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The Hybrid Villa-Apartment as a Land-saving Housing Alternative: Case Study of Greater Khartoum, Sudan

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INTRODUCTION: SUDAN

- **Sudan ranks 3rd in the Arab world in terms of area (1.8 million sq. km.) and also in terms of population (39 million in 2018).**
- **Sudan has been experiencing rapid urbanization during the past three decades: its urbanization rate: 4.8% per year, while the population growth rate was 2.4% per year.**
- **The percentage of urban population in Sudan grew from 8.8% of the total population in 1956 to about 33% in 2018.**

INTRODUCTION: SUDAN

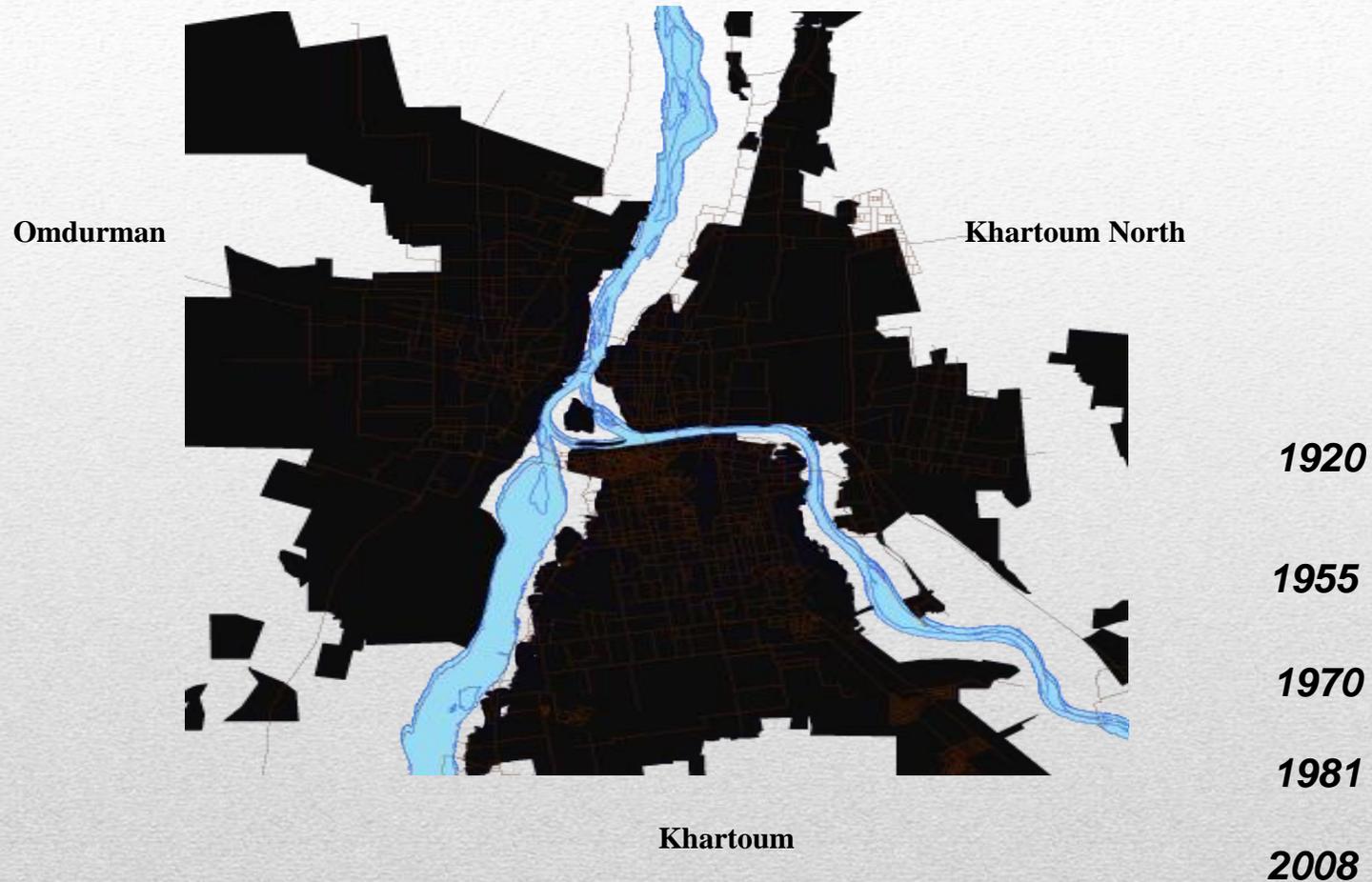
- **Housing consumes about 50% of urban land, and home-ownership amounts to 80 % of total households.**
- **65% of urban housing is in the form of single-storey houses, which results in massive sprawl and wasteful utilization of a valuable finite resource – land.**
- **The present study investigates alternatives to curb massive sprawl, and highlights an emerging form of housing that promises to raise housing densities and to preserve land.**

INTRODUCTION: GREATER KHARTOUM

- **The urban primacy of Greater Khartoum, the capital of Sudan, is evident: its 2018 population of 5.8 million people amounted to 43% of Sudan's urban population and to 15% of its total population. One of every seven Sudanese live in it.**
- **Its annual growth rate of 4.8% is double that of Sudan (2.4%).**
- **The strong pull of Greater Khartoum is due to the fact that most of the political power, economic, educational and medical institutions are concentrated in it.**

Greater Khartoum Urbanization and Housing

- **Greater Khartoum is a city of low-density that has encroached upon the surrounding agricultural and unused dry-lands as it has grown outwards.**
- **It covered an area of 1,261 sq. km in 2017. It has expanded in area by 17 folds since Independence in 1956, while its population has increased by 23 folds since then.**
- **Single-storey houses comprise 88 % of all housing stock in Greater Khartoum, while apartment blocks and multi-storey houses comprise insignificant percentages (less than 5%).**



Source: Composed from various sources

Horizontal Expansion of G. Khartoum

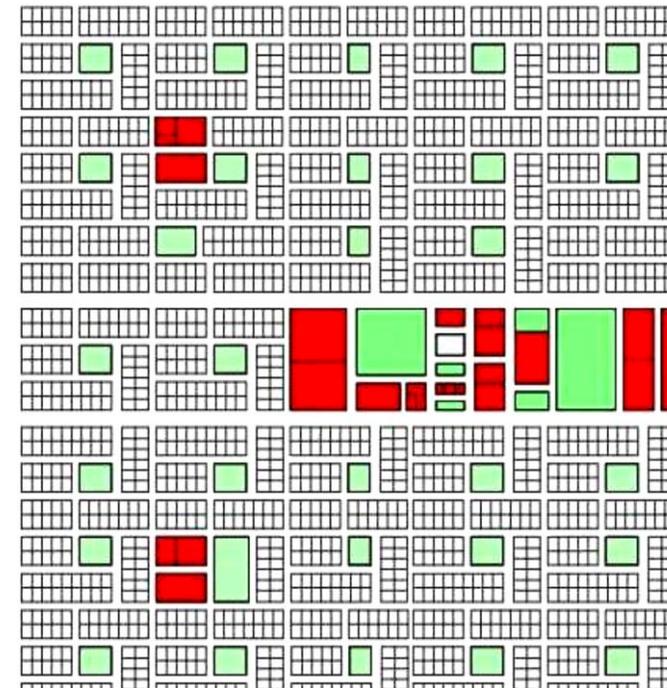
Greater Khartoum's Horizontal Expansion



<https://urbanprojectization.com/>

Greater Khartoum's Horizontal Expansion Explained

The vast horizontal expansion of Greater Khartoum can be attributed to wasteful land utilization through the use of large residential plots (300-800 sq. meters) for single-family detached houses and villas; numerous open spaces (2,500 – 10,000 sq. meters on average) in each neighbourhood; and wide roads, 10 – 40 meter residential roads, 50 – 60 meter thoroughfares.



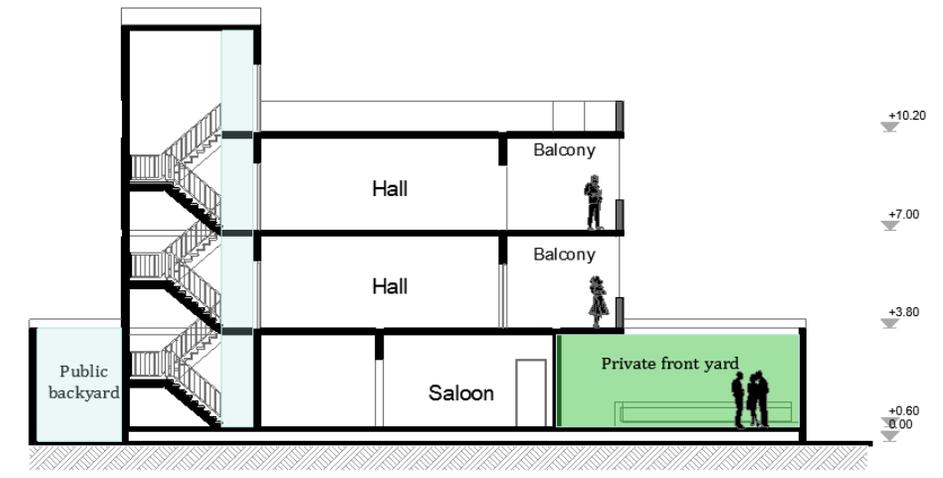
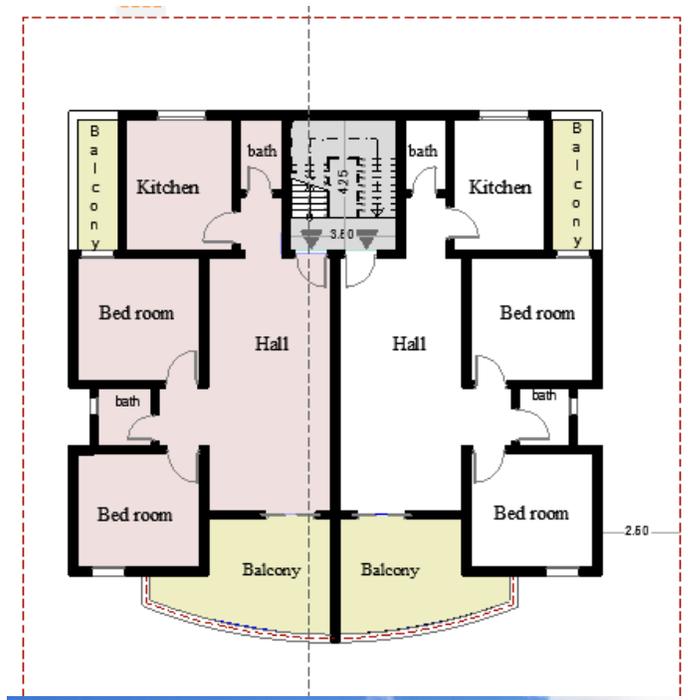
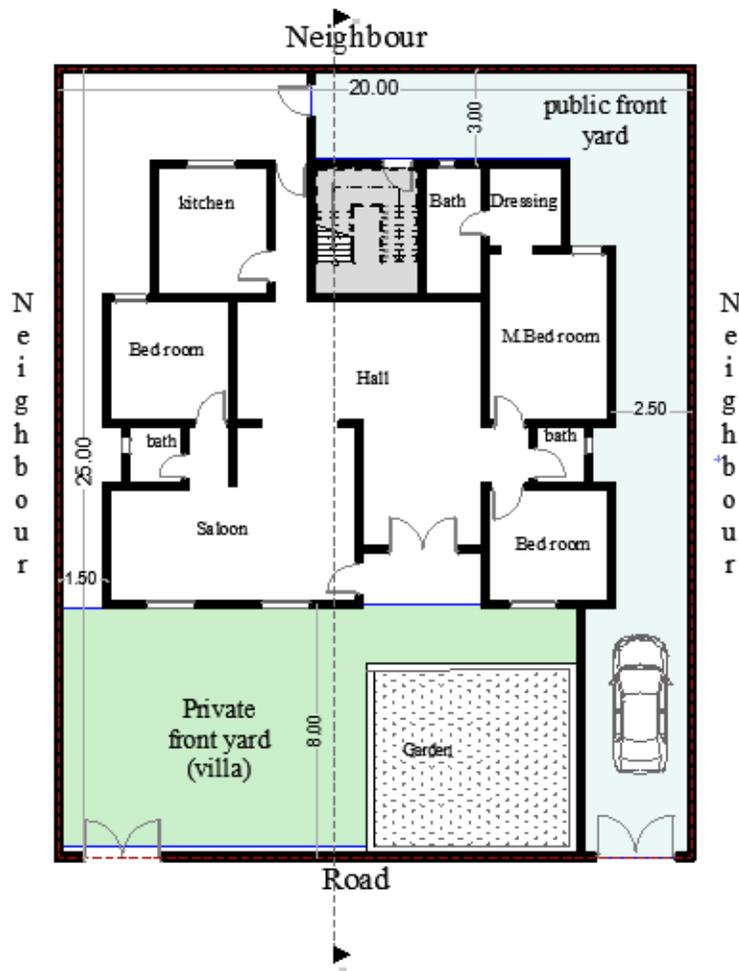
Greater Khartoum's Housing Types



The Genesis of the Hybrid Villa-Apartment

- **The hybrid villa-apartment is a relatively new type of housing that did not figure in the 2008 census results. However, recent studies have estimated that about 80% of new housing constructed in new urban neighbourhoods in Greater Khartoum is in the form of hybrid villa-apartments**
- **A typical 500 square meter plot in a first-class residential area, where the maximum height allowed by building regulations is five stories, can accommodate on average up to eight apartments on top of a villa on the ground floor.**
- **With their inclusion of multiple housing units on each plot of land, hybrid villa-apartments constitute a more efficient form of land utilization which could go a long way in preserving urban land and curbing urban sprawl.**

Hybrid Villa-apartment Arrangements



Conclusions

- **Hybrid villa-apartments have evolved in response to economic pressures caused by high land prices, high building costs and high inflation rates that encourage capable homeowners to invest in a number of rental apartments that they build incrementally through self-finance.**
- **Hybrid villa-apartments pose some challenges of privacy for villa residents, but these can be handled through careful designing that takes into account plot location, dimensions, position of entrances, staircases, windows and balconies.**
- **The villa owner/resident could still enjoy a private parking space and a small garden within the plot since building regulations specify minimum set-backs from neighbours that could be used for those functions**

- **This study supports the change in housing form that the hybrid villa-apartment represents due to their considerable land saving potential, which will be reflected in reduced cost of infrastructure networks and less pressure on valuable agricultural lands.**
- **Hence, the study advocates a change in building regulations and land planning standards and by-laws to facilitate the spread of hybrid villa-apartments.**
- **Issues of location, space efficiency, privacy and economies of scale need to be carefully considered so that the new generation of hybrid villa-apartments achieve their multiple benefits.**
- **The study also advocates introduction of flexible funding mechanisms, through the formal banking system, or through housing cooperatives, in order to accelerate the proliferation of hybrid villa-apartments through loans to villa owners as well to apartment residents.**

THANK YOU FOR YOUR ATTENTION!