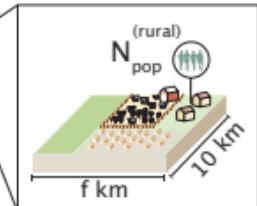
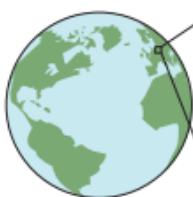


(A) RURAL POPULATION DENSITY ESTIMATE



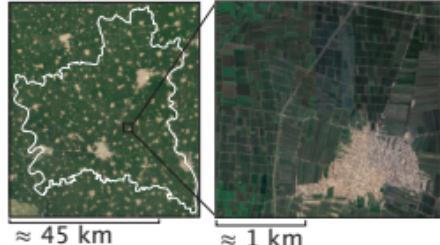
typical population, $N_{\text{pop}}^{(\text{rural})} \approx f \times 10^3$

typical area, $A \approx f \times 10 \text{ km}^2$

→ typical density, $\rho_{(\text{rural})} \approx \frac{N_{\text{pop}}^{(\text{rural})}}{A} \approx \frac{f \times 10^3 \text{ people}}{f \times 10 \text{ km}^2} \approx 10^2 \text{ people / km}^2$

Gharbia Governorate, Egypt

Google Earth
Landsat / Copernicus © 2020 Maxar technologies



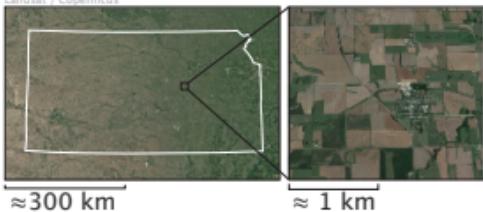
land area, $A \approx 2 \times 10^3 \text{ km}^2$

rural population, $N_{\text{pop}}^{(\text{rural})} \approx 3 \times 10^6$

→ density, $\rho \approx \frac{2000 \text{ people}}{1 \text{ km}^2}$

State of Kansas, USA

Google Earth
Landsat / Copernicus



land area, $A \approx 2 \times 10^5 \text{ km}^2$

rural population, $N_{\text{pop}}^{(\text{rural})} \approx 2 \times 10^6$

→ density, $\rho \approx \frac{10 \text{ people}}{1 \text{ km}^2}$

(B) RURAL LAND AREA ESTIMATE

$$\text{total rural land area, } A_{\text{rural}} \approx \frac{N_{\text{rural}}^{(\text{global})}}{\rho} \approx \frac{f \times 10^9 \text{ people}}{10^2 \text{ people/km}^2} \approx f \times 10^7 \text{ km}^2$$