

COVID-19 VULNERABILITY MAPPING BY RISK FACTORS IN BANADIR REGION

Methodology

A. Digitization of the Dwelling Structures in Banadir

Digitization of structures in Banadir was done by the ministry of planning staff with technical support from UNFPA, GIS team. Through the interpretation of up-to-date high resolution satellite imagery and field knowledge, all structures on the ground were digitized.

The structures were classified into 3 categories:

- Type 1** - Dwelling Structures: - these are structures that were interpreted as residential structures
- Type 2** - Non-dwelling Structures: - these are non-residential structures (non-dwelling) e.g. commercial buildings, government buildings, mosques, hospitals, schools etc.
- Type 3** - IDP shelters: - these are residential structures that house internally displaced persons; particularly those in camps.

All structures categorized as Type 1 and 3 constituted a dwelling structures database.

B. Average Number of Households per Dwelling Structure

The average number of non-IDP households per dwelling structure was computed by comparing the number of households listed during MMR to the number of non-IDP dwelling structures of the corresponding enumeration area:

$$\text{Average No. of HHs per DS} = \frac{\text{Number of HHs Listed (MMR)}}{\text{Number of Dwelling Str. Digitized}}$$

This was done for the districts shown in the table below. Shangaani was not sampled during MMR listing.

District	Factor	No. of DS	Est. Number of Non-IDP HHs
Cabdi Caziiz	1.25	2,290	2,863
Xamar Weyne	0.68	1,138	778
Karaan	1.24	16,454	20,360
Xamar Jajab	1.33	5,838	7,789
Waaberi	1.22	3,879	4,718
Heliwaa	0.95	21,917	20,847
Dharkenley	1.05	19,918	20,921
Dayniile	0.96	26,131	26,166
Bondheere	1.32	3,490	4,615
Howl Wadaag	0.99	5,797	5,729
Hodan	1.39	15,925	22,152
Kaxda	1.17	6,559	7,695
Shibis	1.20	3,148	3,773
Wadajir	1.02	21,331	21,799
Wardhiigley	1.17	10,920	12,794
Yaaqshiid	0.91	29,890	27,085

C. Generation of household density model

The household density model was generated in ArcGIS by use of the Kernel Density a spatial analysis tool. The tool calculates the number of households per unit area. Non-IDP dwelling structures were the input and the average number of households per district was applied as the weight to each structure.

Area with high household density in the map are considered to be more vulnerable to the risk of spread of COVI-19 infections.

D. Digitization of IDP settlements

IDPs are considered to be one of the most vulnerable populations to the spread of COVID-19 infections. This is due to the nature of their settlements and

inadequate social amenities available to them. Due to rapid movement of IDPs in Banadir, regular updates of their locations is crucial.

The IDP camps displayed in the map were digitized on google earth's imagery dated March 2020. This was due to unavailability of latest satellite imagery to meet the urgency. The camps locations were verified with the support of the staff from the Directorate of National Statistics, Somalia. Approximately 258 clusters of IDPs were digitized with highest concentration of the IDPs found in Dayniile and Kaxda.

E. Markets and Bus Stations

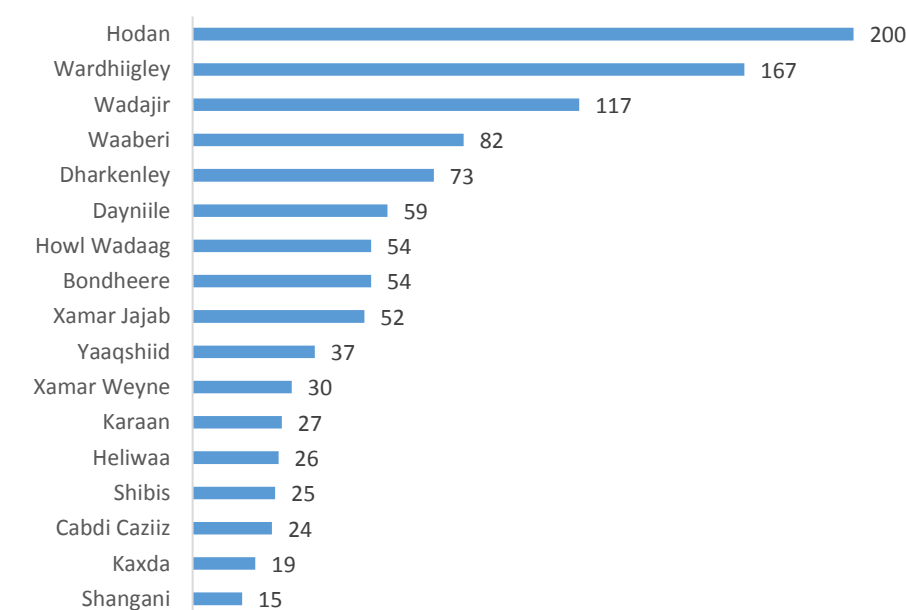
Markets and bus stations are considered high risk areas due to high numbers of persons and regular movements at any given time.

Their locations were provided by staff from the DNS.

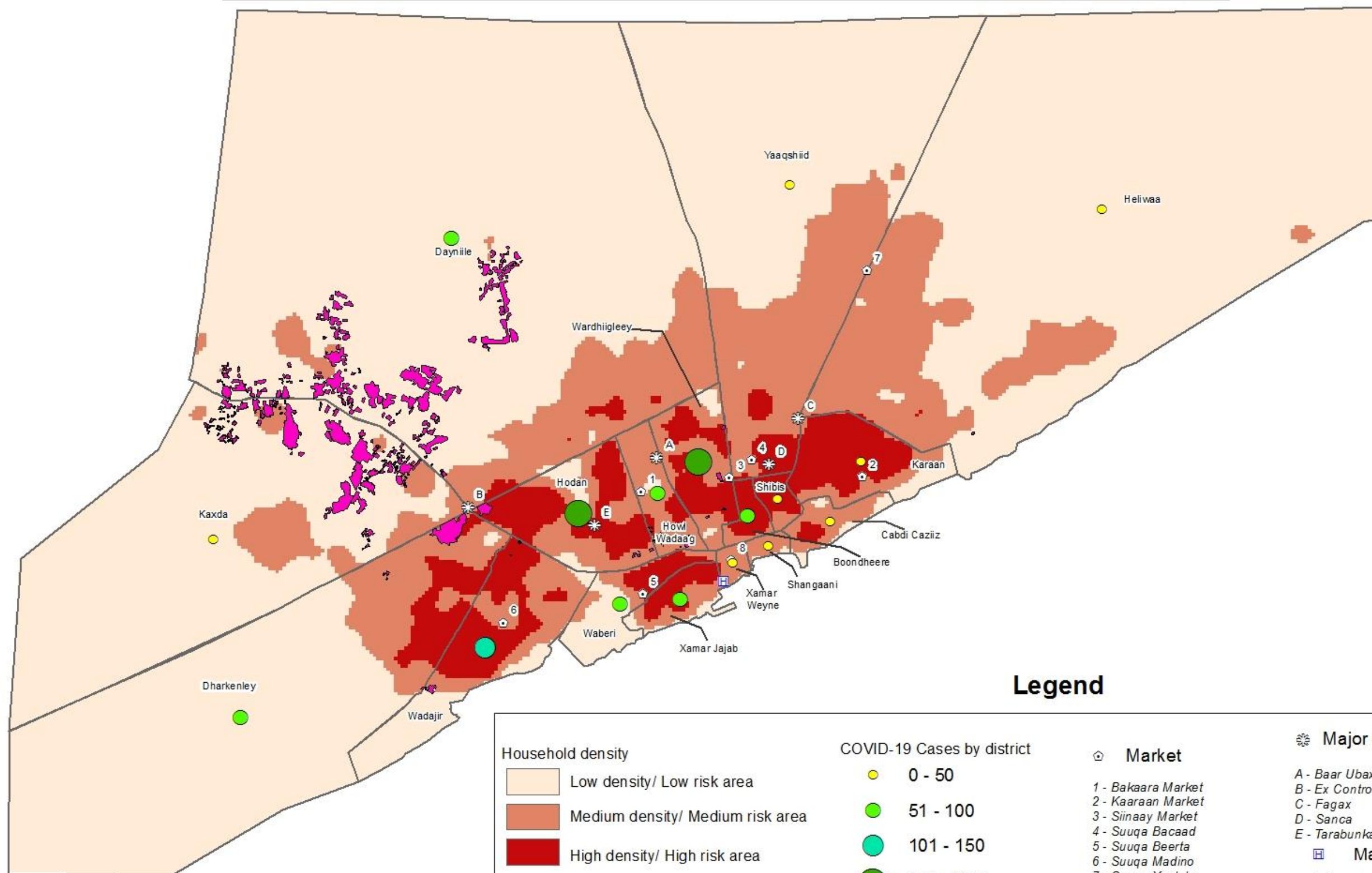
F. COVID-19 Reported Cases

A total of 1,080 cases have been confirmed in Banadir region as of 21/05/2020.

COVID-19 Reported Cases by district

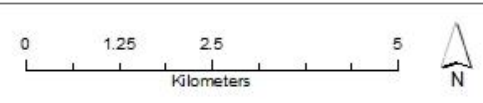


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Legend

<p>Household density</p> <ul style="list-style-type: none"> Low density/ Low risk area Medium density/ Medium risk area High density/ High risk area 	<p>COVID-19 Cases by district</p> <ul style="list-style-type: none"> 0 - 50 51 - 100 101 - 150 151 - 200 	<p>Market</p> <ul style="list-style-type: none"> 1 - Bakaara Market 2 - Kaaraan Market 3 - Siinaay Market 4 - Suuqa Bacaad 5 - Suuqa Beerta 6 - Suuqa Madino 7 - Suuqa Xoolaha 8 - Xamar wayne Market 	<p>Major Bus/PSV Stop</p> <ul style="list-style-type: none"> A - Baar Ubax B - Ex Control Afgoye C - Fagax D - Sanca E - Tarabunka <p>Martini Hospital</p> <p>District</p> <p>IDP Camp</p>
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Methodological Notes:
 The map displays the number of COVID-19 reported as of 21/05/2020, overlaid on Household density layer of Banadir. The Household density layer was generated by calculating the number of households per sq.km

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The boundaries and names used on this map do not imply any official endorsement or acceptance by the United Nations Population Fund