
Block1

Dear participant

This survey evaluates the interpretation of different data classification methods for choropleth maps. Results from the survey will be used to develop a set of good practices for professionals who need to visualise population demand with choropleth maps in order to conduct geographic accessibility studies.

What is geographic accessibility and how is it measured?

Geographic accessibility is measured by calculating the physical distance people travel to specific facilities or service centres (such as clinics, community centres, police stations etc.). "Travelling long distances to reach these centres is costly and time consuming, especially to those who suffer the burden of poverty and deprivation". Measuring geographic accessibility enables policy makers to implement effective strategies for the optimal positioning of service centres (close to the people).

Choropleth (or thematic) maps are frequently used to visualise population demand for geographic accessibility studies. It is however noted that these maps are sometimes incorrectly interpreted or misunderstood which leads to ineffective optimisation strategies. These strategies include recommendations for (1) where to open a new service centre, i.e. the 'expansion model' (2) where to close a current service centre, i.e. the 'reduction model' and (3) where to move a current service centre to a different location, i.e. the 'relocation model'.

What you need to do

You will be shown 2 general map reading questions, as well as 48 map interpretation questions specifically related to geographic accessibility (where to open, close or move service centres). Please read each question carefully and then follow the instructions for providing an answer.

Note that consent cannot be withdrawn once the questionnaire is submitted as there is no way to trace the particular questionnaire that has been filled in. Please answer the questions in the questionnaire as completely and honestly as possible. This should not take more than 30 minutes of your time. This study has received written approval from Research Ethics Committees of the Faculty of Natural and Agricultural Sciences (tel: 012 420 4356). The results of the survey may be published in the media and/or an academic journal without identifying any of the participants individually. We will provide you with a summary of our findings on request.

If you have any questions or comments, please do not hesitate to ask the facilitators or contact Lourens Snyman, lourens.snyman@up.ac.za

By clicking 'Next', you agree to the above terms and provide your consent to use these results in this study.

Thank you

Block2

Section 1: General Questions

Please answer all the questions

Question 1 - Have you done this survey before?

- Yes
 - No
-

Question 2 - On which device are you completing the survey? For the best user experience, please use a PC or Laptop

- PC/Laptop
 - Tablet
 - Mobile smart phone
-

Question 3 - What is your age?

Question 4 - What gender do you identify as?

- Male
 - Female
 - Non-binary / third gender
 - Prefer not to say
-

Question 5 - Did you take geography as a subject at school or university?

- Yes
 - No
-

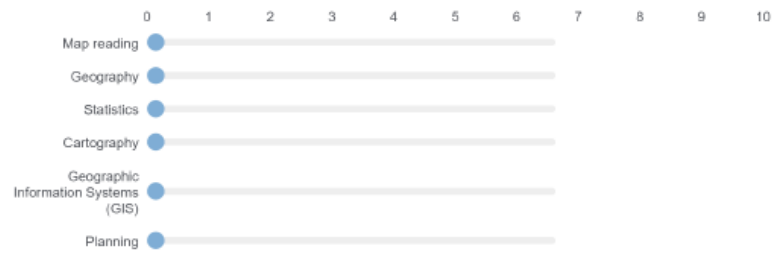
Question 6 - For which academic programme are you registered? Please select one of the following options:

- BSc Geography and Environmental Science
 - BSc Geoinformatics
 - BSc Meteorology
 - BA specialising in Geographical Sciences
 - Other
-

Question 7 - Have you complete or are you currently enrolled for any of the following modules? You can select multiple entries.

- GGY283
 - GIS310
 - GMC110
 - GGY383
 - GIS221
 - GIS708
-

Question 8 - Rate your level of training (or expertise) in the following categories



Question 9 - Have you ever lived in any of the following areas? You can select multiple locations

- Buffalo City (East London)
- City of Tshwane
- Mangaung (Bloemfontein)
- Polokwane
- None of the above

Question 10 - How often do you use maps?

- Every day
- Once a week
- Once a month
- Rarely

Question 11 - Have you ever been told by a professional that you have imperfect color vision?

- Yes
- No

Question 12 - Use the image below to identify the eight different colors (test colors - color oracle - web



	Blue	Light Blue	Green	Light Green	Red	Light Red	Yellow	Light Yellow
A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
E	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
F	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
G	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
H	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Block3

SECTION 2: MAP READING

Please read the questions carefully before answering.

Block4

Please rate your level of expertise in using:



What is the approximate distance (straight-line) between points A and B on the map?



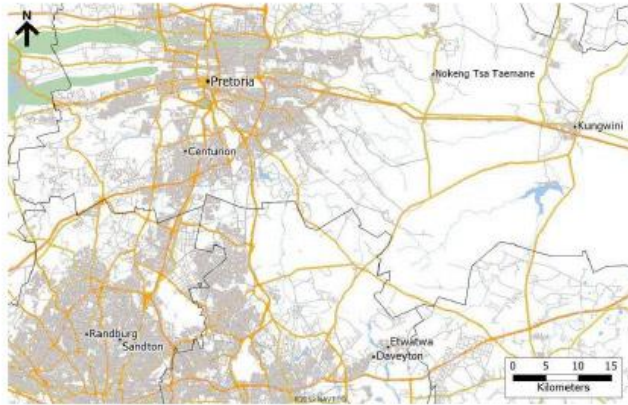
- 10 Km
- 20 Km
- 30 Km
- 50 Km

On a scale from 0-10, How confident are you with your answer?



Block5

If I travel from Pretoria to Kungwini, I will be travelling in a(n) _____ direction.



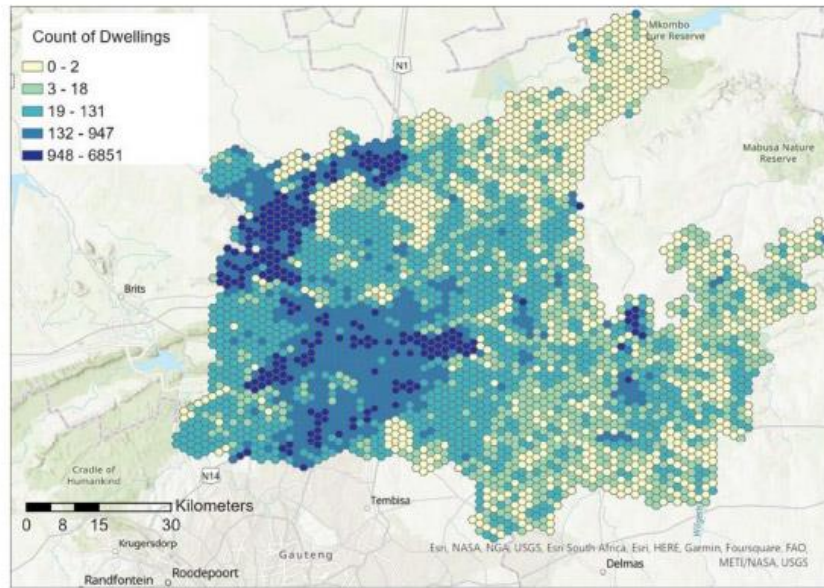
- Northern
- Eastern
- Southern
- Western

Block 54

The next section includes a set of questions specifically related to geographic accessibility. Each question will include a choropleth map where you will need to identify locations (by clicking on the map) about where to open, close or move service centres. Please read each question carefully.

Slide1

Identify 3 areas on the map where the dwelling count is very low. Click on the relevant areas.



1

On a scale from 0-10, How confident are you with your answer of the previous question?

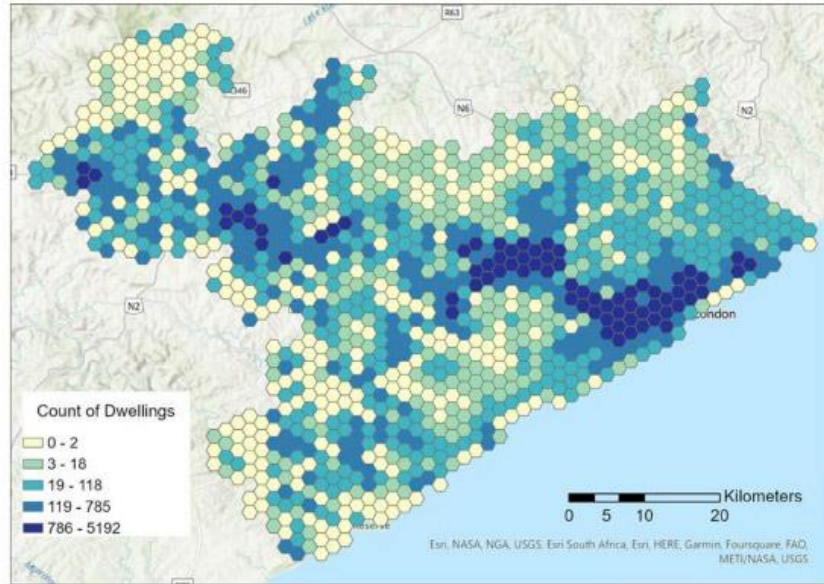


Finding relevant areas on the map was:

Very Easy Easy Neutral Difficult Very Difficult

Slide2

Identify the best area for opening a new service centre. Ideally the new centre should be located in a densely populated cluster (areas with a high dwelling count). The maximum threshold (catchment area of a service centre) is 10km, i.e. a centre serves only people within 10km from it. Anybody living further away is not served by that centre.



2

On a scale from 0-10, How confident are you with your answer of the previous question?

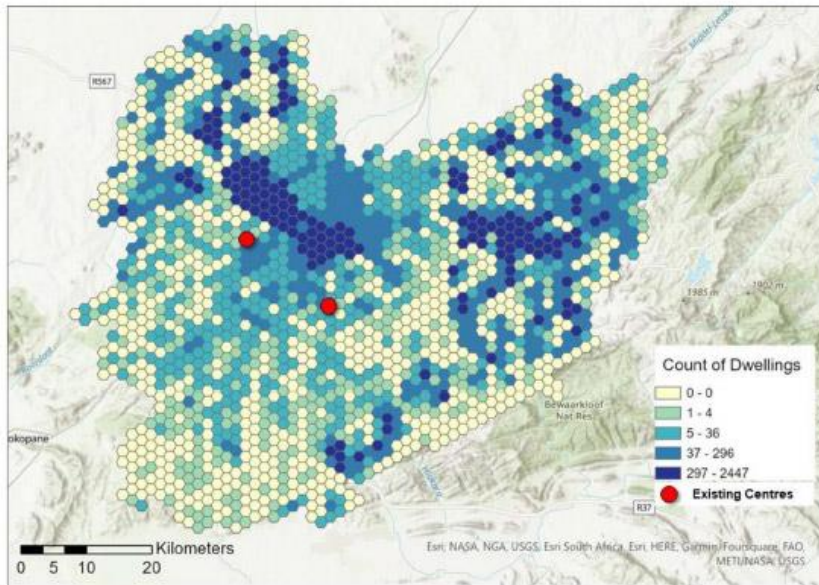


Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide3

Identify two locations on the map to add additional service centres. These centres should be located in high density clusters (areas with a high dwelling count) with no other facility nearby (further than 10km away from existing centres).



3

On a scale from 0-10, How confident are you with your answer of the previous question?

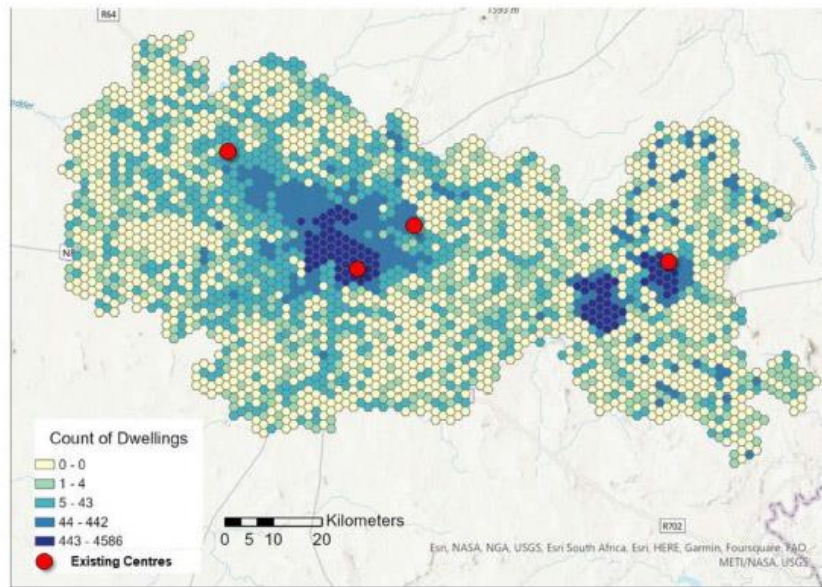


Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide4

Identify two service centres that are incorrectly placed and should be relocated to different locations. Remember the ideal location would be high density clusters (areas with a high dwelling count) with no other facility close by (within 10km).



4

On a scale from 0-10, How confident are you with your answer of the previous question?

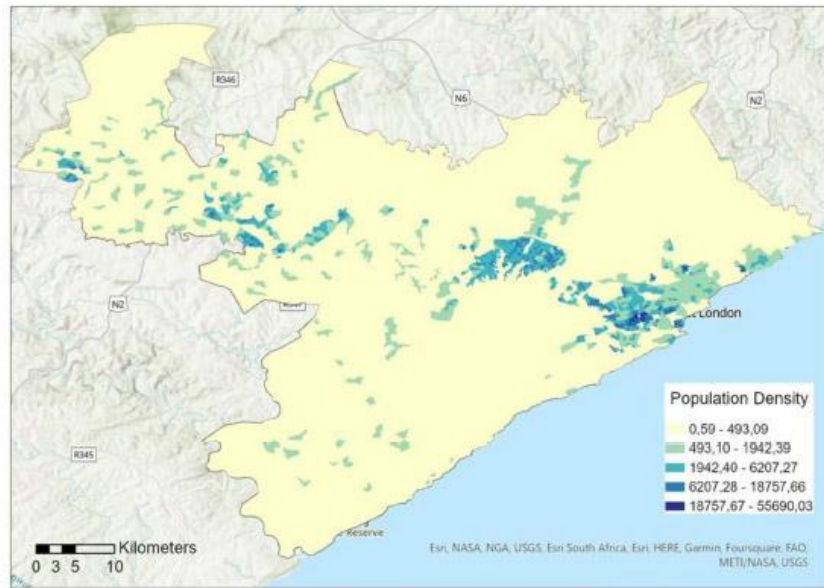


Finding relevant areas on the maps was:



Slide5

Identify 3 areas on the map where the population density is very low. Click on the relevant areas.



5

On a scale from 0-10, How confident are you with your answer of the previous question?

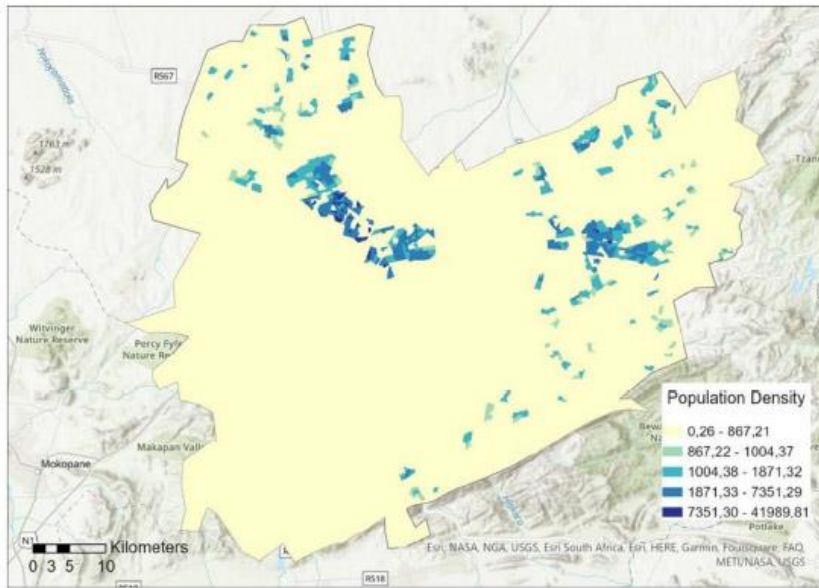


Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide6

Identify the best area for opening a new service centre. Ideally the new centre should be located in a densely populated cluster. The maximum threshold (catchment area of a service centre) is 10km, i.e. a centre serves only people within 10km from it. Anybody living further away is not served by that centre.



6

On a scale from 0-10, How confident are you with your answer of the previous question?

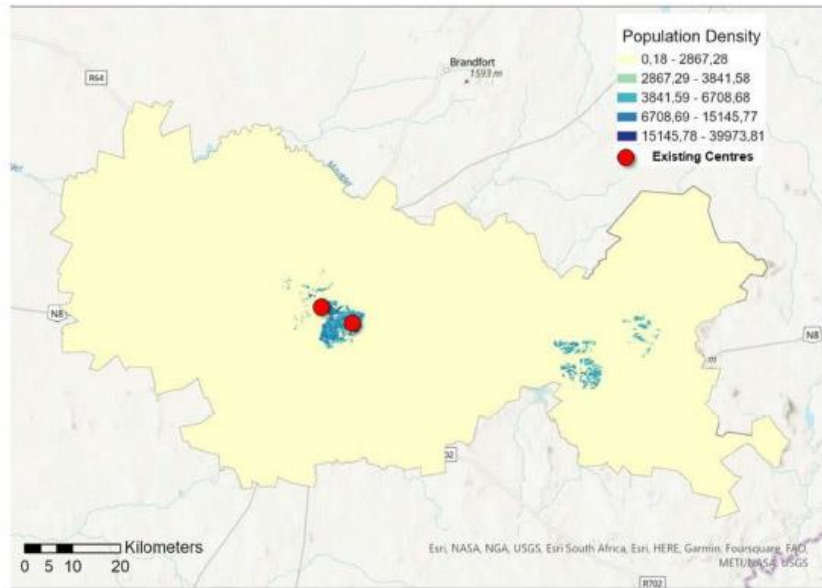


Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide7

Identify two locations on the map to add additional service centres. These centres should be located in high population density clusters with no other facility nearby (further than 10km away from existing centres).



7

On a scale from 0-10, How confident are you with your answer of the previous question?

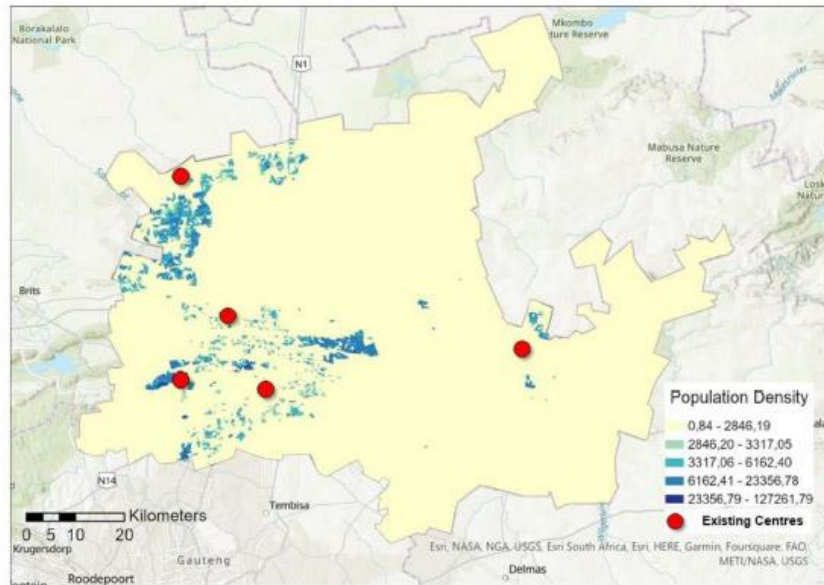


Finding relevant areas on the maps was:



Slide8

Identify two service centres that are incorrectly placed and should be relocated to different locations. Remember the ideal location would be high population density clusters with no other facility close by (within 10km).



8

On a scale from 0-10, How confident are you with your answer of the previous question?

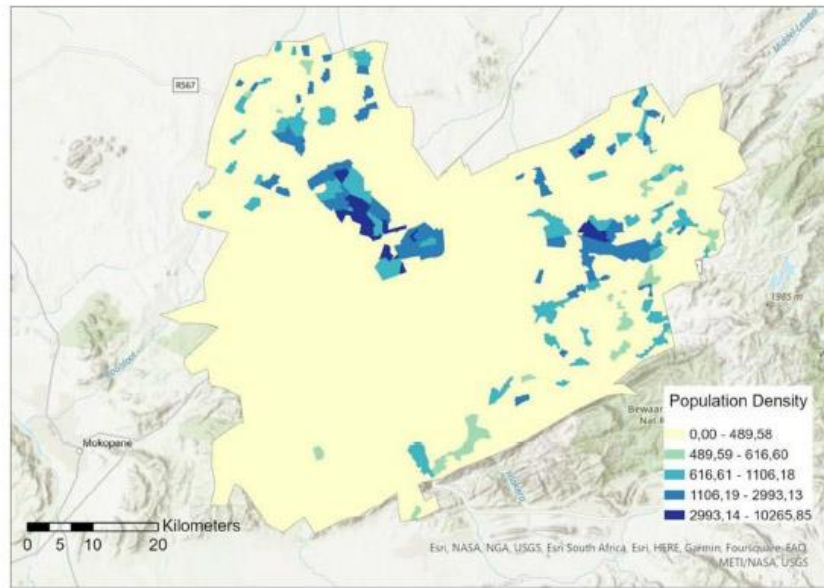


Finding relevant areas on the maps was:

- Very Easy Easy Neutral Difficult Very Difficult

Slide9

Identify 3 areas on the map where the population density is very low. Click on the relevant areas.



9

On a scale from 0-10, How confident are you with your answer of the previous question?

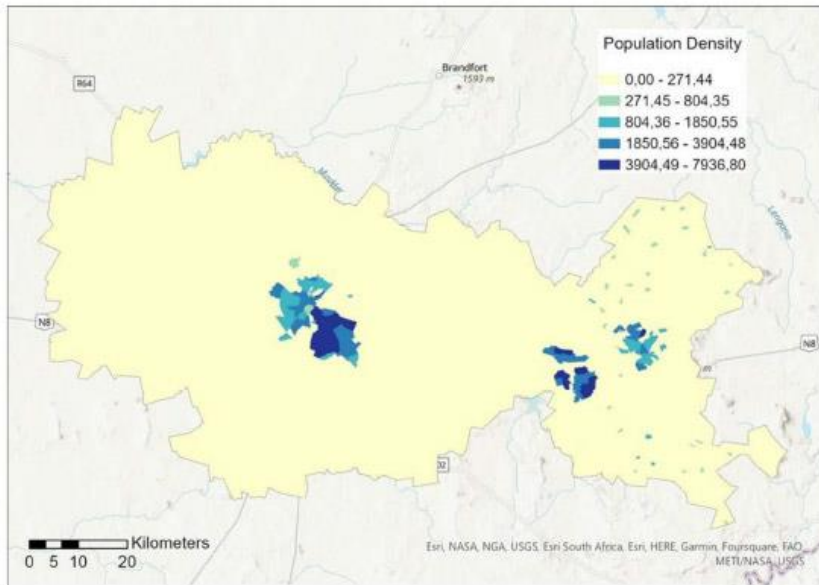


Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide10

Identify the best area for opening a new service centre. Ideally the new centre should be located in a densely populated cluster. The maximum threshold (catchment area of a service centre) is 10km, i.e. a centre serves only people within 10km from it. Anybody living further away is not served by that centre.



10

On a scale from 0-10, How confident are you with your answer of the previous question?

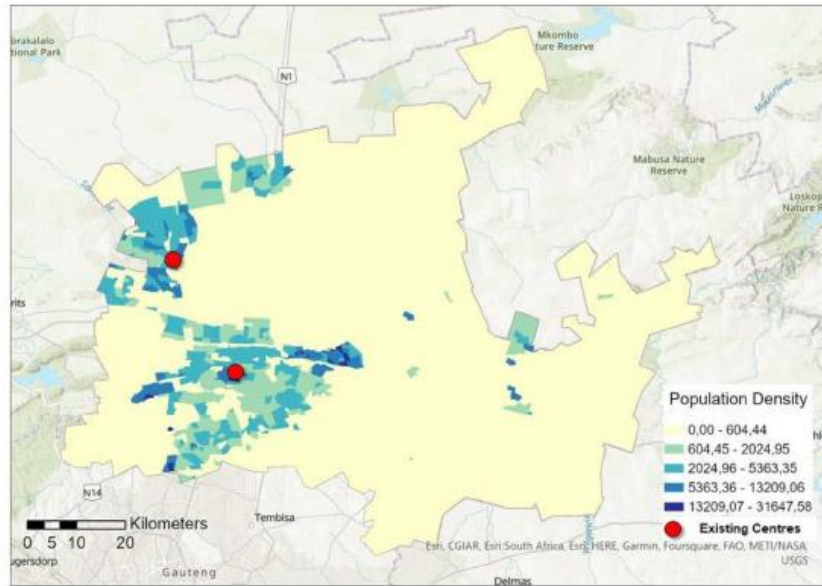


Finding relevant areas on the maps was:



Slide11

Identify two locations on the map to add additional service centres. These centres should be located in high population density clusters with no other facility nearby (further than 10km away from existing centres).



11

On a scale from 0-10, How confident are you with your answer of the previous question?

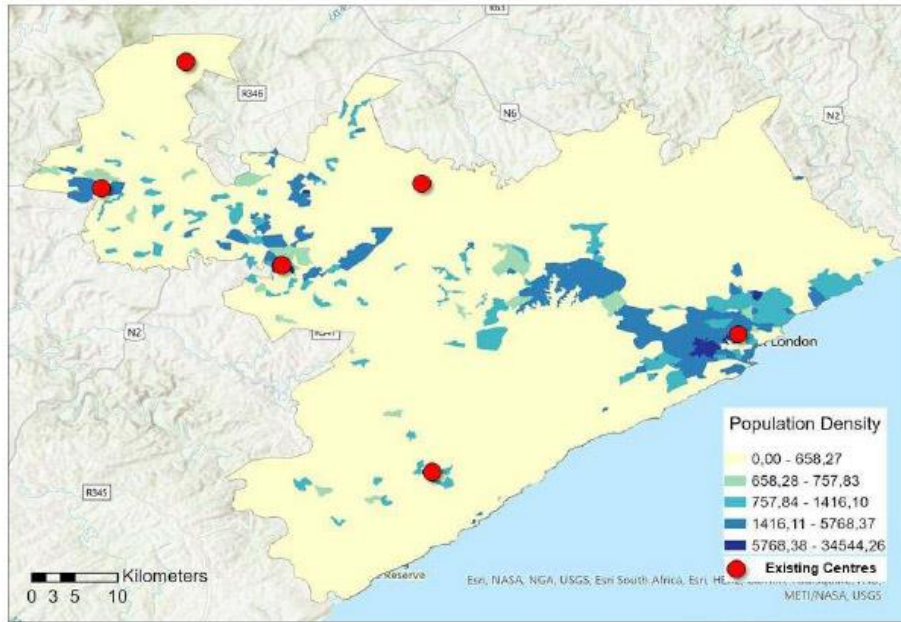


Finding relevant areas on the maps was:

- Very Easy Easy Neutral Difficult Very Difficult

Slide12

Identify two service centres that are incorrectly placed and should be relocated to different locations.
Remember the ideal location would be high population density clusters with no other facility close by (within 10km).



12

On a scale from 0-10, How confident are you with your answer of the previous question?

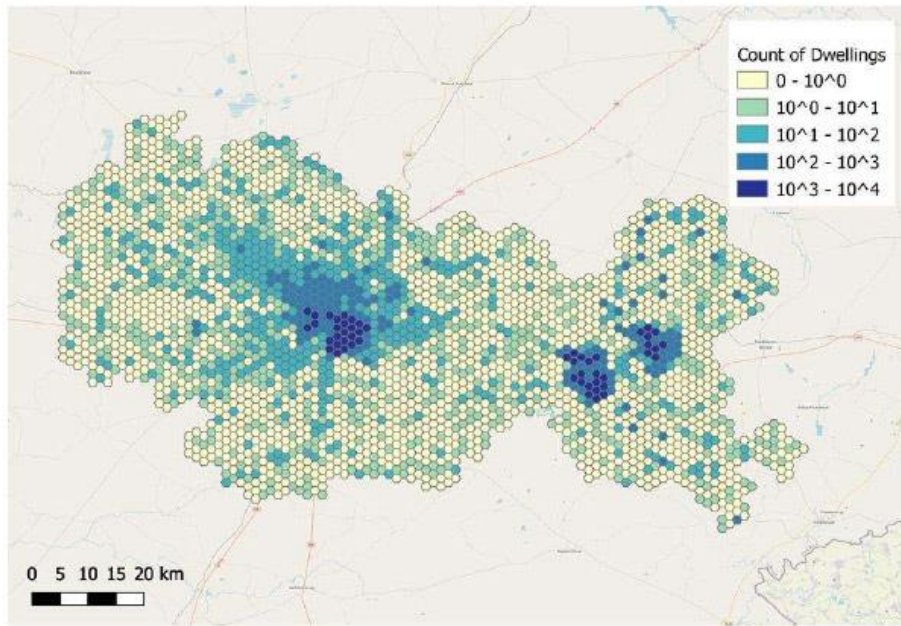
0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide13

Identify 3 areas on the map where the dwelling count is very low. Click on the relevant areas.



13

On a scale from 0-10, How confident are you with your answer of the previous question?

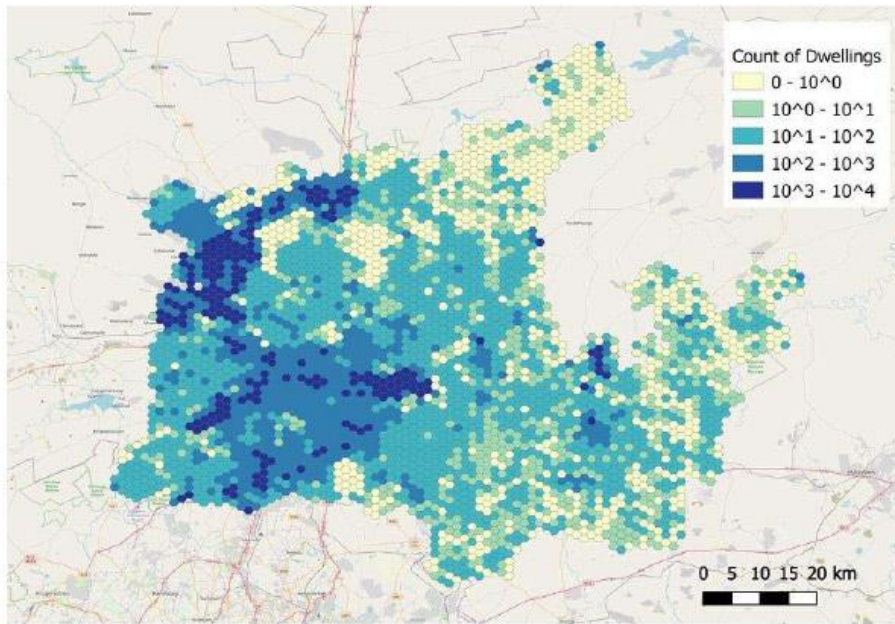
0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide14

Identify the best area for opening a new service centre. Ideally the new centre should be located in a densely populated cluster (areas with a high dwelling count). The maximum threshold (catchment area of a service centre) is 10km, i.e. a centre serves only people within 10km from it. Anybody living further away is not served by that centre.



14

On a scale from 0-10, How confident are you with your answer of the previous question?

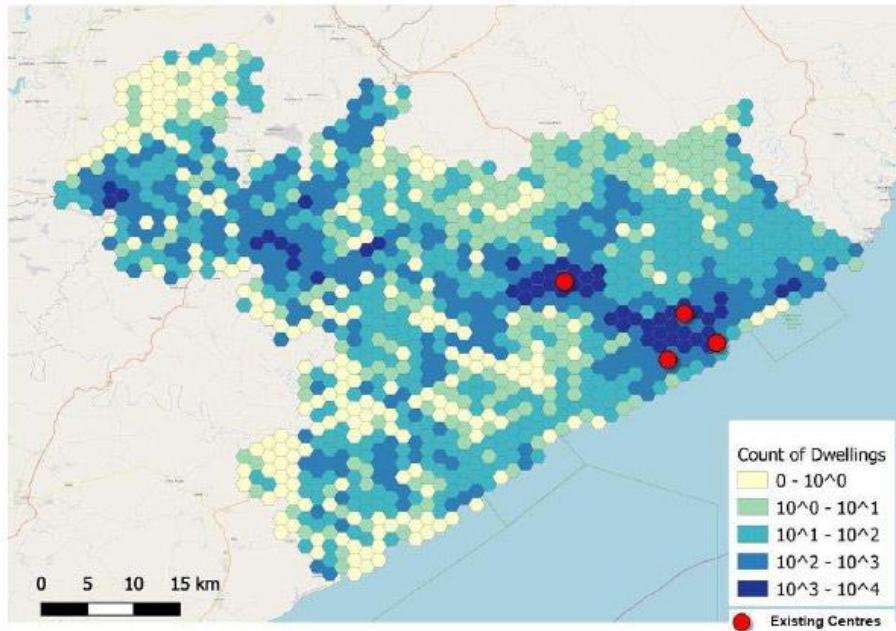
0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide15

Identify two locations on the map to add additional service centres. These centres should be located in high density clusters (areas with a high dwelling count) with no other facility nearby (further than 10km away from existing centres).



15

On a scale from 0-10, How confident are you with your answer of the previous question?

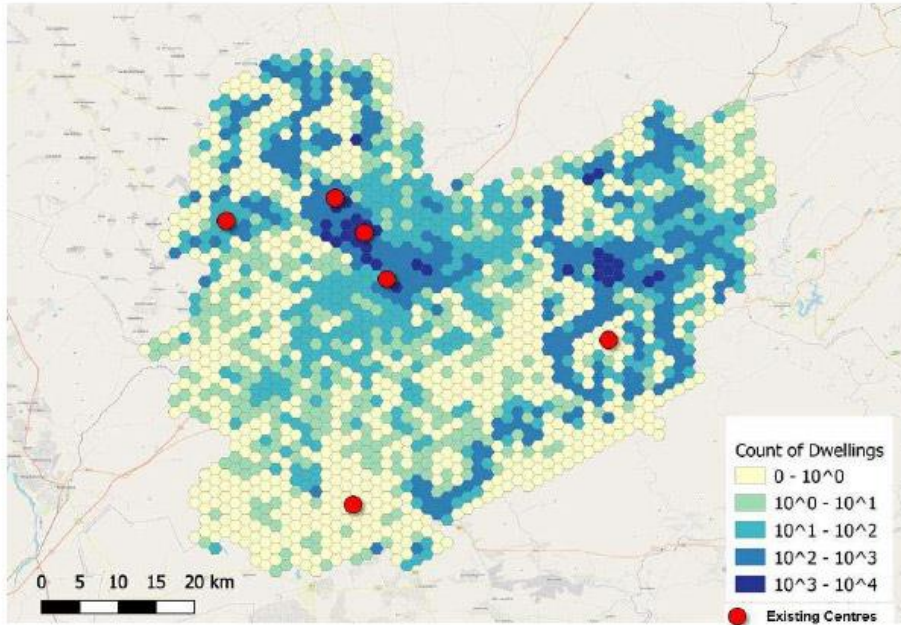
0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide16

Identify two service centres that are incorrectly placed and should be relocated to different locations.
Remember the ideal location would be high density clusters (areas with a high dwelling count) with no other facility close by (within 10km).



16

On a scale from 0-10, How confident are you with your answer of the previous question?

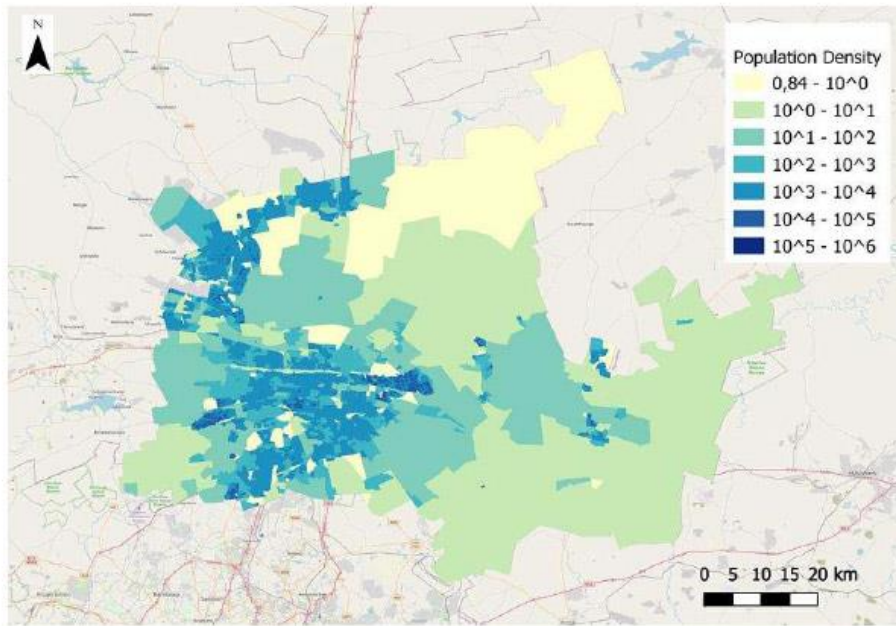
0 1 2 3 4 5 6 7 8 9 10
Confidence Level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide17

Identify 3 areas on the map where the population density is very low. Click on the relevant areas.



17

On a scale from 0-10, How confident are you with your answer of the previous question?

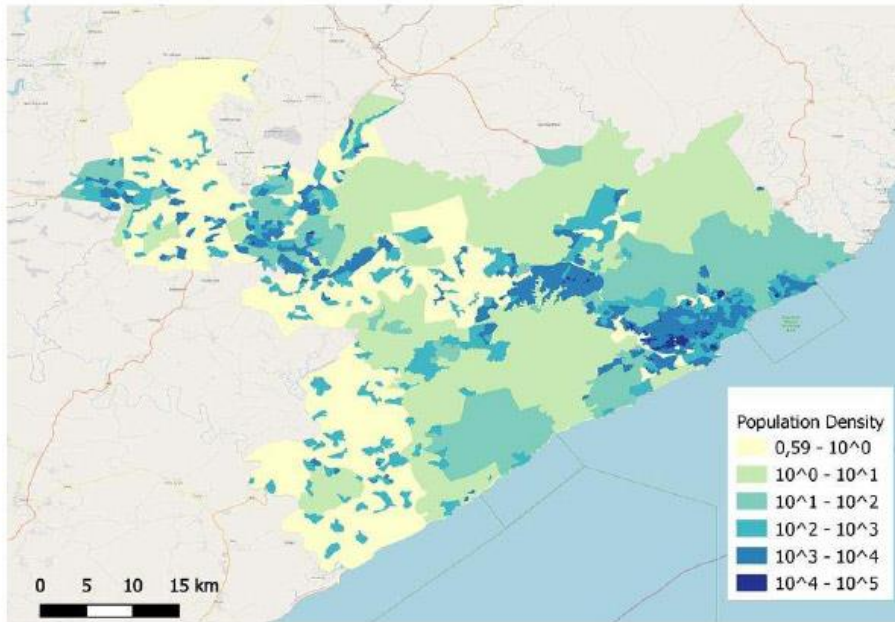
0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide18

Identify the best area for opening a new service centre. Ideally the new centre should be located in a densely populated cluster. The maximum threshold (catchment area of a service centre) is 10km, i.e. a centre serves only people within 10km from it. Anybody living further away is not served by that centre.



18

On a scale from 0-10, How confident are you with your answer of the previous question?

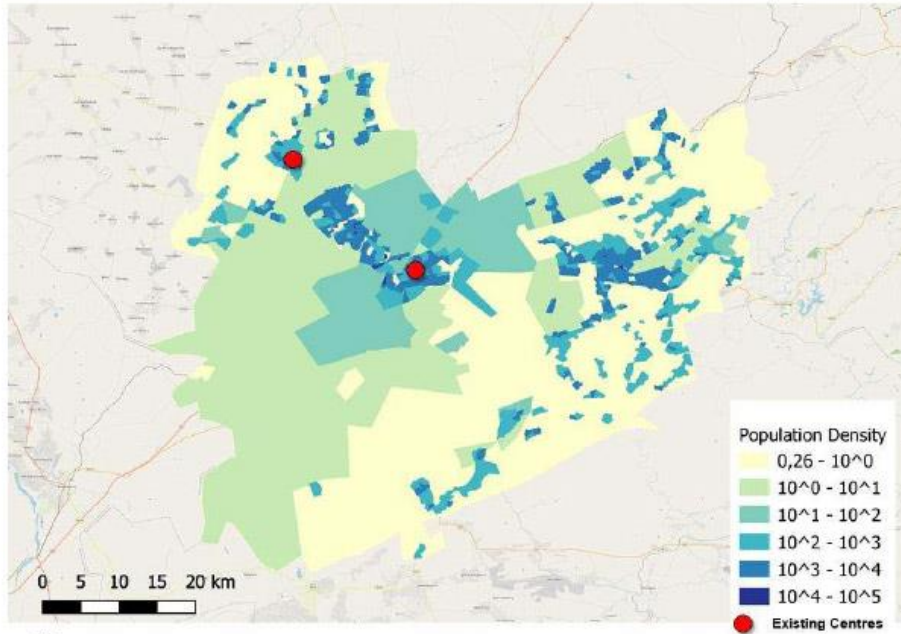
0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide19

Identify two locations on the map to add additional service centres. These centres should be located in high population density clusters with no other facility nearby (further than 10km away from existing centres).



19

On a scale from 0-10, How confident are you with your answer of the previous question?

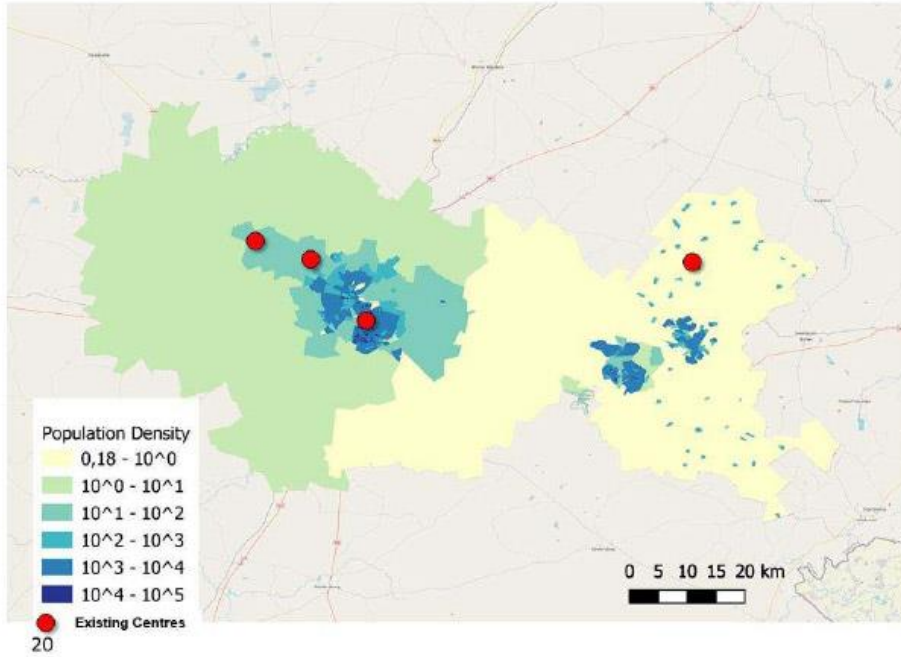
0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide20

Identify two service centres that are incorrectly placed and should be relocated to different locations. Remember the ideal location would be high population density clusters with no other facility close by (within 10km).



On a scale from 0-10, How confident are you with your answer of the previous question?

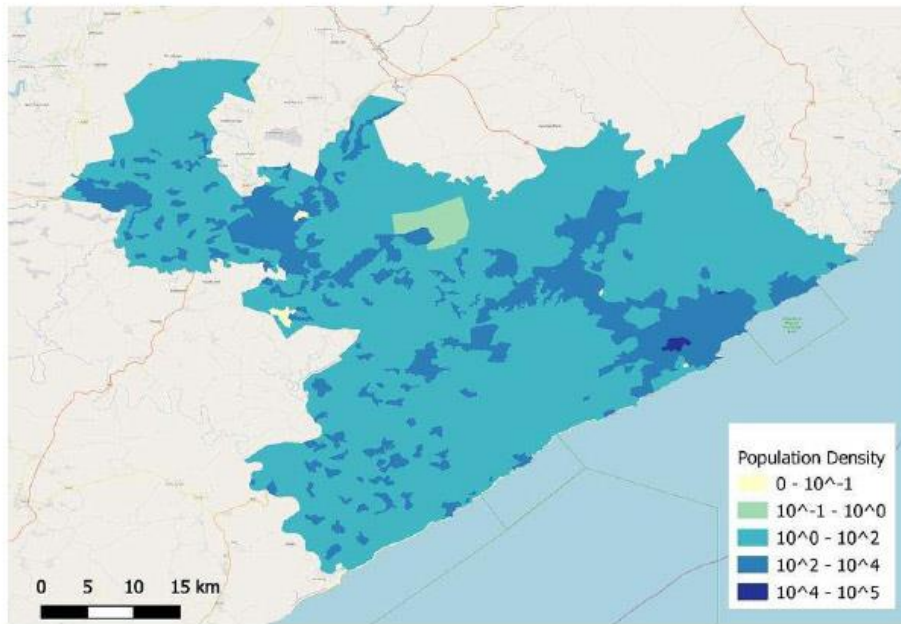
0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide21

Identify 3 areas on the map where the population density is very low. Click on the relevant areas.



21

On a scale from 0-10, How confident are you with your answer of the previous question?

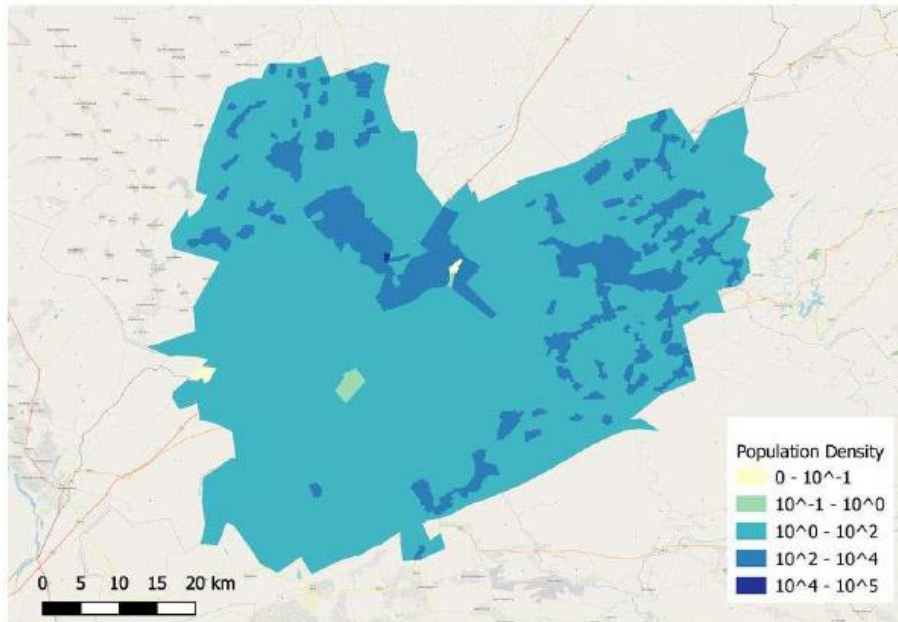
0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide22

Identify the best area for opening a new service centre. Ideally the new centre should be located in a densely populated cluster. The maximum threshold (catchment area of a service centre) is 10km, i.e. a centre serves only people within 10km from it. Anybody living further away is not served by that centre.



22

On a scale from 0-10, How confident are you with your answer of the previous question?

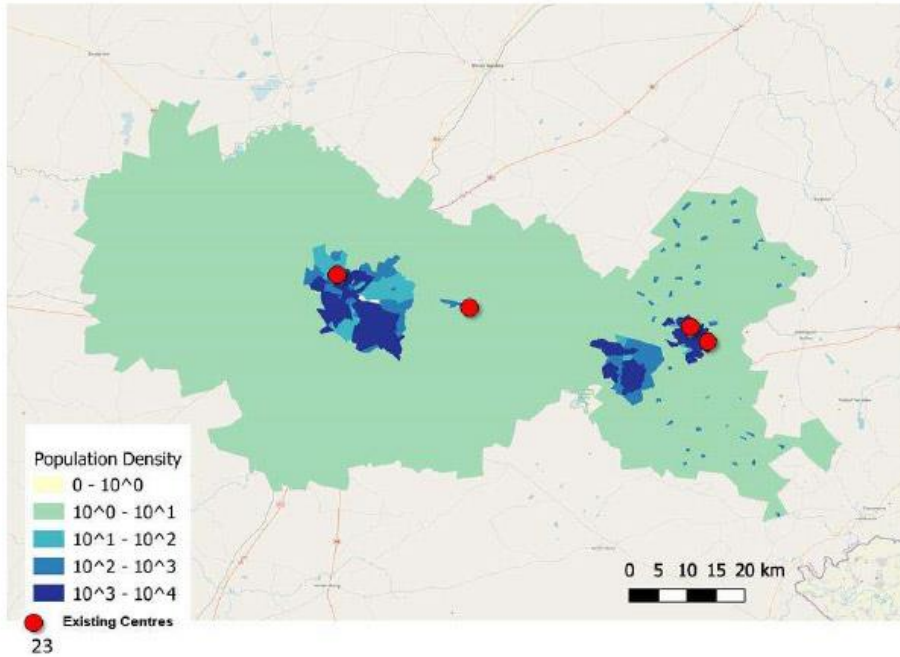
0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide23

Identify two locations on the map to add additional service centres. These centres should be located in high population density clusters with no other facility nearby (further than 10km away from existing centres).



On a scale from 0-10, How confident are you with your answer of the previous question?

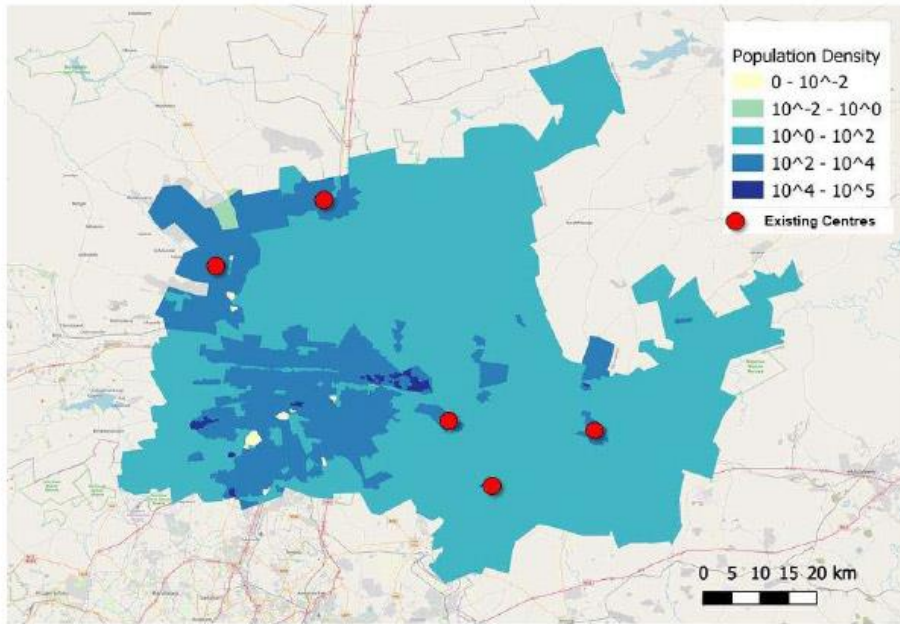
0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide24

Identify two service centres that are incorrectly placed and should be relocated to different locations.
Remember the ideal location would be high population density clusters with no other facility close by (within 10km).



24

On a scale from 0-10, How confident are you with your answer of the previous question?

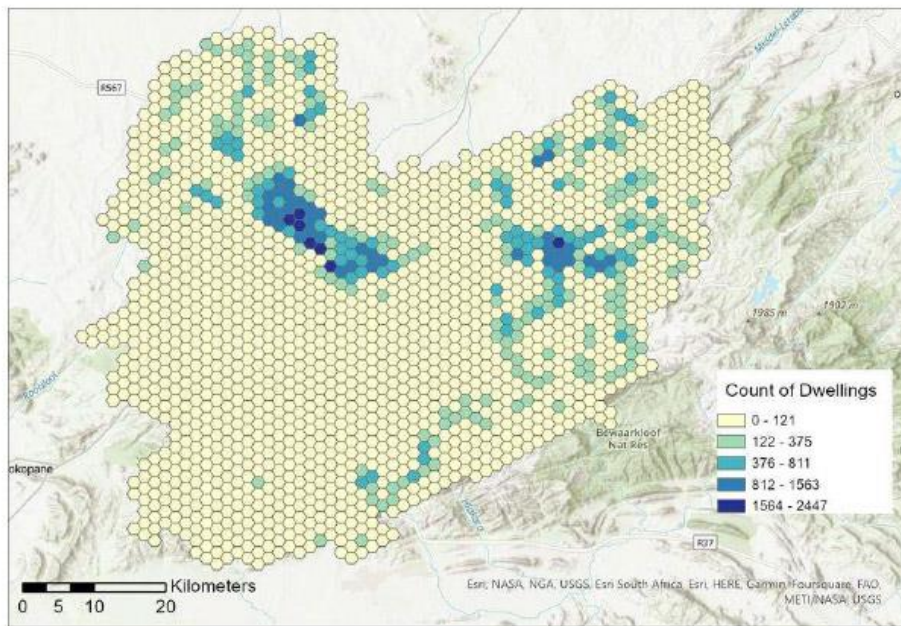
0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide25

Identify 3 areas on the map where the dwelling count is very low. Click on the relevant areas.



25

On a scale from 0-10, How confident are you with your answer of the previous question?

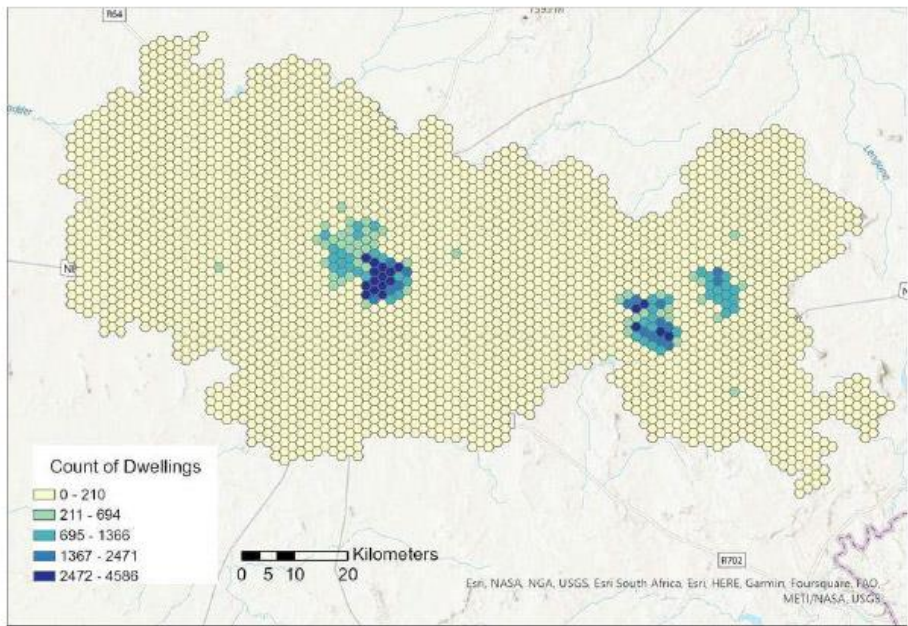
0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide26

Identify the best area for opening a new service centre. Ideally the new centre should be located in a densely populated cluster (areas with a high dwelling count). The maximum threshold (catchment area of a service centre) is 10km, i.e. a centre serves only people within 10km from it. Anybody living further away is not served by that centre.



26

On a scale from 0-10, How confident are you with your answer of the previous question?

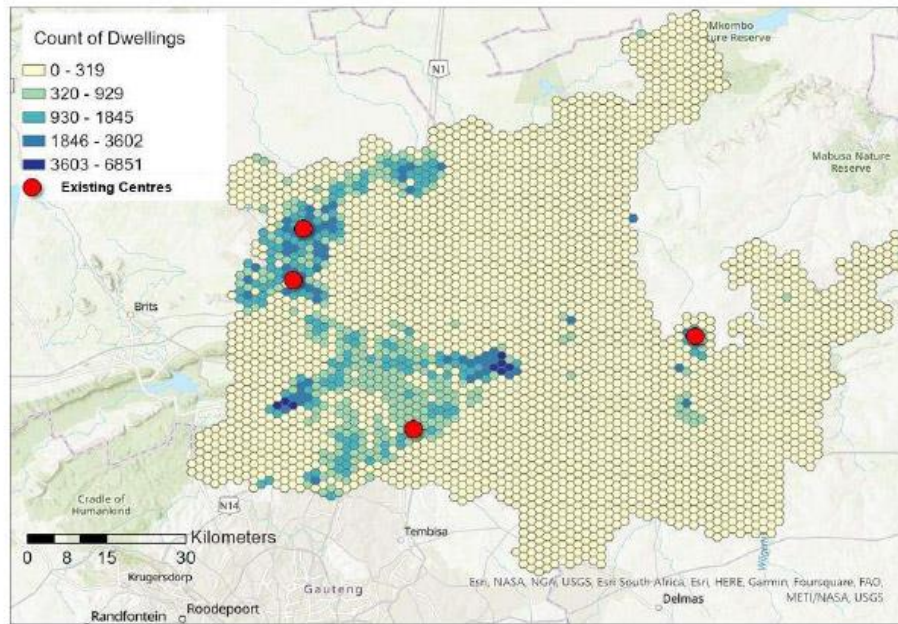
0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide 27

Identify two locations on the map to add additional service centres. These centres should be located in high density clusters (areas with a high dwelling count) with no other facility nearby (further than 10km away from existing centres).



27

On a scale from 0-10, How confident are you with your answer of the previous question?

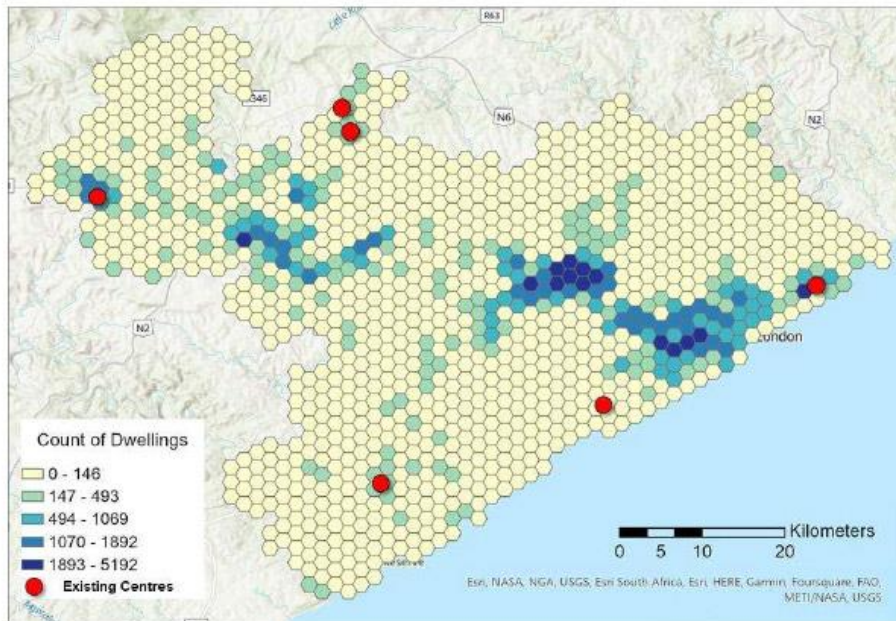
0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide28

Identify two service centres that are incorrectly placed and should be relocated to different locations.
Remember the ideal location would be high density clusters (areas with a high dwelling count) with no other facility close by (within 10km).



28

On a scale from 0-10, How confident are you with your answer of the previous question?

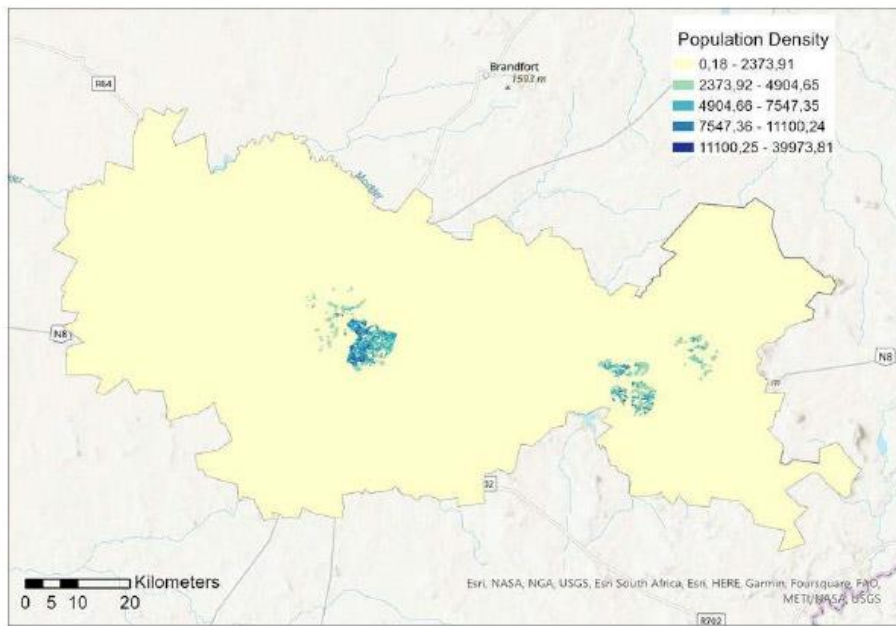
0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide29

Identify 3 areas on the map where the population density is very low. Click on the relevant areas.



29

On a scale from 0-10, How confident are you with your answer of the previous question?

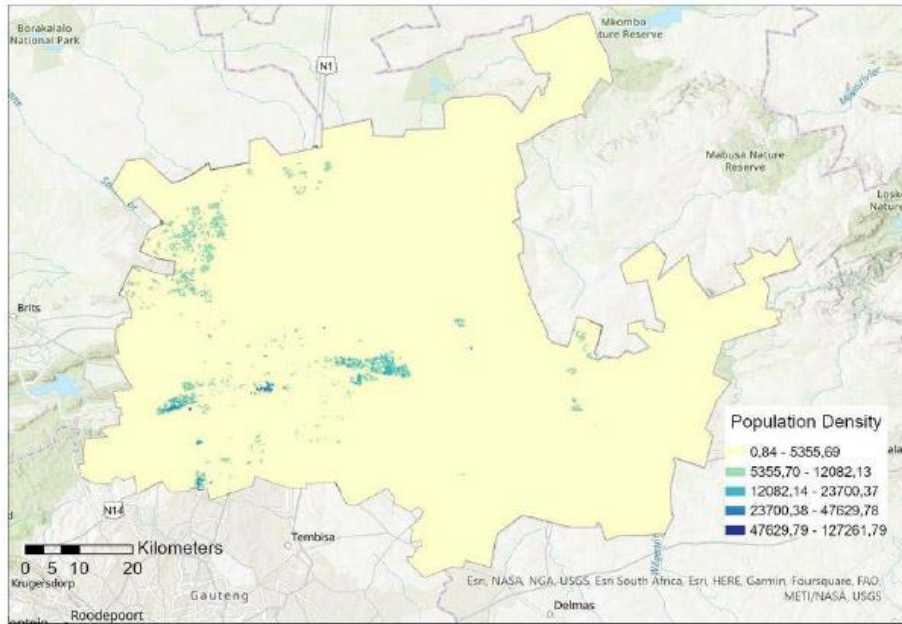
0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide30

Identify the best area for opening a new service centre. Ideally the new centre should be located in a densely populated cluster. The maximum threshold (catchment area of a service centre) is 10km, i.e. a centre serves only people within 10km from it. Anybody living further away is not served by that centre.



30

On a scale from 0-10, How confident are you with your answer of the previous question?

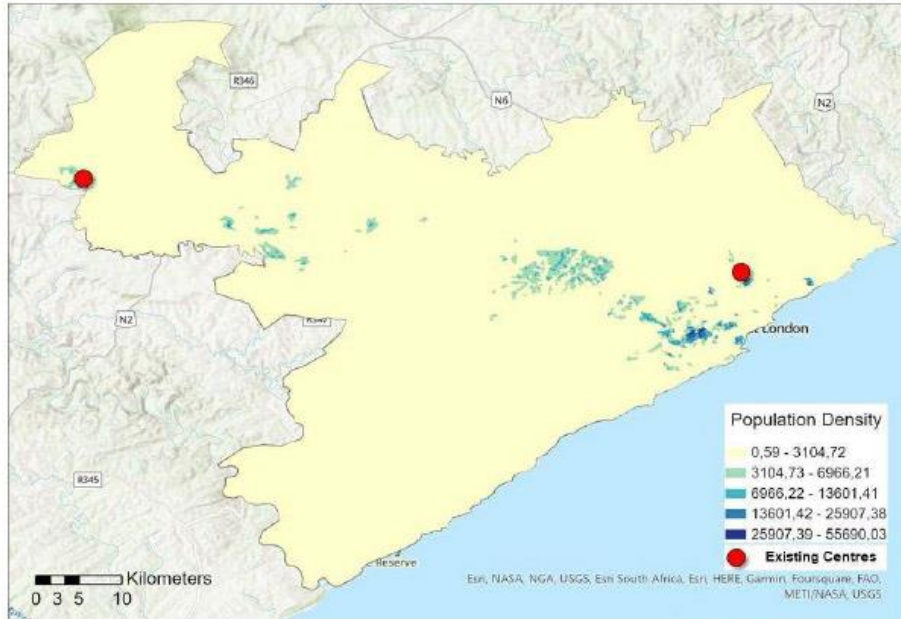
0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide31

Identify two locations on the map to add additional service centres. These centres should be located in high population density clusters with no other facility nearby (further than 10km away from existing centres).



31

On a scale from 0-10, How confident are you with your answer of the previous question?

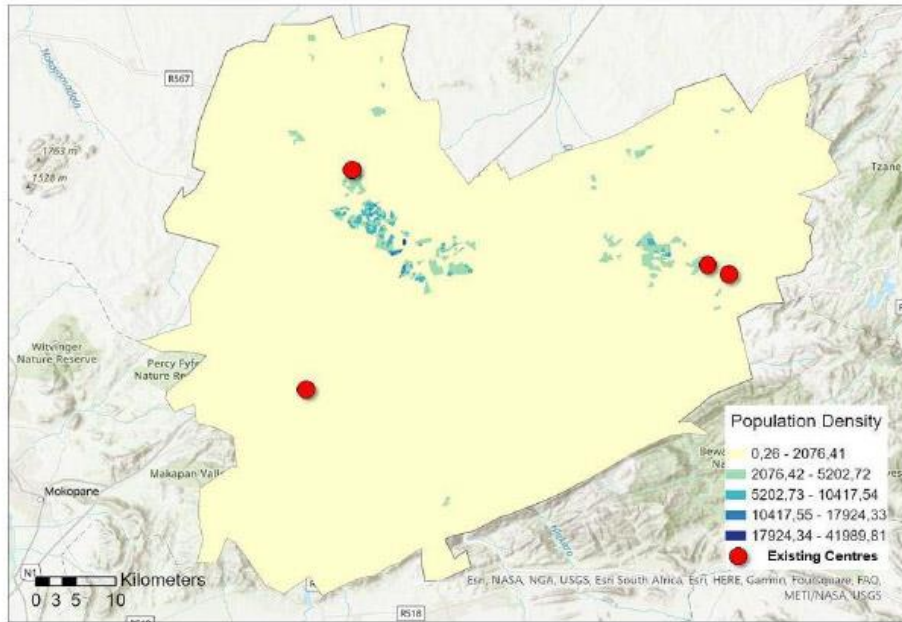
0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide32

Identify two service centres that are incorrectly placed and should be relocated to different locations.
Remember the ideal location would be high population density clusters with no other facility close by (within 10km).



32

On a scale from 0-10, How confident are you with your answer of the previous question?

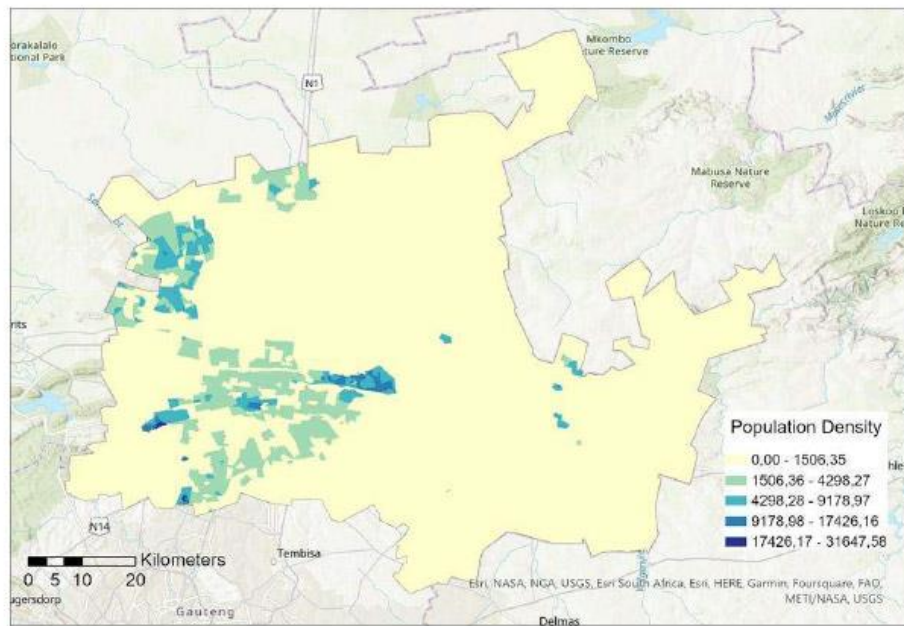
0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide33

Identify 3 areas on the map where the population density is very low. Click on the relevant areas.



33

On a scale from 0-10, How confident are you with your answer of the previous question?

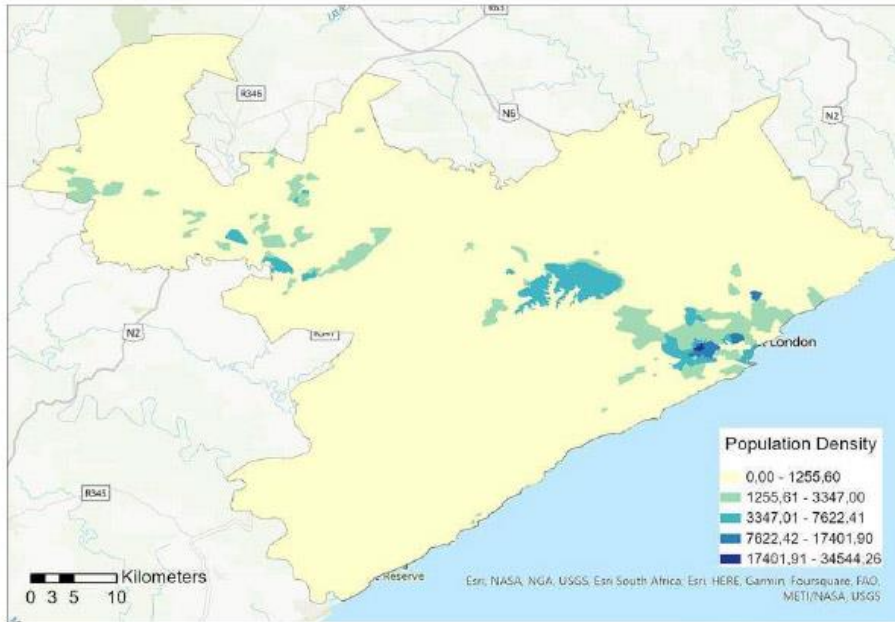
0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide34

Identify the best area for opening a new service centre. Ideally the new centre should be located in a densely populated cluster. The maximum threshold (catchment area of a service centre) is 10km, i.e. a centre serves only people within 10km from it. Anybody living further away is not served by that centre.



34

On a scale from 0-10, How confident are you with your answer of the previous question?

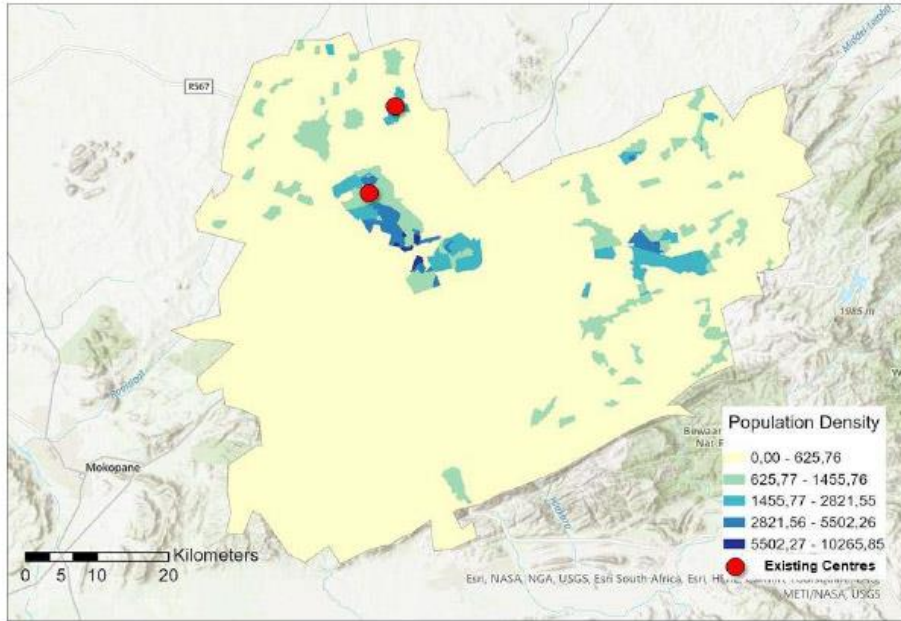
0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide35

Identify two locations on the map to add additional service centres. These centres should be located in high population density clusters with no other facility nearby (further than 10km away from existing centres).



35

On a scale from 0-10, How confident are you with your answer of the previous question?

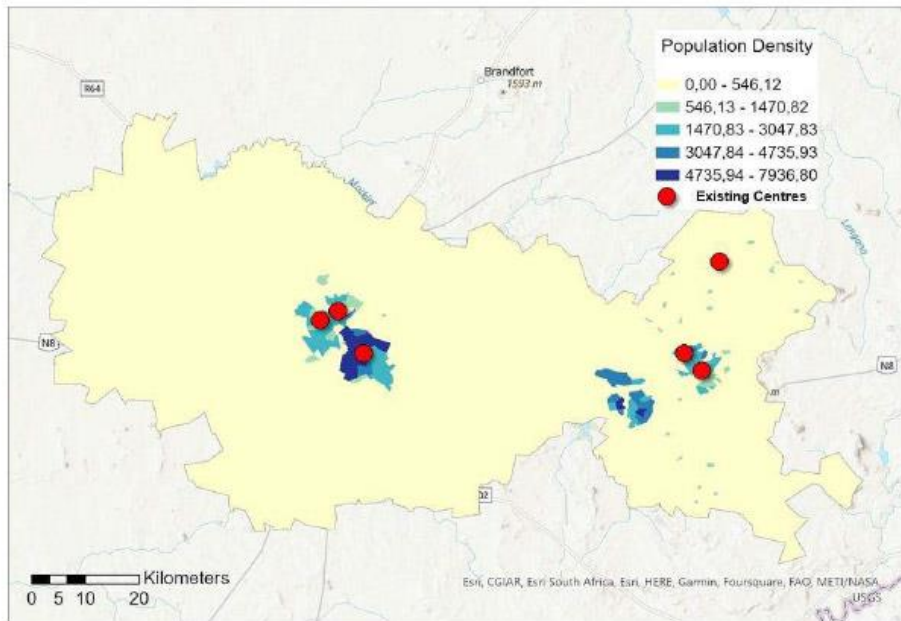
0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide36

Identify two service centres that are incorrectly placed and should be relocated to different locations. Remember the ideal location would be high population density clusters with no other facility close by (within 10km).



36

On a scale from 0-10, How confident are you with your answer of the previous question?

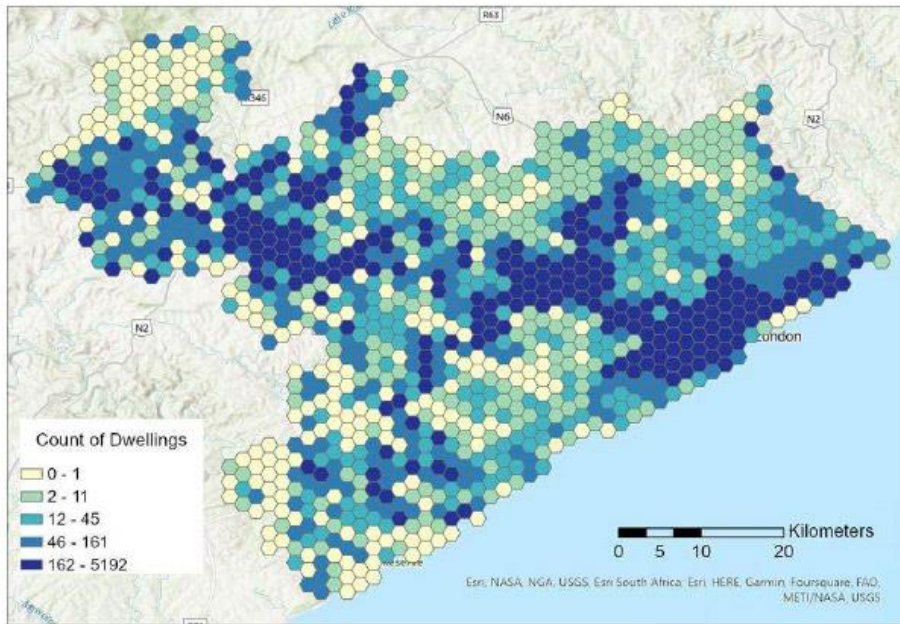
0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide37

Identify 3 areas on the map where the dwelling count is very low. Click on the relevant areas.



37

On a scale from 0-10, How confident are you with your answer of the previous question?

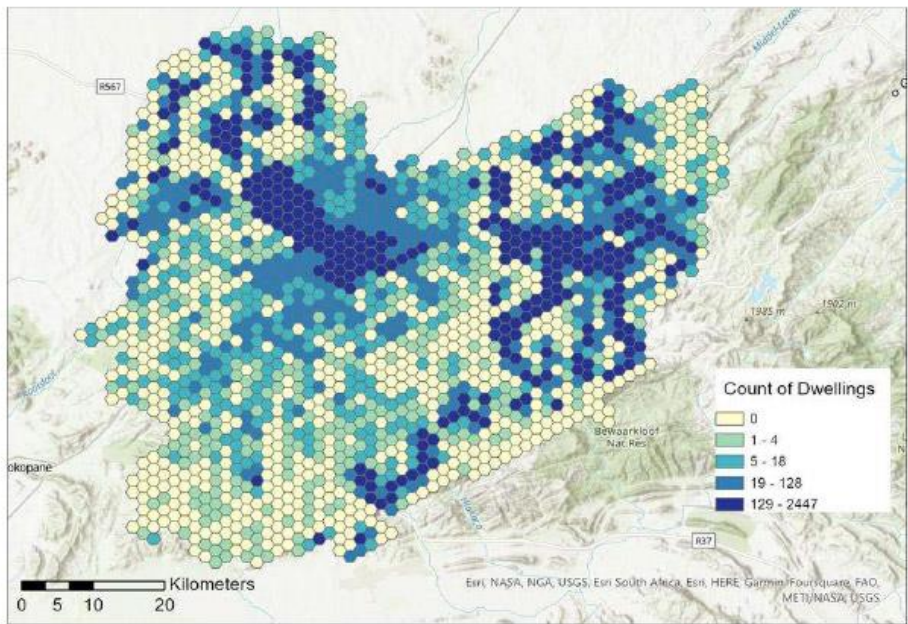
0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide38

Identify the best area for opening a new service centre. Ideally the new centre should be located in a densely populated cluster (areas with a high dwelling count). The maximum threshold (catchment area of a service centre) is 10km, i.e. a centre serves only people within 10km from it. Anybody living further away is not served by that centre.



38

On a scale from 0-10, How confident are you with your answer of the previous question?

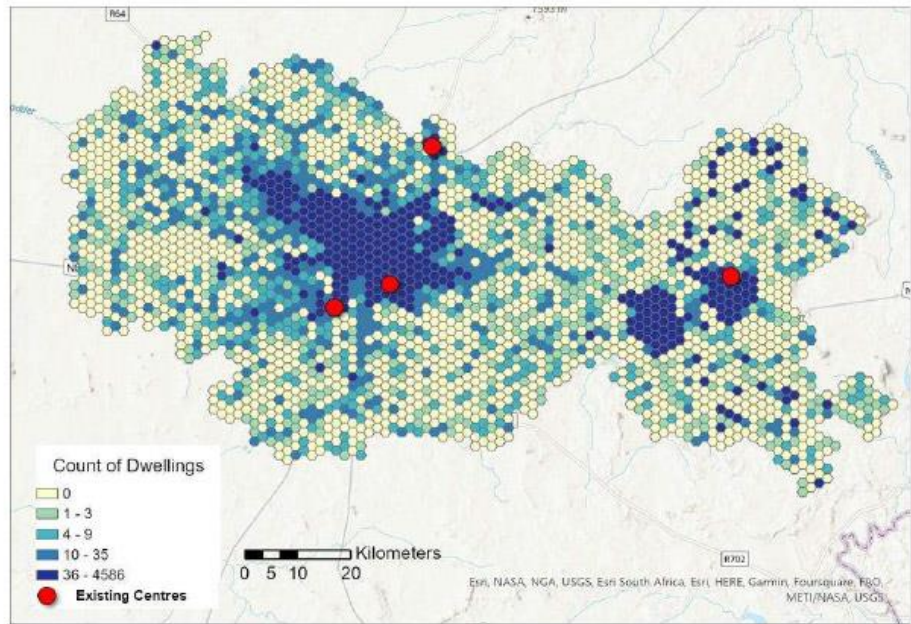
0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide39

Identify two locations on the map to add additional service centres. These centres should be located in high density clusters (areas with a high dwelling count) with no other facility nearby (further than 10km away from existing centres).



39

On a scale from 0-10, How confident are you with your answer of the previous question?

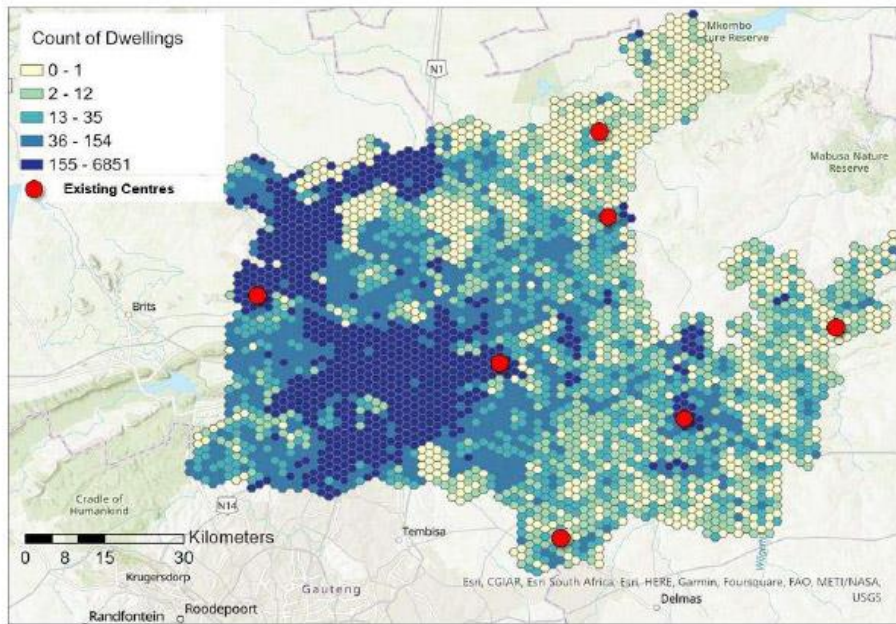
0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide40

Identify two service centres that are incorrectly placed and should be relocated to different locations.
Remember the ideal location would be high density clusters (areas with a high dwelling count) with no other facility close by (within 10km).



40

On a scale from 0-10, How confident are you with your answer of the previous question?

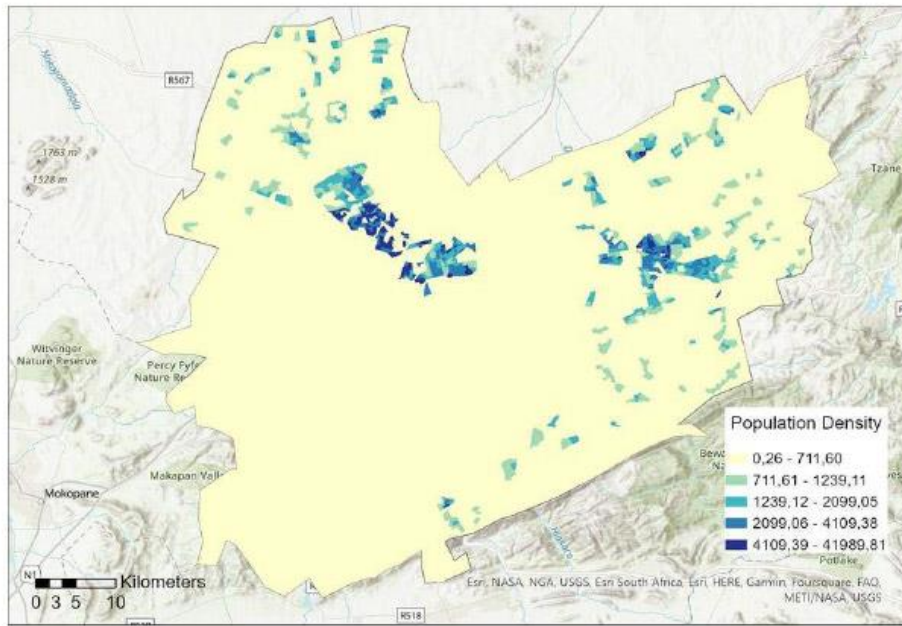
0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide41

Identify 3 areas on the map where the population density is very low. Click on the relevant areas.



41

On a scale from 0-10, How confident are you with your answer of the previous question?

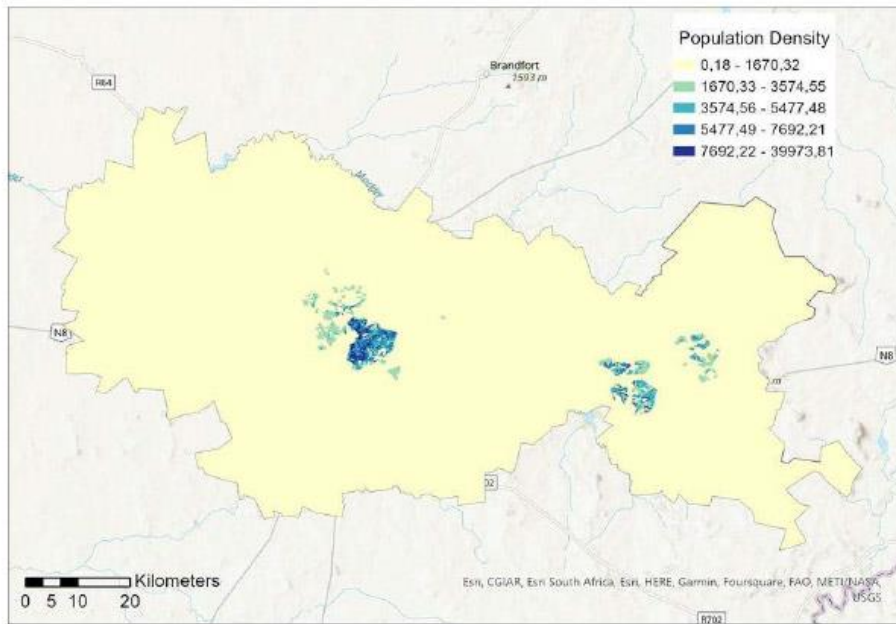
0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide42

Identify the best area for opening a new service centre. Ideally the new centre should be located in a densely populated cluster. The maximum threshold (catchment area of a service centre) is 10km, i.e. a centre serves only people within 10km from it. Anybody living further away is not served by that centre.



42

On a scale from 0-10, How confident are you with your answer of the previous question?

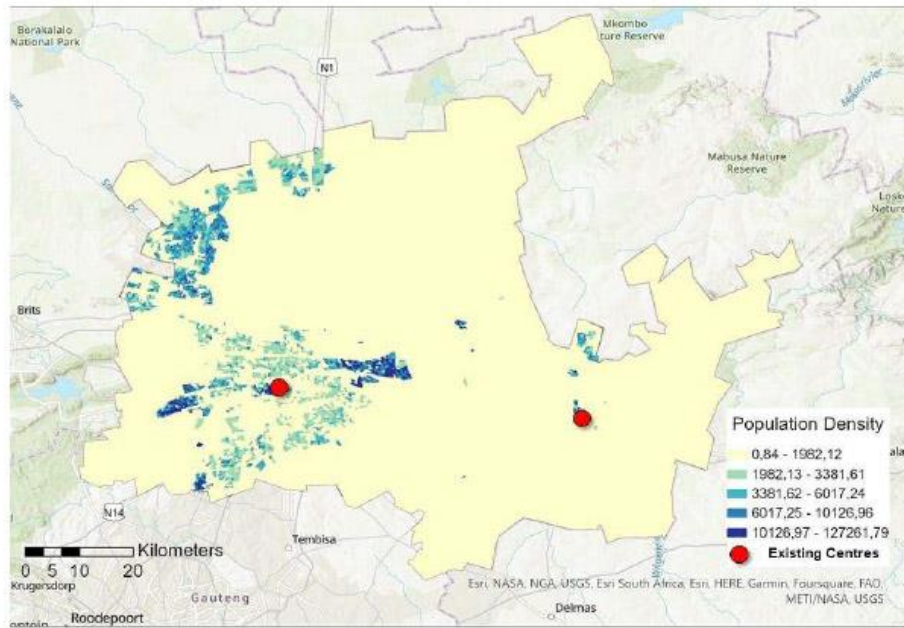
0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide43

Identify two locations on the map to add additional service centres. These centres should be located in high population density clusters with no other facility nearby (further than 10km away from existing centres).



43

On a scale from 0-10, How confident are you with your answer of the previous question?

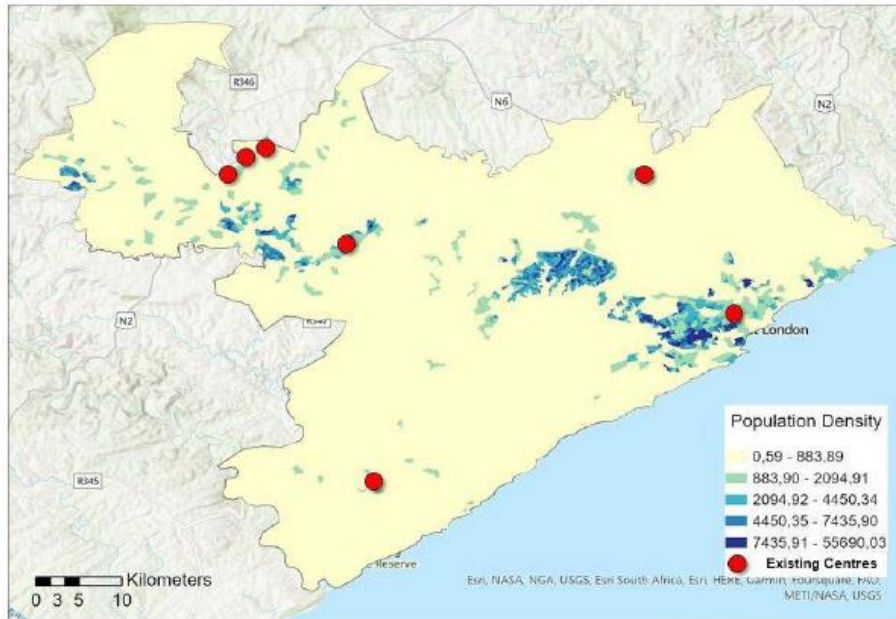
0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide44

Identify two service centres that are incorrectly placed and should be relocated to different locations.
Remember the ideal location would be high population density clusters with no other facility close by (within 10km).



44

On a scale from 0-10, How confident are you with your answer of the previous question?

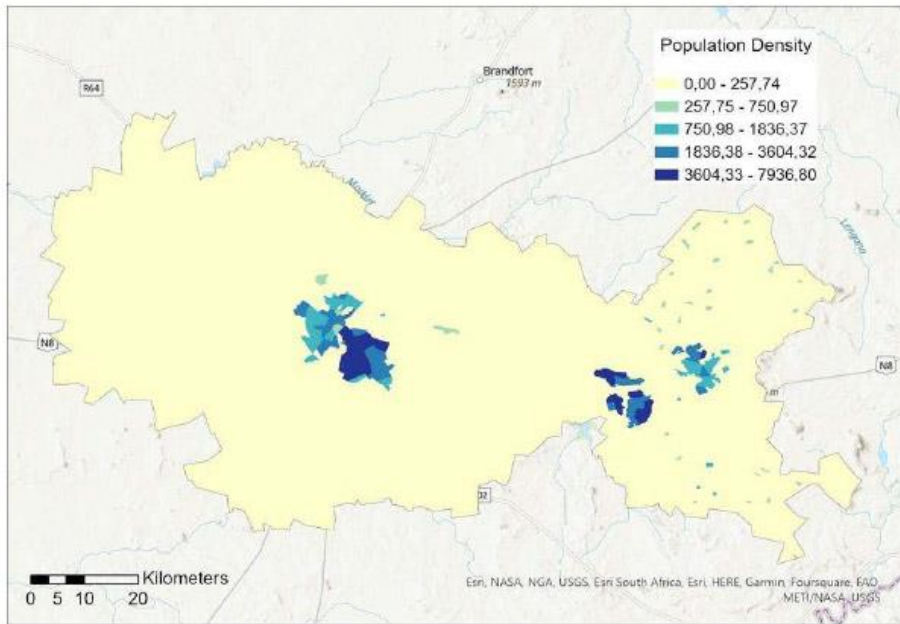
0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide45

Identify 3 areas on the map where the population density is very low. Click on the relevant areas.



45

On a scale from 0-10, How confident are you with your answer of the previous question?

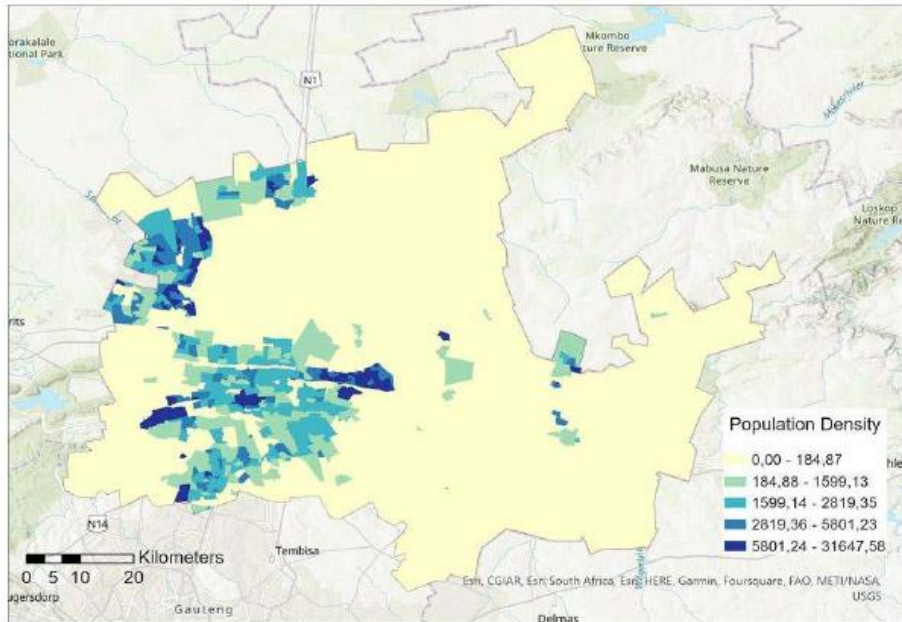
0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide46

Identify the best area for opening a new service centre. Ideally the new centre should be located in a densely populated cluster. The maximum threshold (catchment area of a service centre) is 10km, i.e. a centre serves only people within 10km from it. Anybody living further away is not served by that centre.



46

On a scale from 0-10, How confident are you with your answer of the previous question?

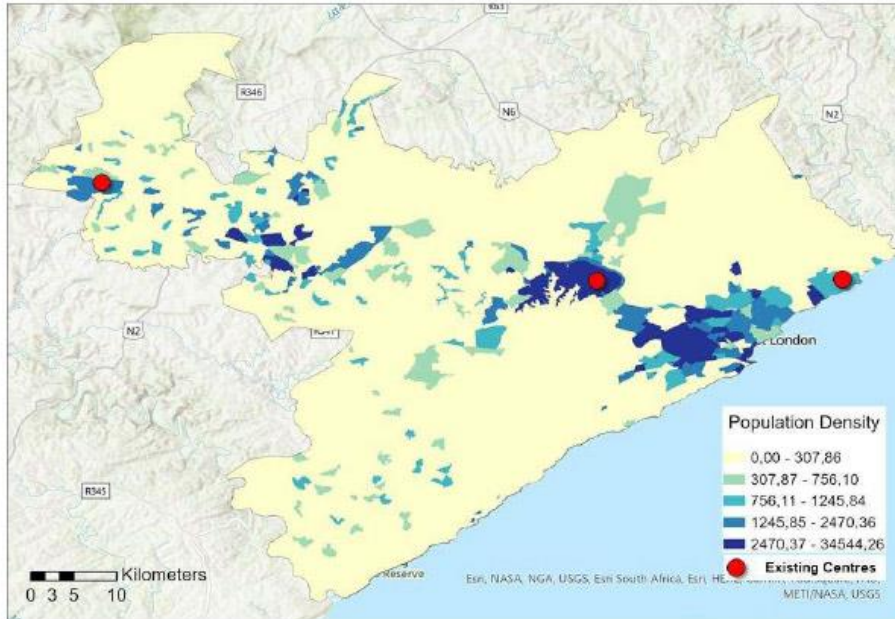
0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide47

Identify two locations on the map to add additional service centres. These centres should be located in high population density clusters with no other facility nearby (further than 10km away from existing centres).



47

On a scale from 0-10, How confident are you with your answer of the previous question?

0 1 2 3 4 5 6 7 8 9 10
Confidence level

Finding relevant areas on the maps was:

Very Easy Easy Neutral Difficult Very Difficult

Slide48

