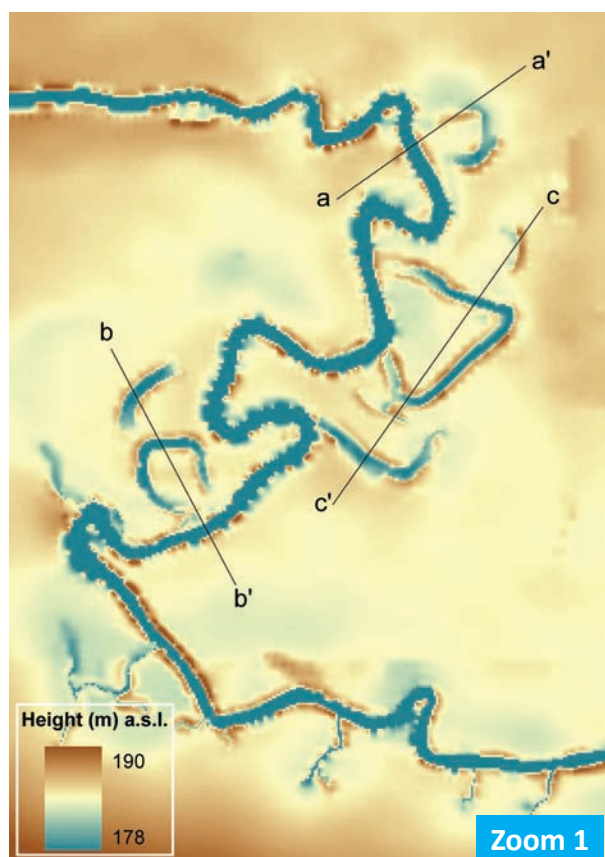
Waxdaan Wabiga Shabeelle waxay leedahay qaab-dhismeed dhul isku dhafan oo la mid ah qaar waaxyaha kore ee ban fatahaadeedka iyo kuwo kale hoos ka jira.

Dhanka jeexyada guduban ee A iyo C waxay tusinayaan muuqaalka caadiga ah ee Wabiga Shabeelle halkaas oo wabigu ka sarreeyo ban fatahaadeedka (flood plain). Tan waxay dhalinkartaa halis fatahaad, gaar ahaan meelaha beeraleydu ka jebiso daanta wabiga marka ay waraabsanayso beeraha waqtiga jiilaalka.

Jeexa gudubka F, dhanka kale wuxuu muujinayaa in webigu ka hooseeyo ban fatahaadeedka (floodplain). Tan waxay hoos u dhigaysa halista fatahaadda.



## Morphology Qaab-dhismaha

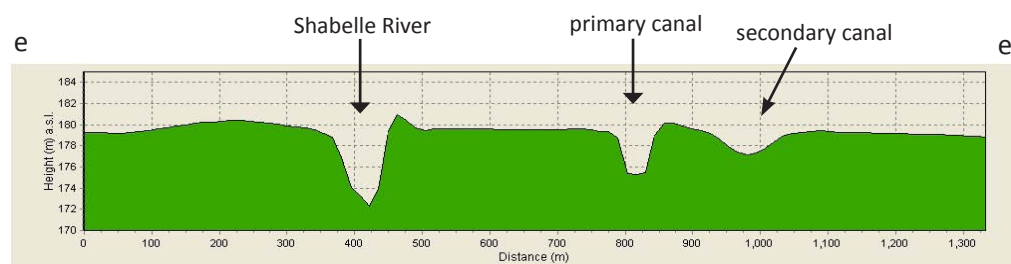
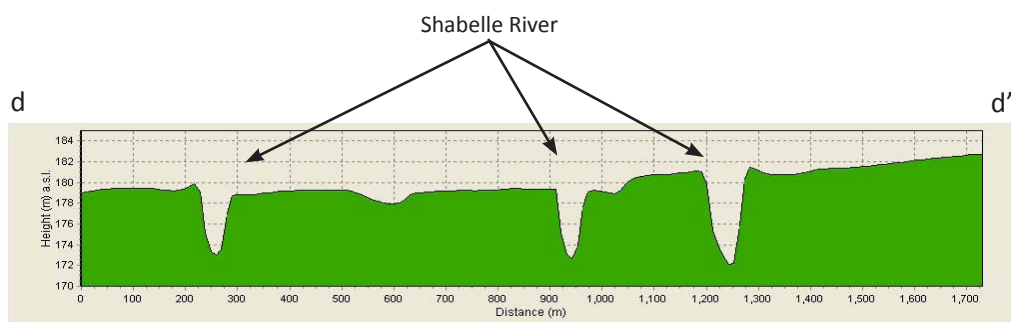


Above: cross sections have been drawn across the same area shown on page 29 - the section of the river with abandoned meanders. From sections a to c, it is quite evident that the abandoned meanders, though not active, still have a profound topographic impact on the landscape, and can host flood waters during high flows. The shallower the meanders, the longer they have been abandoned and had time to fill with silt and sediments.

Below: two cross sections are drawn across the river as it flows through the town of Belad Weyne (page 30), showing different elevations in different parts of the town.

Kor: waaxaa la muujiyey jeexa gudubka ee isla degaanka sida muuqata bogga 29 – Waaxda wabiga oo leh leexleeyo hore oo uu ka guuray. Laga bilaabo waaxyaha a ilaa c, waxaa aad ugu cad in leexleexadkii hore ee webiga ka tagay, inkasta oo hadda aysan shaqayn, in ay raad qotodheer ku leeyihiin muuqaalka toobogarafiyadda ee baxaalliga guud (landscape) ee dhulka, waxayna ceshan karaan biyaha daadka marka uu jiro biyosocod xoog leh. Leexleexba inta uu ka qoto gaaban yahay kan kale waxay muujinaysaa inuu ka da'weyn yahay kan kale oo mar ka horeysa laga tagay, wuxuuna helay waqti ay ka buuxsanto carro iyo dhoobo degtey.

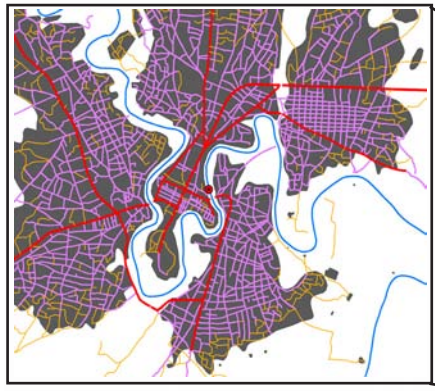
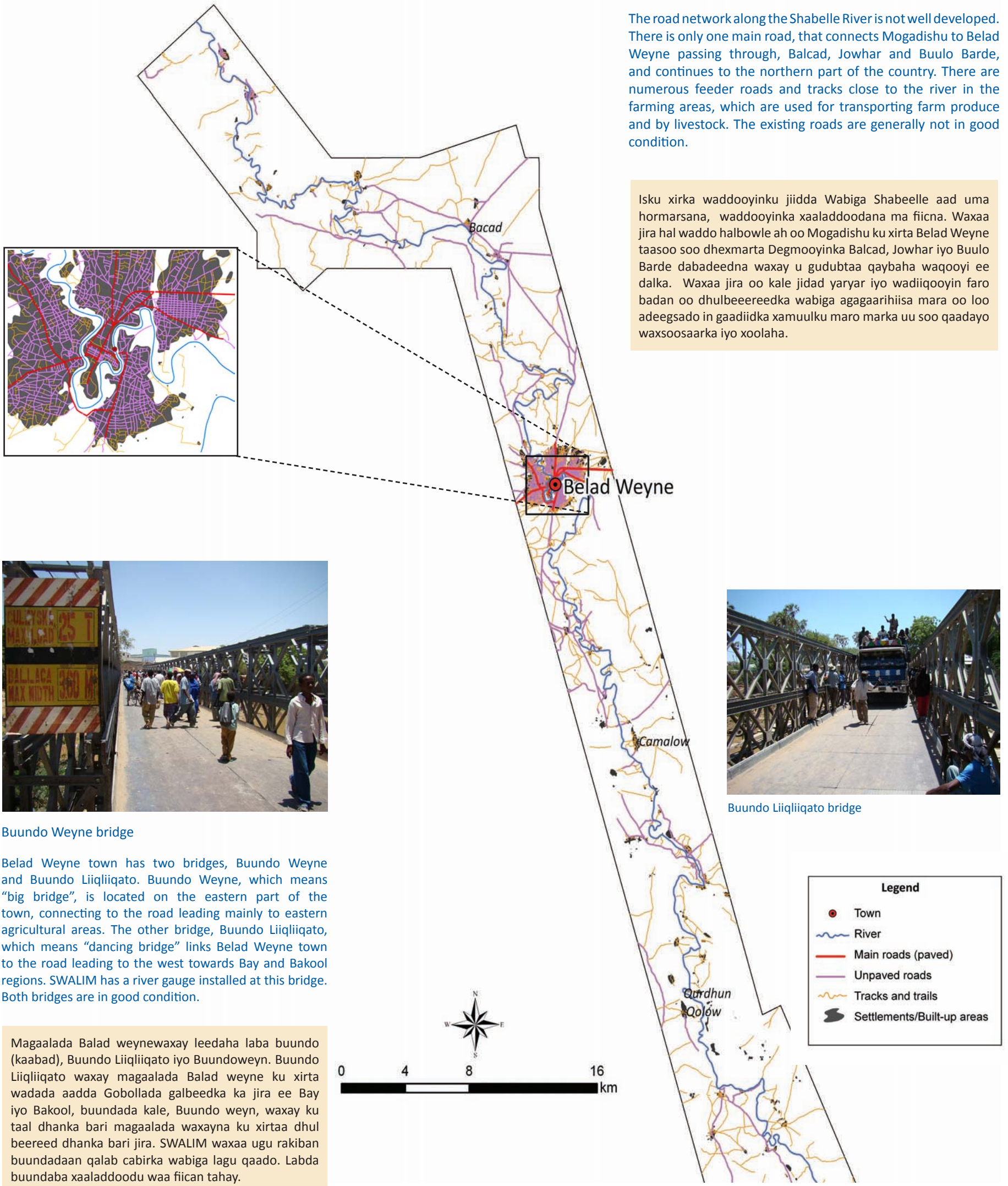
Hoos, waxaa lagu sawiray laba jeexyo gudban (kala dhambalan) (cross sections) oo wabiga asaga oo dhexmaraya Magaalada Balad Weyne (Bogga 30), wuxuuna ku tusinayaa joogag kala duwan (different elevations) oo ah qaybaha joogga kala duwan oo ku yaal qaybaha kala duwan ee magaalada.



## Roads and settlements Waddooyinka iyo degmooyinka

The road network along the Shabelle River is not well developed. There is only one main road, that connects Mogadishu to Belad Weyne passing through, Balcad, Jowhar and Buulo Barde, and continues to the northern part of the country. There are numerous feeder roads and tracks close to the river in the farming areas, which are used for transporting farm produce and by livestock. The existing roads are generally not in good condition.

Isku xirka waddooyinku jiidka Wabiga Shabeelle aad uma hormarsana, waddooyinka xaaladdoodana ma fiicna. Waxaa jira hal waddo halbowle ah oo Mogadishu ku xirta Belad Weyne taasoo soo dhexmarta Degmooyinka Balcad, Jowhar iyo Buulo Barde dabadeedna waxay u gudubtaa qaybaha waqooyi ee dalka. Waxaa jira oo kale jidad yaryar iyo wadiiqooyin faro badan oo dhulbeereedka wabiga agagaarihiisa mara oo loo adeegsado in gaadiidka xamuulku maro marka uu soo qaadayo waxsoosaarka iyo xoolaha.



Buundo Weyne bridge

Belad Weyne town has two bridges, Buundo Weyne and Buundo Liiqliqato. Buundo Weyne, which means “big bridge”, is located on the eastern part of the town, connecting to the road leading mainly to eastern agricultural areas. The other bridge, Buundo Liiqliqato, which means “dancing bridge” links Belad Weyne town to the road leading to the west towards Bay and Bakool regions. SWALIM has a river gauge installed at this bridge. Both bridges are in good condition.

Magaalada Balad weyn waxay leedahay laba buundo (kaabad), Buundo Liiqliqato iyo Buundoweyn. Buundo Liiqliqato waxay magaalada Balad weyne ku xirta wadada aadda Gobollada galbeedka ka jira ee Bay iyo Bakool, buundada kale, Buundo weyn, waxay ku taal dhanka bari magaalada waxayna ku xirtaa dhul beereed dhanka bari jira. SWALIM waxaa ugu rakiban buundadaan qalab cabirka wabiga lagu qaado. Labda buundaba xaaladdoodu waa fiican tahay.



Buundo Liiqliqato bridge

**Legend**

- Town
- ~ River
- Main roads (paved)
- - - Unpaved roads
- ~ Tracks and trails
- Settlements/Built-up areas

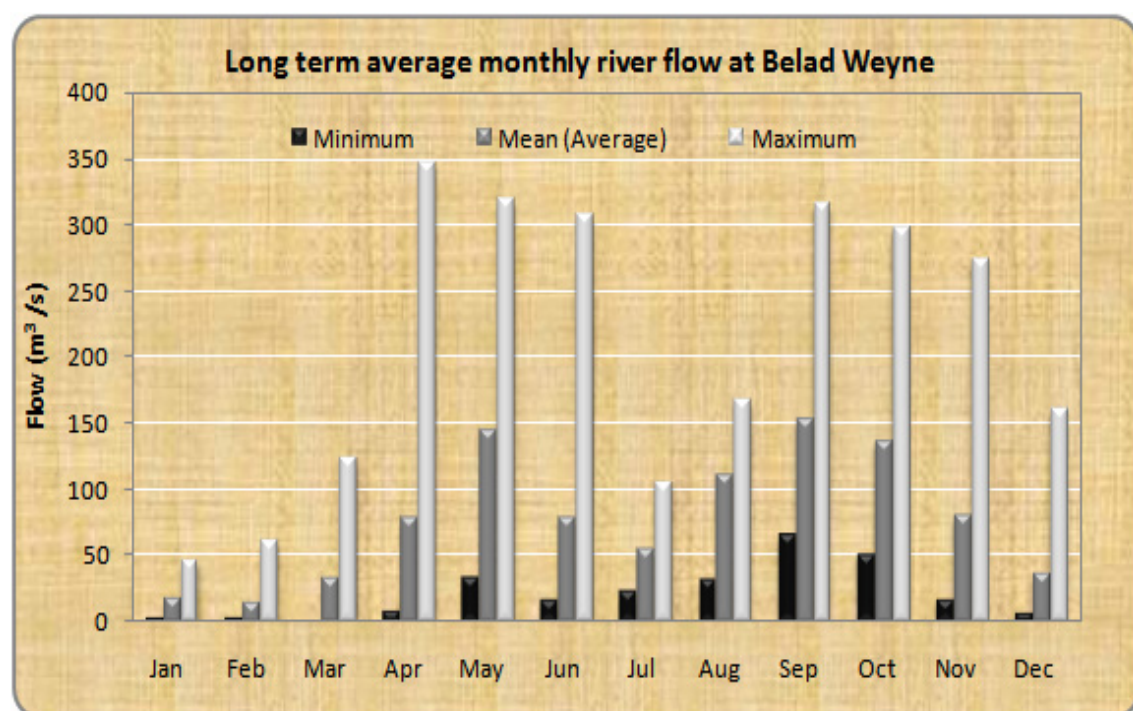


## Climate and water resources Cimilad iyo khayraadka biyaha

Balad Weyne has a mean annual rainfall of 330 mm. Most of the rains fall in the months of April and May and October and November. Temperatures are high, over 20 °C throughout the year, and are the main factor responsible for the high evapotranspiration rate in this region.

Balad Weyne waxay heshaa roob dhan 330 mm celcelis ahaan sanadkii. Badanaba roobabku waxay da'aan bilaha Abril ilaa May iyo Oktobar ilaa Nofambar. Kulbeeggu waa sareeya, oo ka badan 20 °C sanadka oo dhan, waxana ka masuul ah qadarka sare ee uumibaxa gobolka.

Long term average climatic values at Belad Weyne												
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: 4:44:0N, 45:12:20E  
Altitude: 176.0 m a.s.l  
Catchment area: 207 000 km<sup>2</sup>  
Daily mean flow: 80.0 m<sup>3</sup>/s  
Current status: Operational

River flow in Belad Weyne follows a bi-annual pattern, reaching peaks in the *Gu* and *Dayr* rainy seasons. Seasonal flow variation at the station is however great, and most of the flow occur during the wet season or soon after. River levels remain low during dry season even though the river never dries completely.

Socod biyaha wabiga ee Balad Weyne waa mid hannaan laba-sanadle oo gaara fiidda xilliga roobabka Gu'ga iyo Deyrta. Isbedelka socodka biyaha xilliilaha ee saldhiga waa mid wayn, inta badan socodkaas waxu yimaadaa xilliga qoyan ama in yar dabadeed. Heerka biyaha wabiga wuxuu gaaraa halka ugu hoosaysa xilliga qaleyilka ah in kastoo wabigu gabi ahaan qalalin.

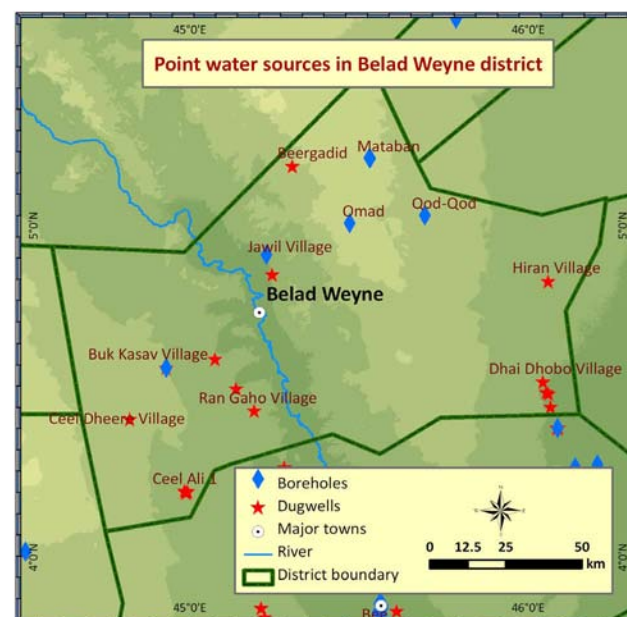


Residents of Belad Weyne collecting water from a shallow well located within the town

Dadka degan Balad Weyne waxay ka dhaansadaan ceelasha gaagaaban ee ku yaal magaalada dhexdeeda

Balad Weyne town is surrounded by the meandering Shabelle River, and the water table is generally shallow along the river. There are a number of shallow wells and boreholes around the town where some locals obtain water from. The rest of the population obtain water directly from the river.

Magaalada Balad Weyne waxa ku wareegsan wabiga Shabeele oo leex leexda iyo biyaha dhulka gudihiisa inta lagu gaaro badanaa waa dhawdahay siiba jiidda jiinka wabiga. Waxa ku yaal magaalada agagaarkeeda tiro ceelal gaagaaban iyo kuwo riig ah kuwaas oo dadku ka helaan biyaha. Dadka intiisa kale waxay toos uga dhaansadaan biyaha wabiga.



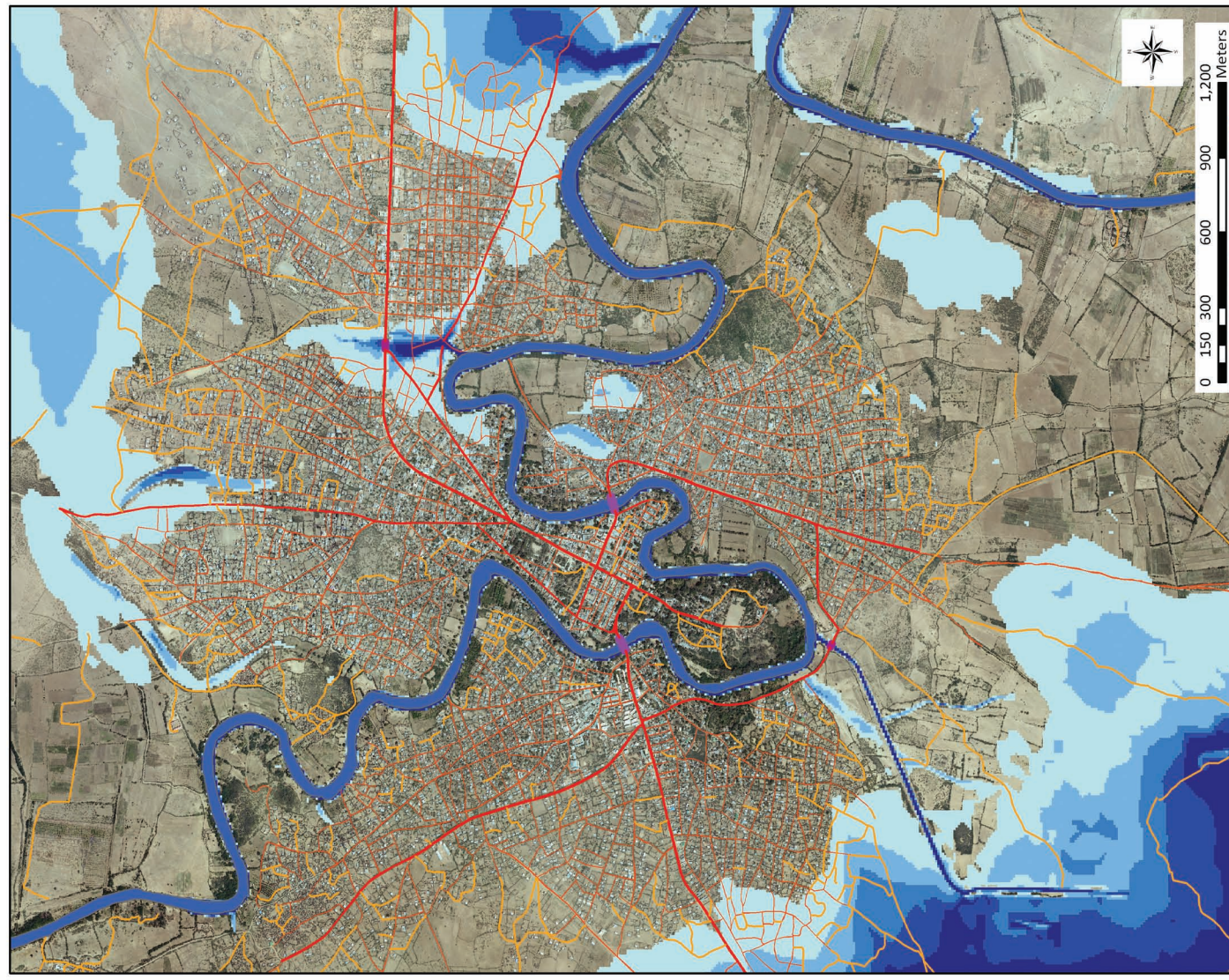
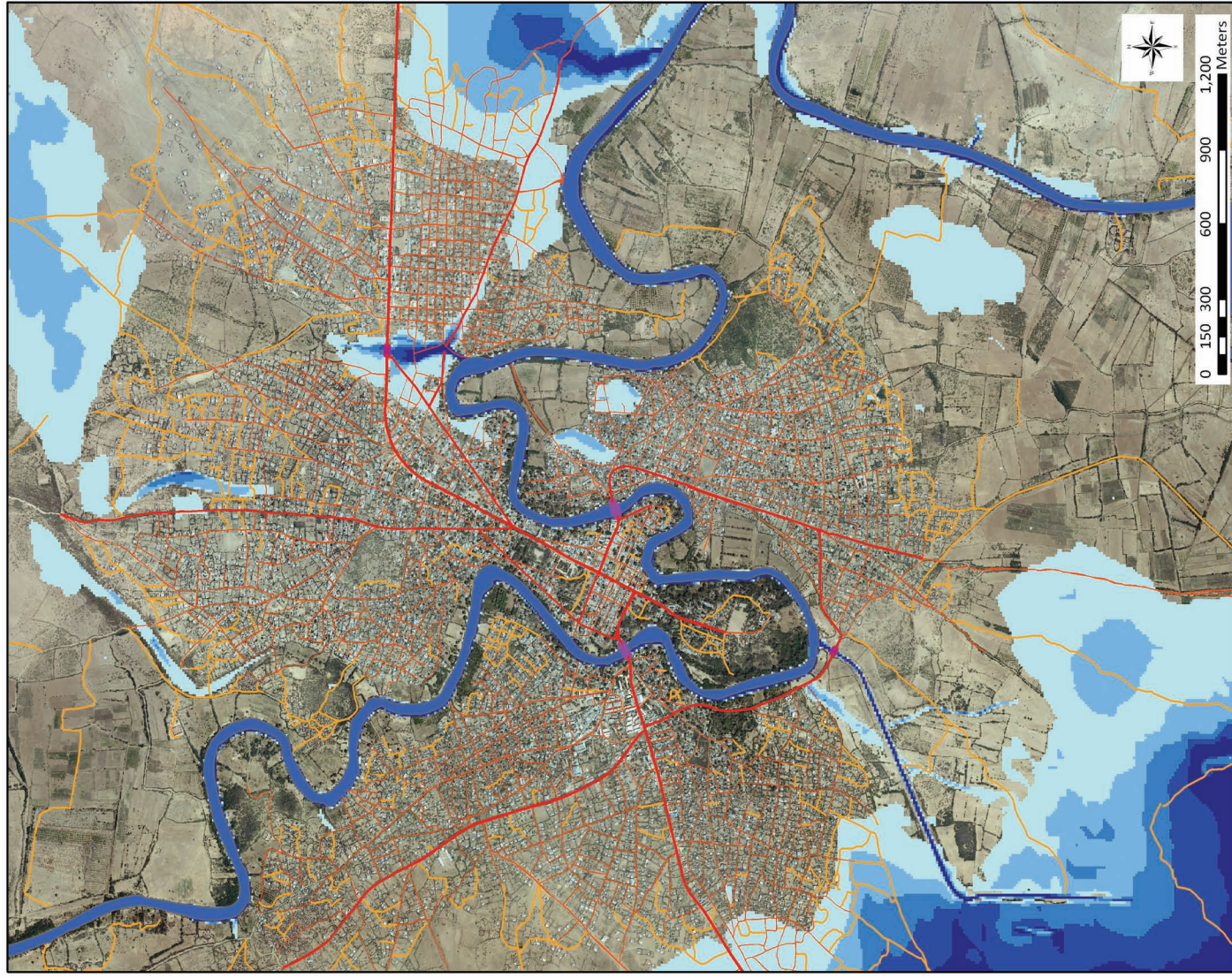
**Flood risk map for Belad Weyne - 5 year return period**

**Kharidadda halista fatahaadda ee Belad Weyne  
 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 Belad Weyne - 20 year return period**

**Kharidadda halista fatahaadda ee Belad Weyne  
 20 sanaba soo noqota mar**



**Flood risk map for Belad Weyne - 50 year return period**

**Kharidadda halista fatahaadda ee Belad Weyne  
 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 risk map for Belad Weyne - 100 year return period**

**Kharidadda halista fatahaadda ee Belad Weyne  
 100 sanaba soo noqota mar**

