



PROMOSSO
DA



SOSTENIBILITÀ. È ORA DI AGIRE.

SUDAN FLOODS – THE ITALIAN CONTRIBUTION TO DISASTER RISK REDUCTION

#SUDANFLOODS

THE ITALIAN CONTRIBUTION TO DISASTER RISK REDUCTION (DRR)

October 4, 2020 11:00-13:00 CEST

AIICS Khartoum, Khartoum (Sudan)

Disaster risk reduction plan for Mayo (Khartoum)

L. Ferraris, S. Gabellani, L. Poletti, U. Morra di Cella, A. Masoero



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PARTNER



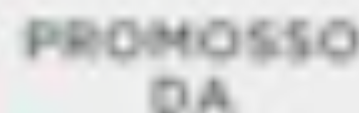
MEDIA PARTNER



CON LA COLLABORAZIONE DI







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- performed a detailed field survey, using Unmanned Aerial Systems (UAS) and GNSS measurements, in Mayo-Angola camp;
- developed a tailored Ponding Risk Assessment (PRA),
- defined a surface rain water drainage system, according to topography and specific needs derived from the field survey;
- provide capacity building on civil protection/early warning to relevant staff of local disaster risk management institutions, organising a tailored training and ensuring remote support throughout the intervention.

March 2nd 2020

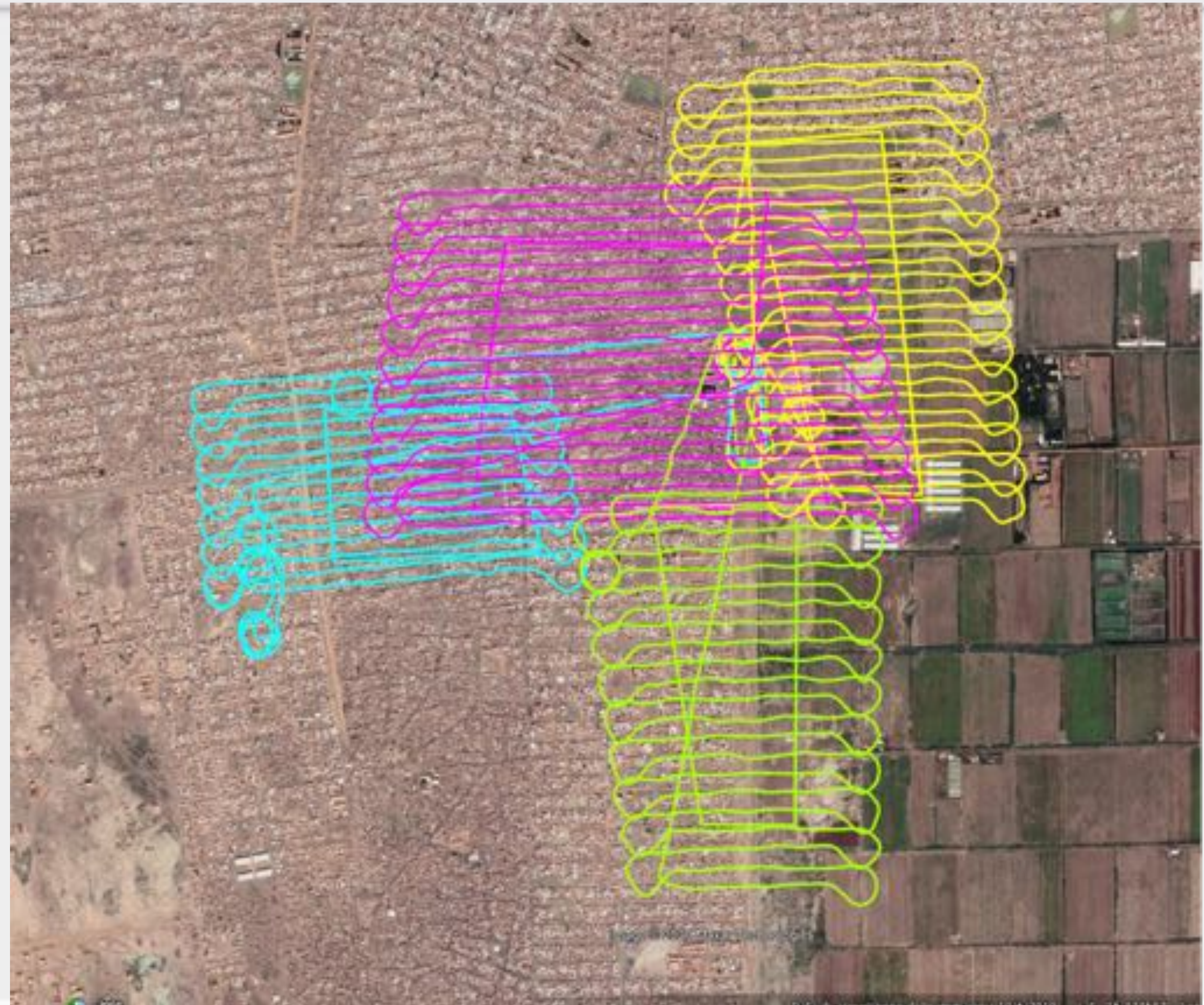


March 2nd 2020

Mayo about 25
km²

Surface mapping:
2.7 km²

Mayo Angola:
0.13 km²



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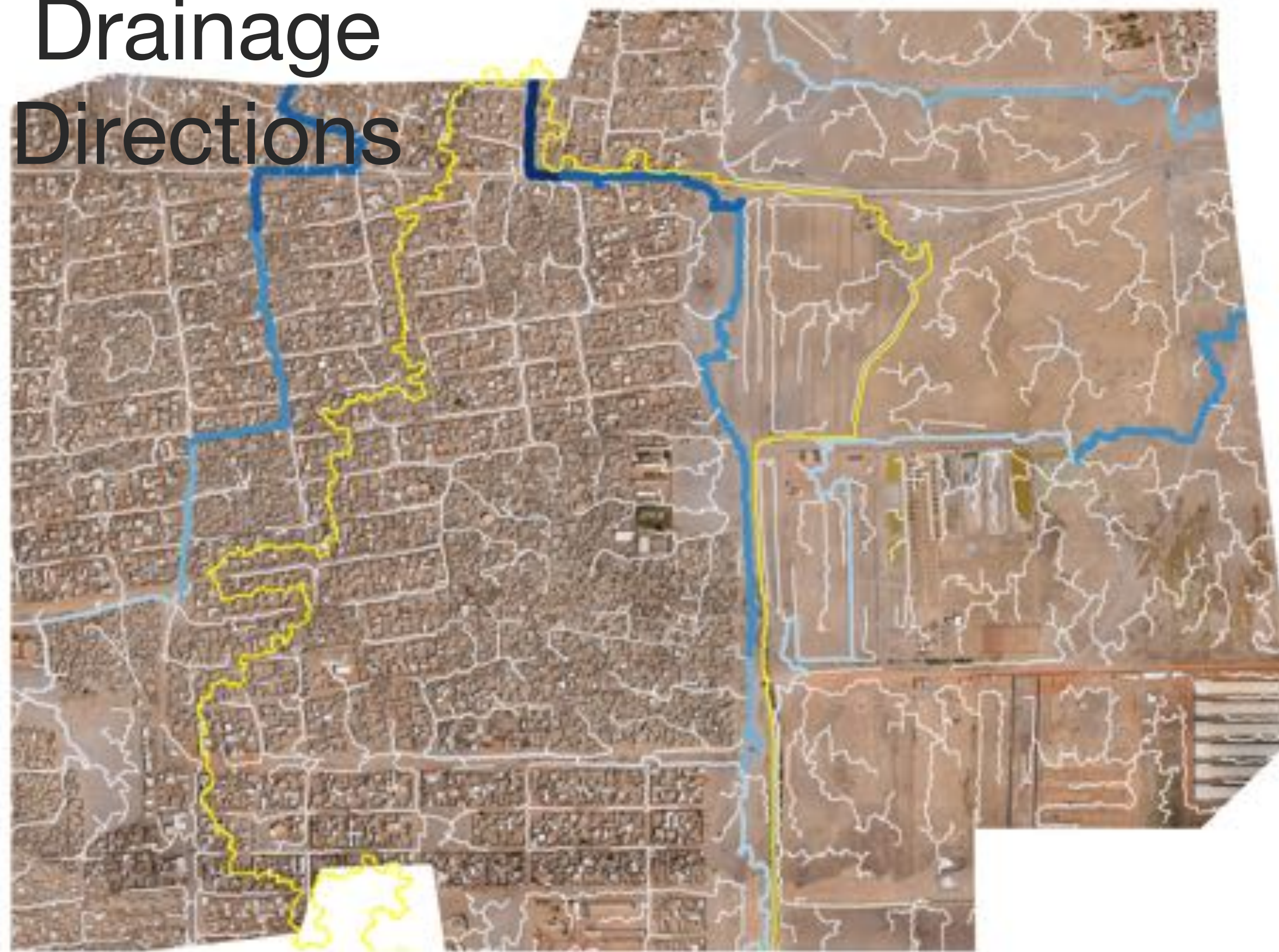
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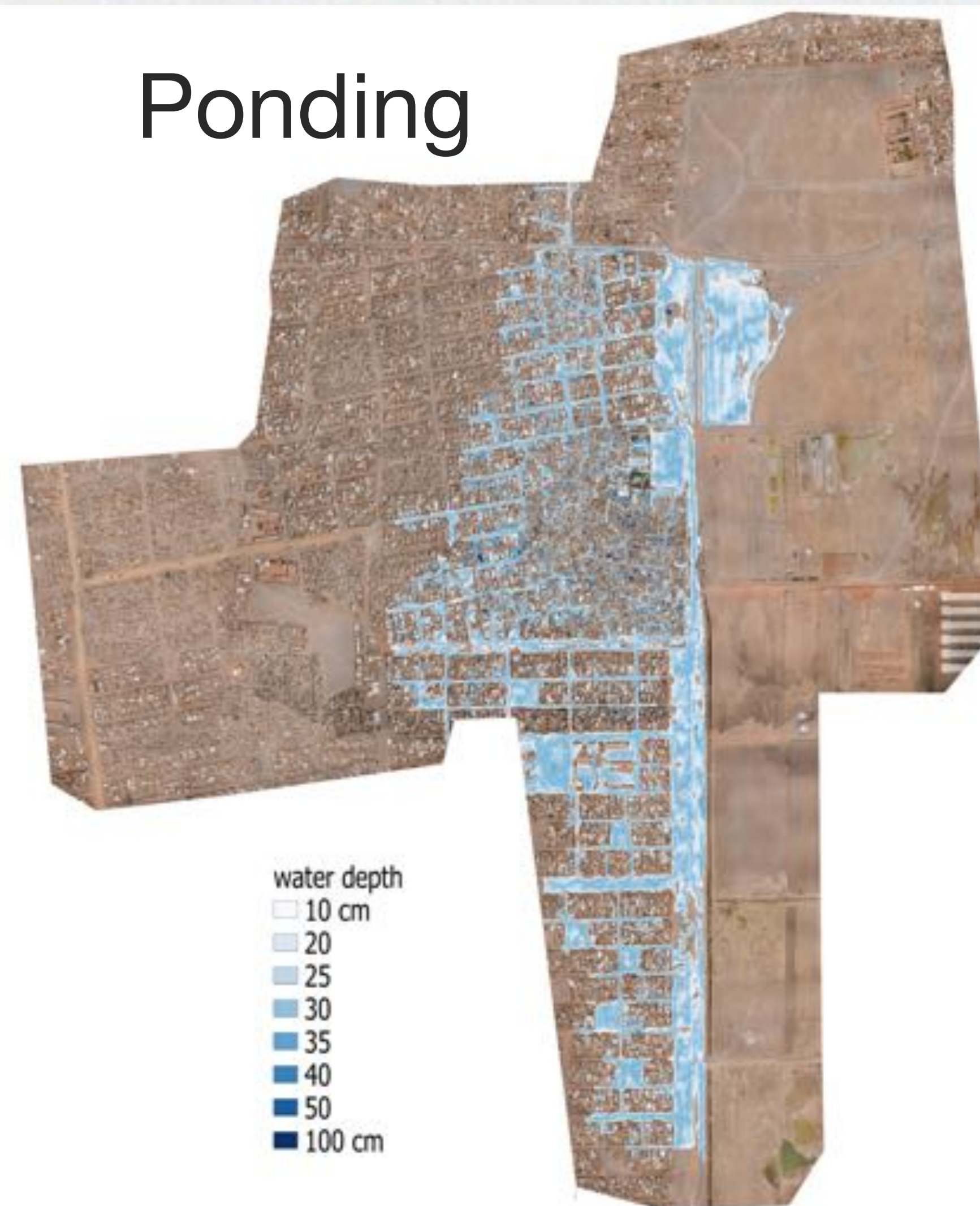
402.30 m
362.70 m

Digital Surface Model of Mayo-Angola area derived from UAV survey (resolution 13 cm/px)

Drainage Directions



Ponding



water depth

- 10 cm
- 20
- 25
- 30
- 35
- 40
- 50
- 100 cm



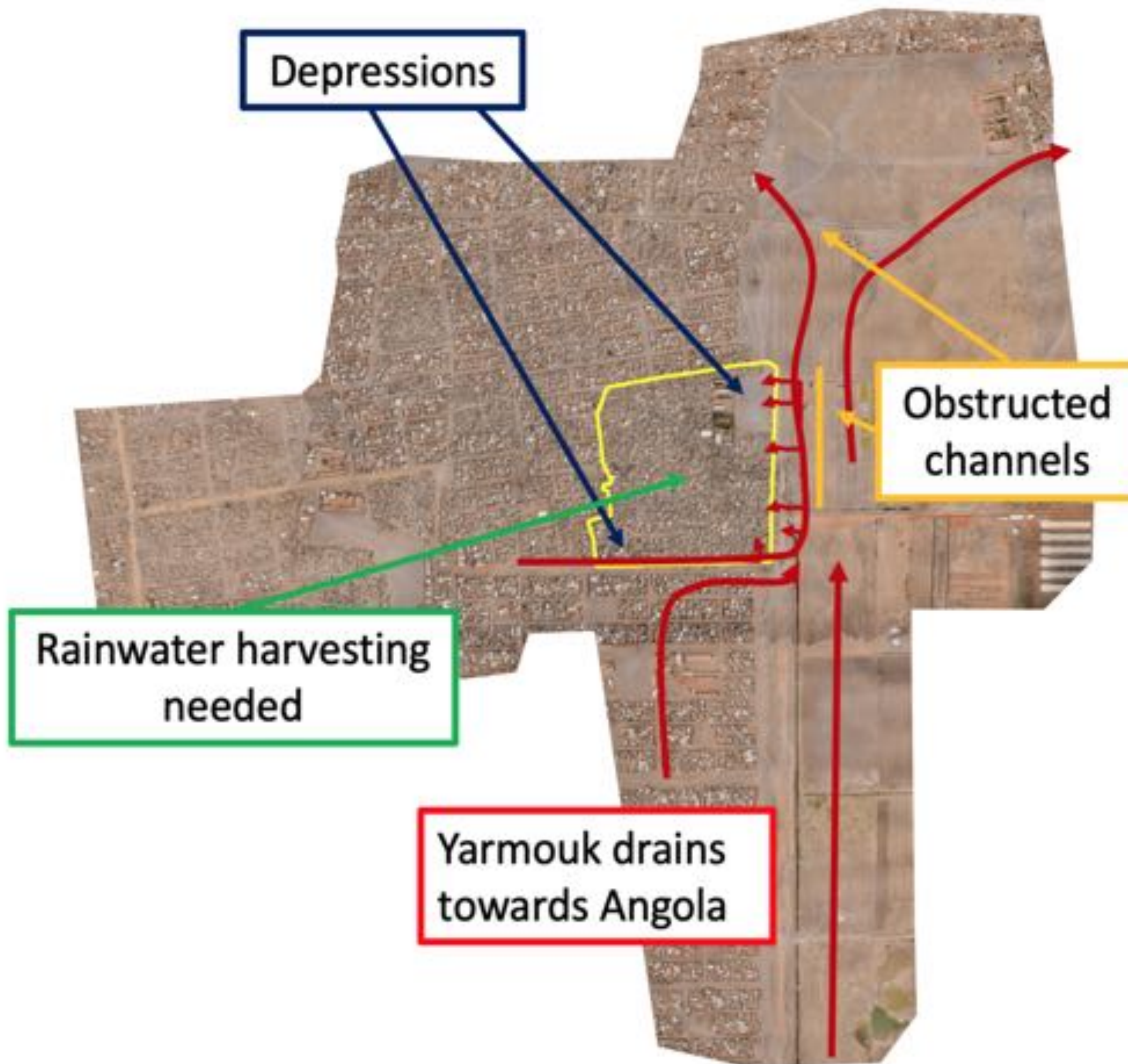
Obstructed
channels

The area is extremely flat, with very mild slopes towards the North, this leads to channels with slope of the order of 0.1 %

Mayo Angola is affected both by direct precipitation and by surface flow from Yarmouk (South)

The absence of management of sewer water strongly increases the problematics related to rainfall ponding and the identification of solutions

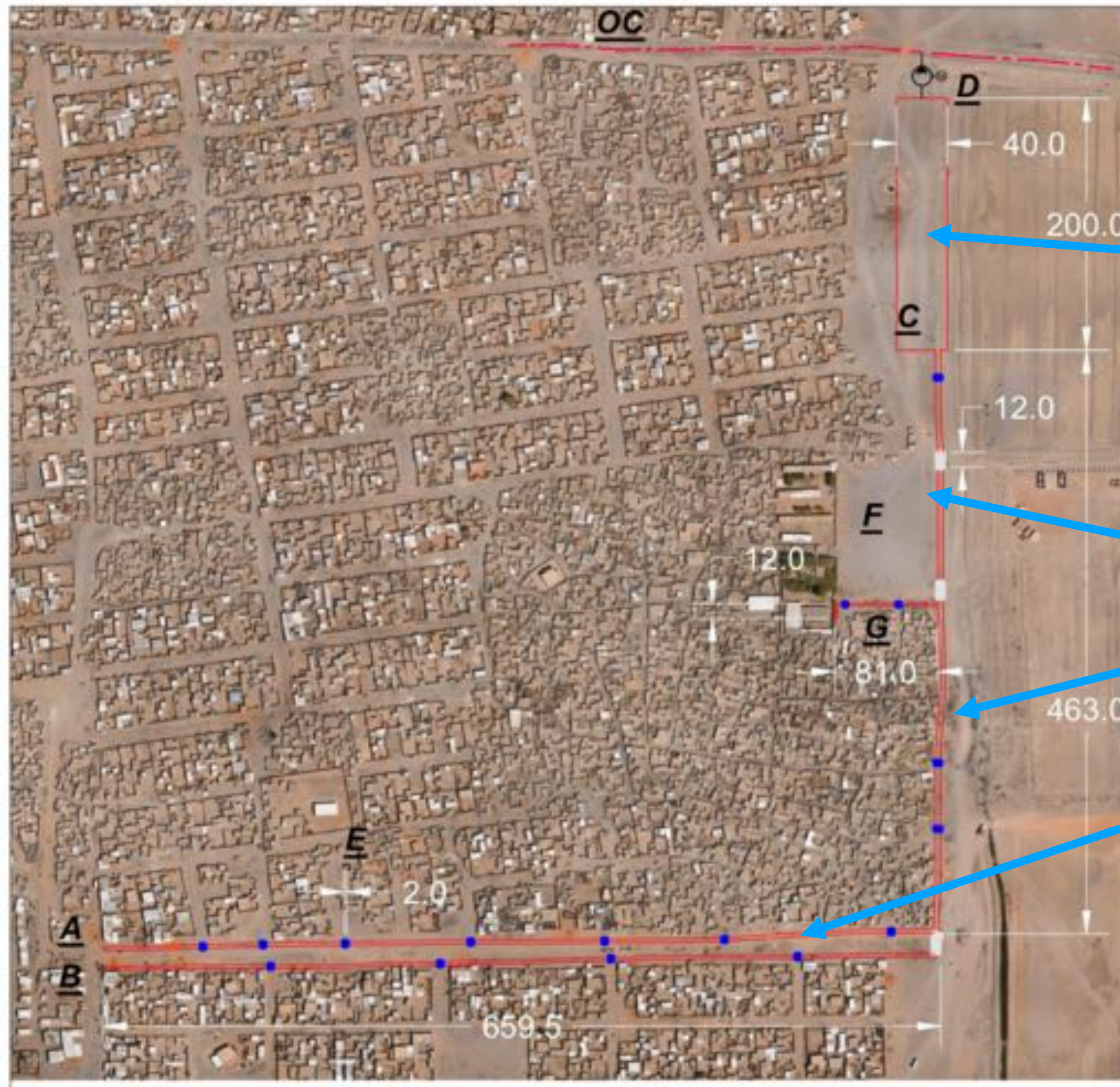
Yarmouk drains towards
Angola



The area is extremely flat, with very mild slopes towards the North, this leads to channels with slope of the order of 0.1 %

Mayo Angola is affected both by direct precipitation and by surface flow from Yarmouk (South)

The absence of management of sewer water strongly increases the problematics related to rainfall ponding and the identification of solutions



Retention pond equipped with a mobile hydraulics pump – pond is needed due to the very low slopes

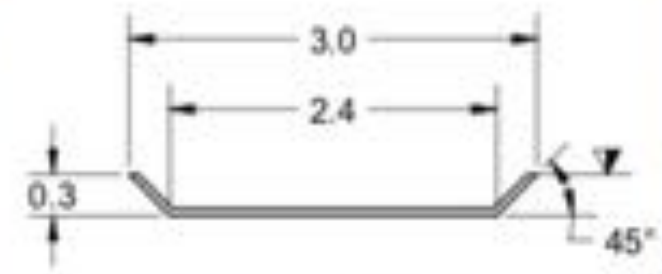
The hydraulic efficiency of the existing outlet channel (OC) is essential to properly discharge water to the Nile river, it should be cleaned of debris and garbage and maintained free of elements that can obstruct the flow of water. The cleaning and renovation of the existing channel (OC) is highly recommended.

New drainage channels that reduces draining area of Angola district and restoration of the link with existing channels

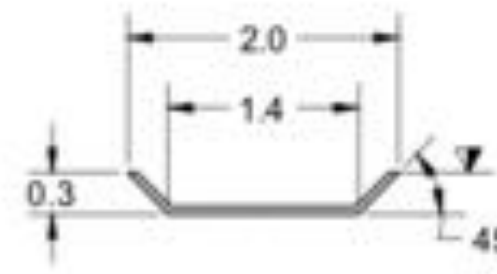
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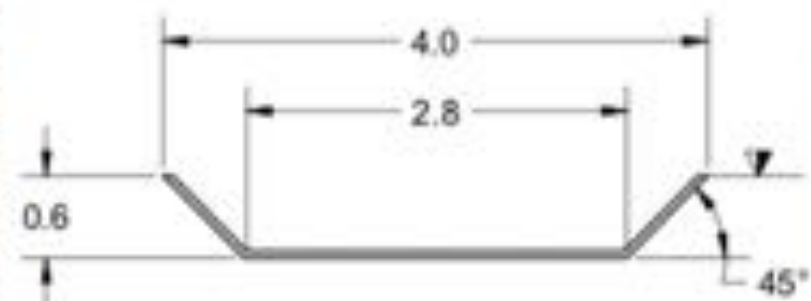
CHANNEL A/B
at S_{A-A} (T-2)



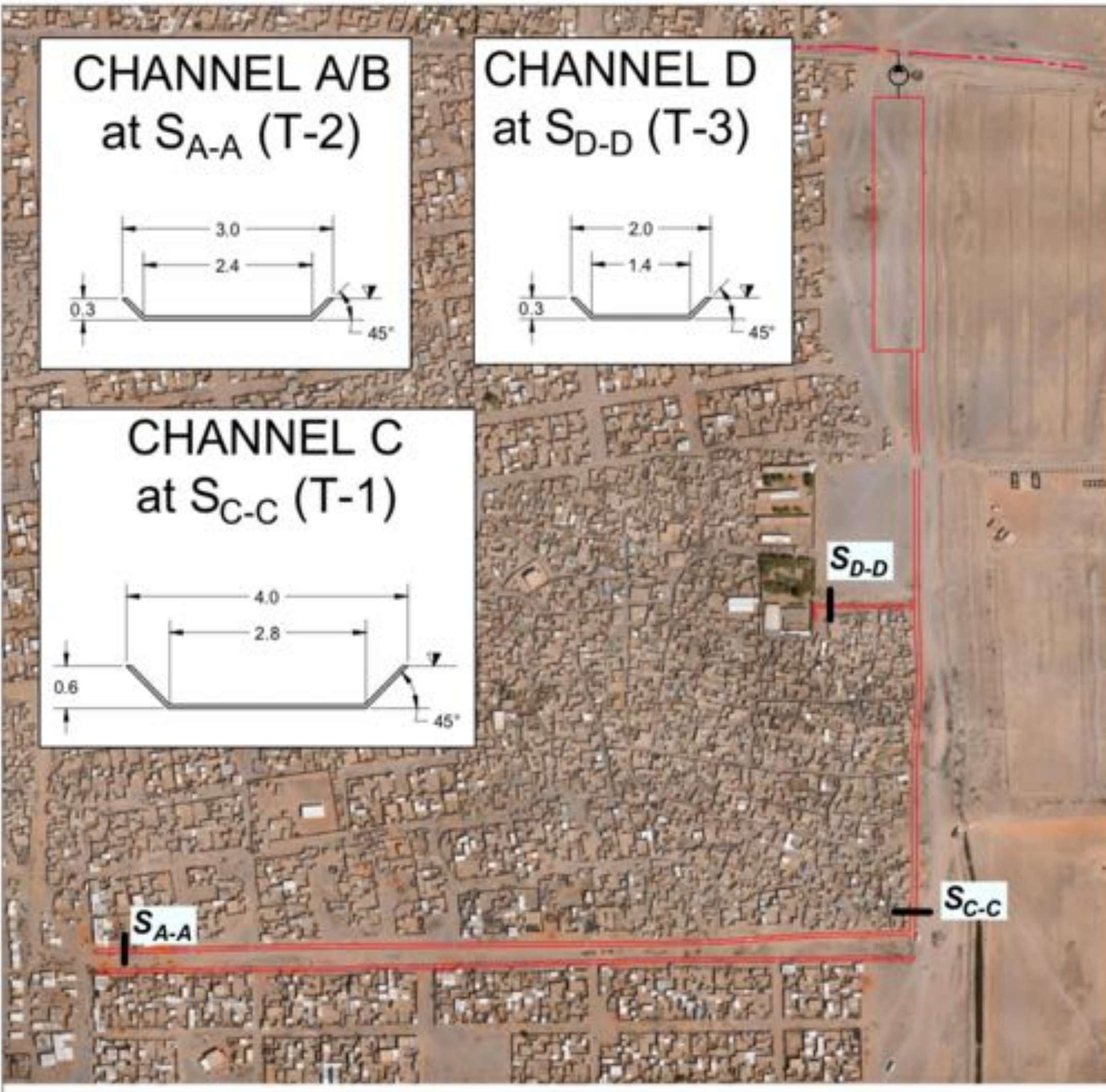
CHANNEL D
at S_{D-D} (T-3)



CHANNEL C
at S_{C-C} (T-1)



- **Channel A:** realization of a new channel in the South part of the Area of Interest (AOI). Channel type 2 (T-2) , length 660.5 m, profile slope about 0.08%, levee slope 1:1
- **Channel B:** rehabilitation of the existing channel North of Yarmouk district. Type 2 (T-2) , length 659.5 m, profile slope about 0.08%, levee slope 1:1
- **Channel C:** realization of a new channel in the East part of the AOI. Channel type 1 (T-1) , length 463.1 m, slope about 0.13%. levee slope 1:1
- **Channel D:** realization of a new channel in the southern side of the Emergency paediatric clinic square. Channel type 3 (T-3) length 93 m



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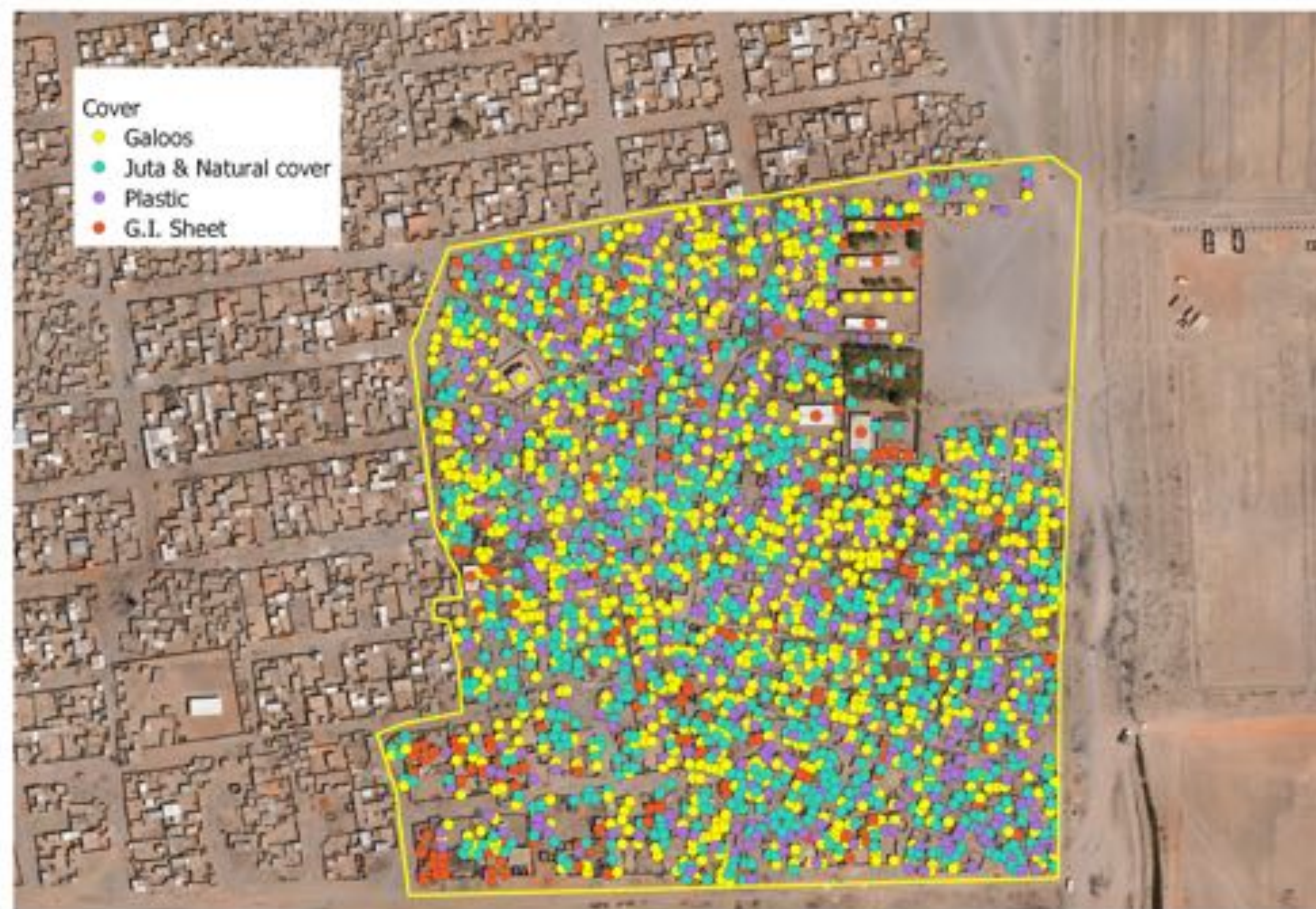
Reshaping of the square facing the Emergency paediatric clinic, slope toward North-East and realization of an elevated access road to the clinic

Reshaping of two internal roads/squares in the South part of the AOI particularly prone to flooding

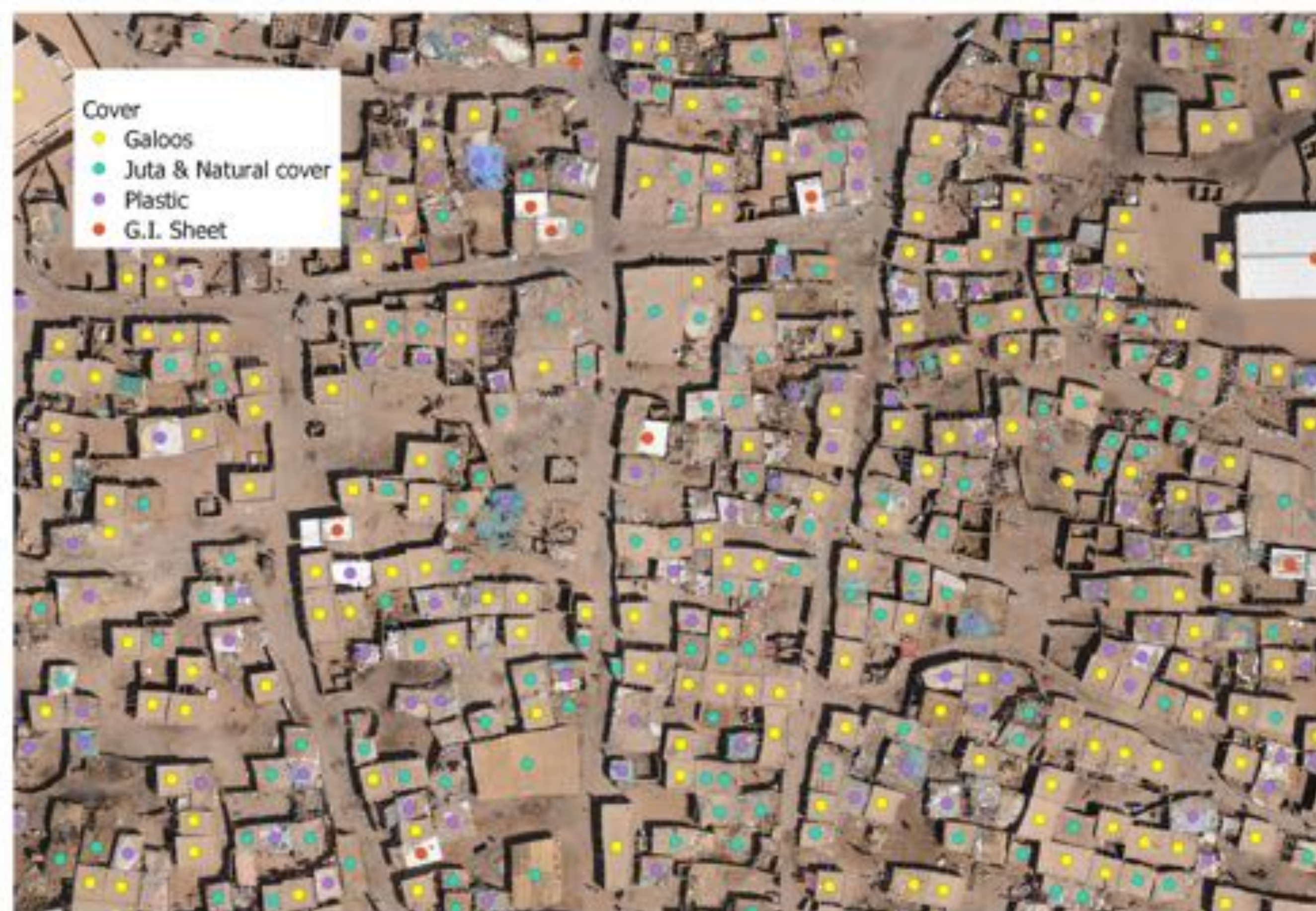
Reshaping of traffic roads, with correct slope to convey water into the proposed channels

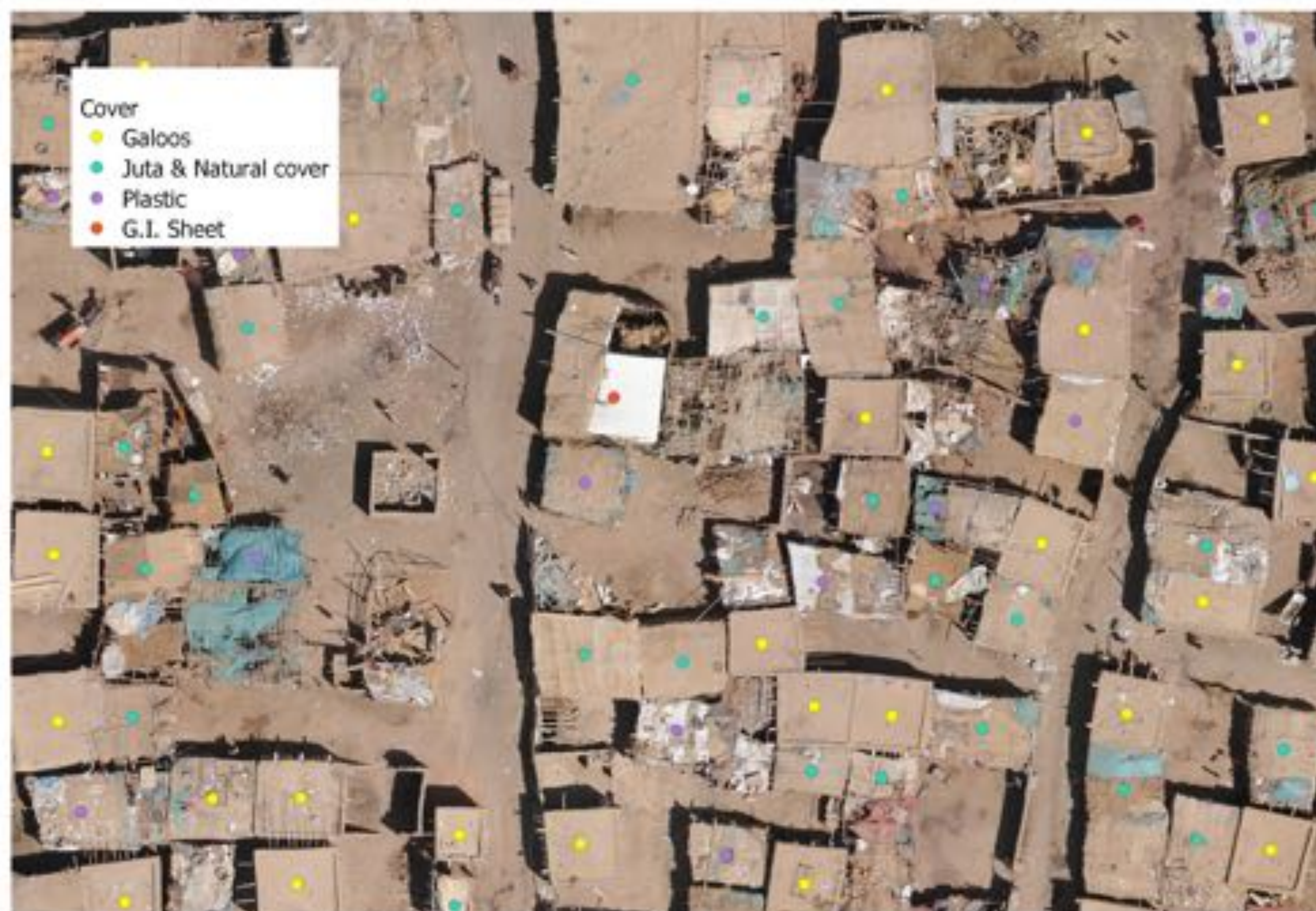
Construction of an elevated platform for positioning the hydraulic pump





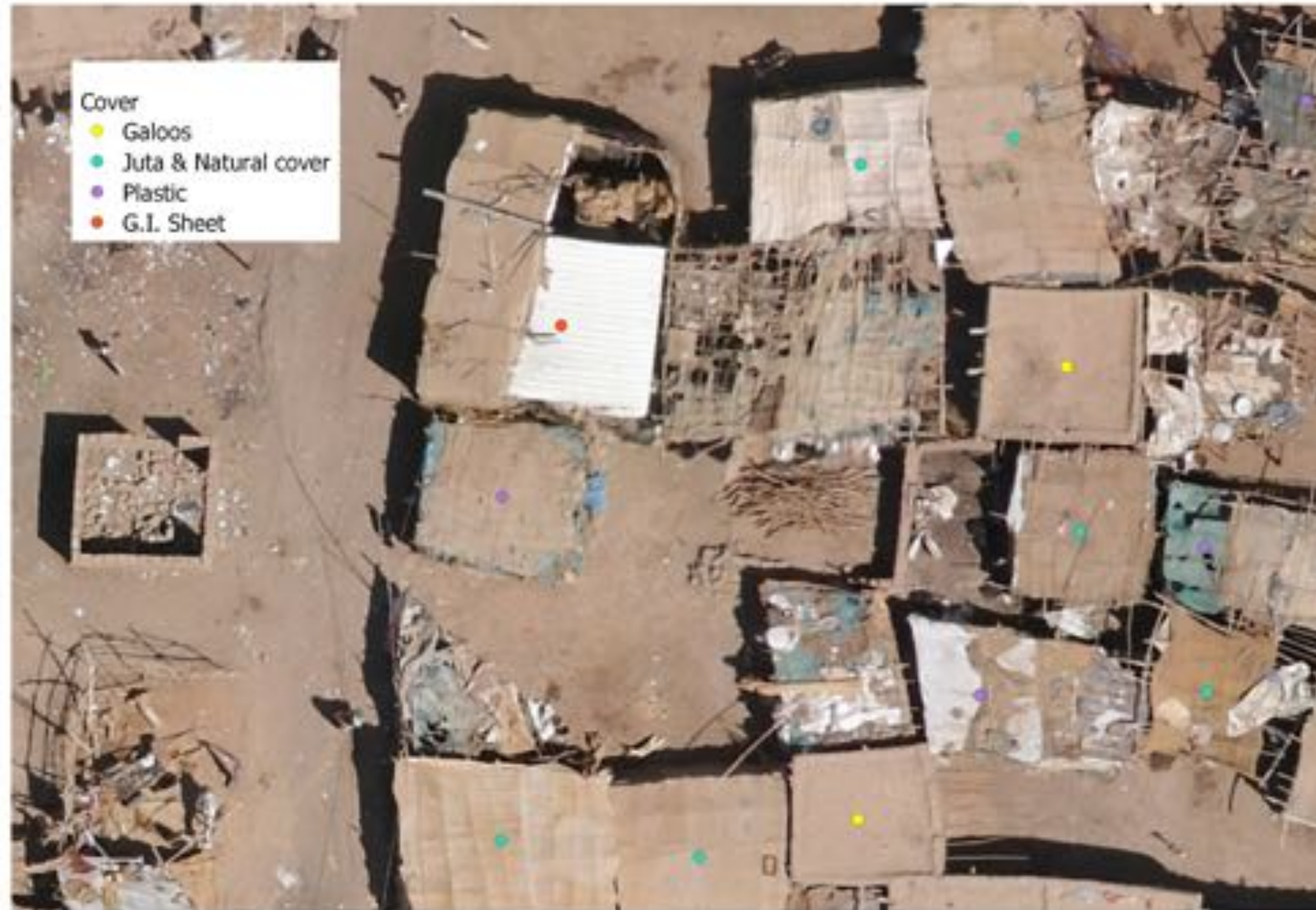






*Number of roofs
identified: 2'440*

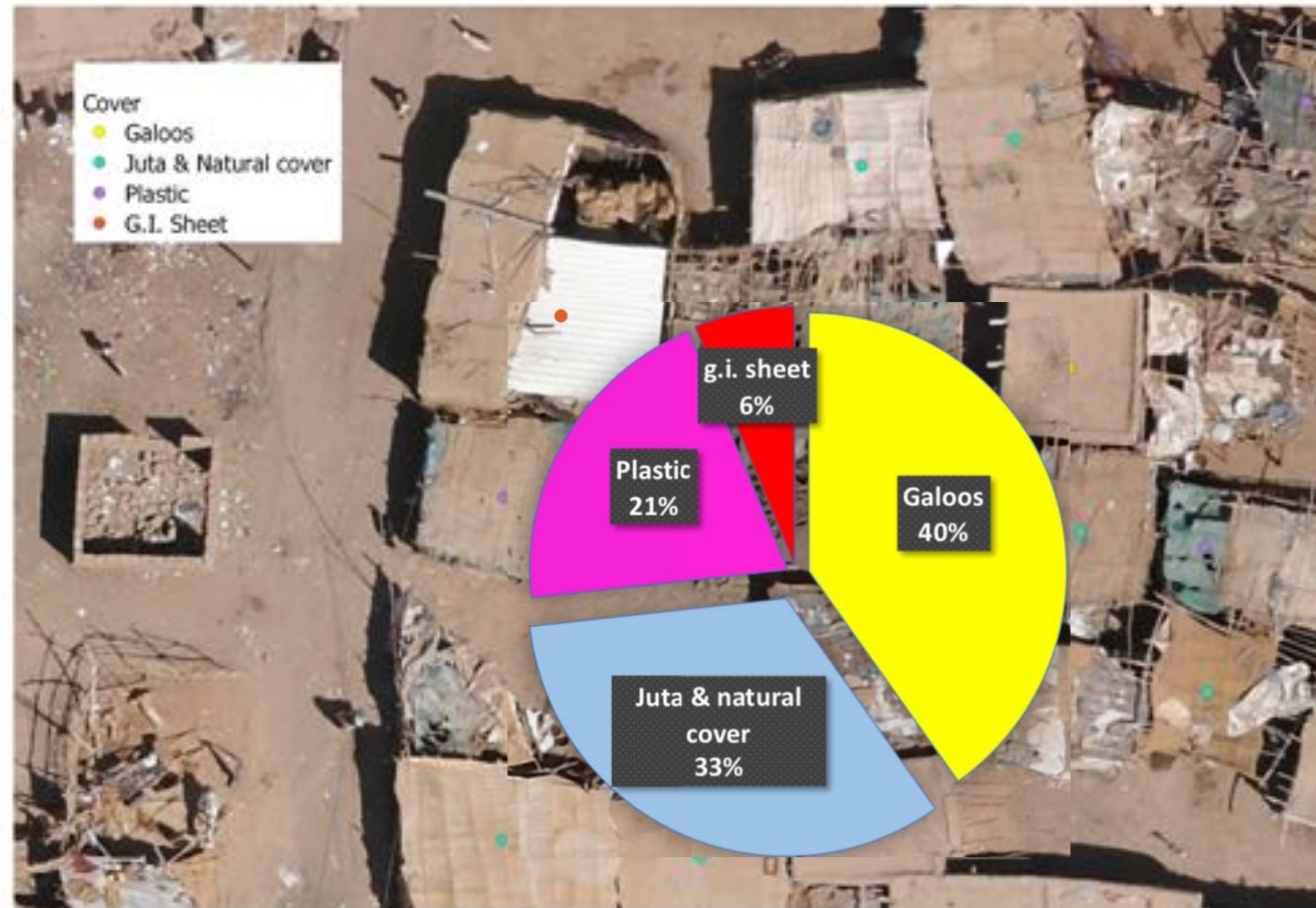
*Total estimated
population:
12'000-15'000*



*Population
density: 120'000-
150'000
inhabitants/ km²*

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~50%

rainwater harvesting measures



Urban Planning



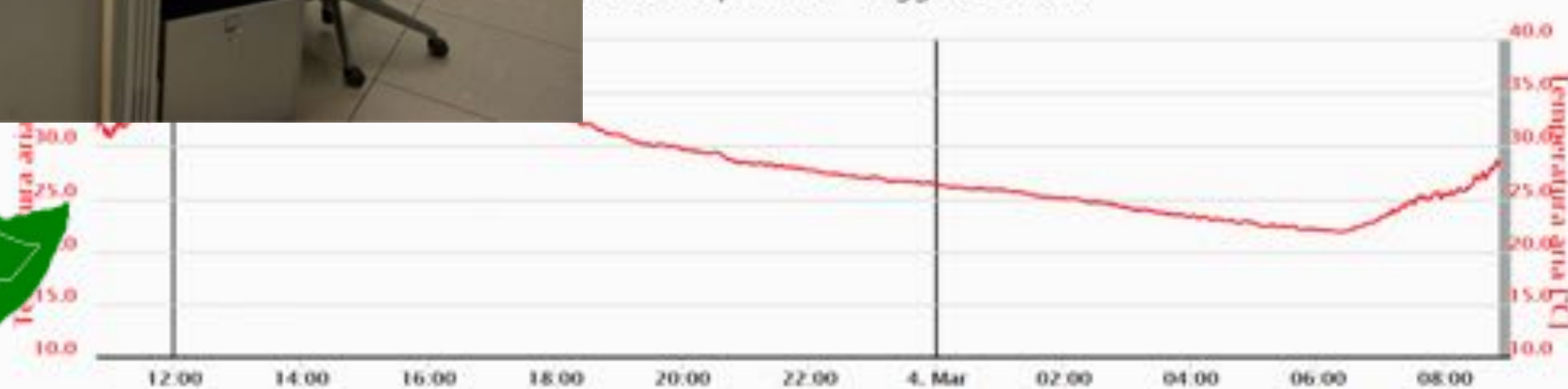
African
Union



Early Warning System

28.2 °C Temperatura aria
12.7 % Umidità relativa
968.9 hPa Pressione atmosferica

dato disponibile – oggi ore 08:51



13.5 V Tensione Batteria
Segnale GPS
47.0 °C Temperatura CPU
32.6 °C Temperatura interno
10/6 mmHg
REFRESH

Wednesday, March 4, 2020, 09:04:25 AM GMT+2



Mayo
Mandella



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Thank you