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SECTION=C

MINI PROJECT REPORT GIS

TOPIC=Selection of land area  
for wastewater treatment  
plant for Hayatabad

# INTRODUCTION

- ▶ Wastewater is any water that has been affected by human use
- ▶ Wastewater is “used water from any combination of domestic, industrial, commercial or agricultural activities , surface runoff or stormwater and any sewer inflow or sewer infiltration
- ▶ The structure where wastewater is treated is called a wastewater treatment plant

# PROBLEM

- ▶ Pakistan is the third most affected country by an acute water shortage as ranked in an IMF study.
- ▶ As we know that in Pakistan there is no proper plan and resources to store water for future.
- ▶ If the same trend remains it will reach absolute scarcity levels of water, with a shortage of 31 million acre feet (MAF) and face drought by as early as 2025

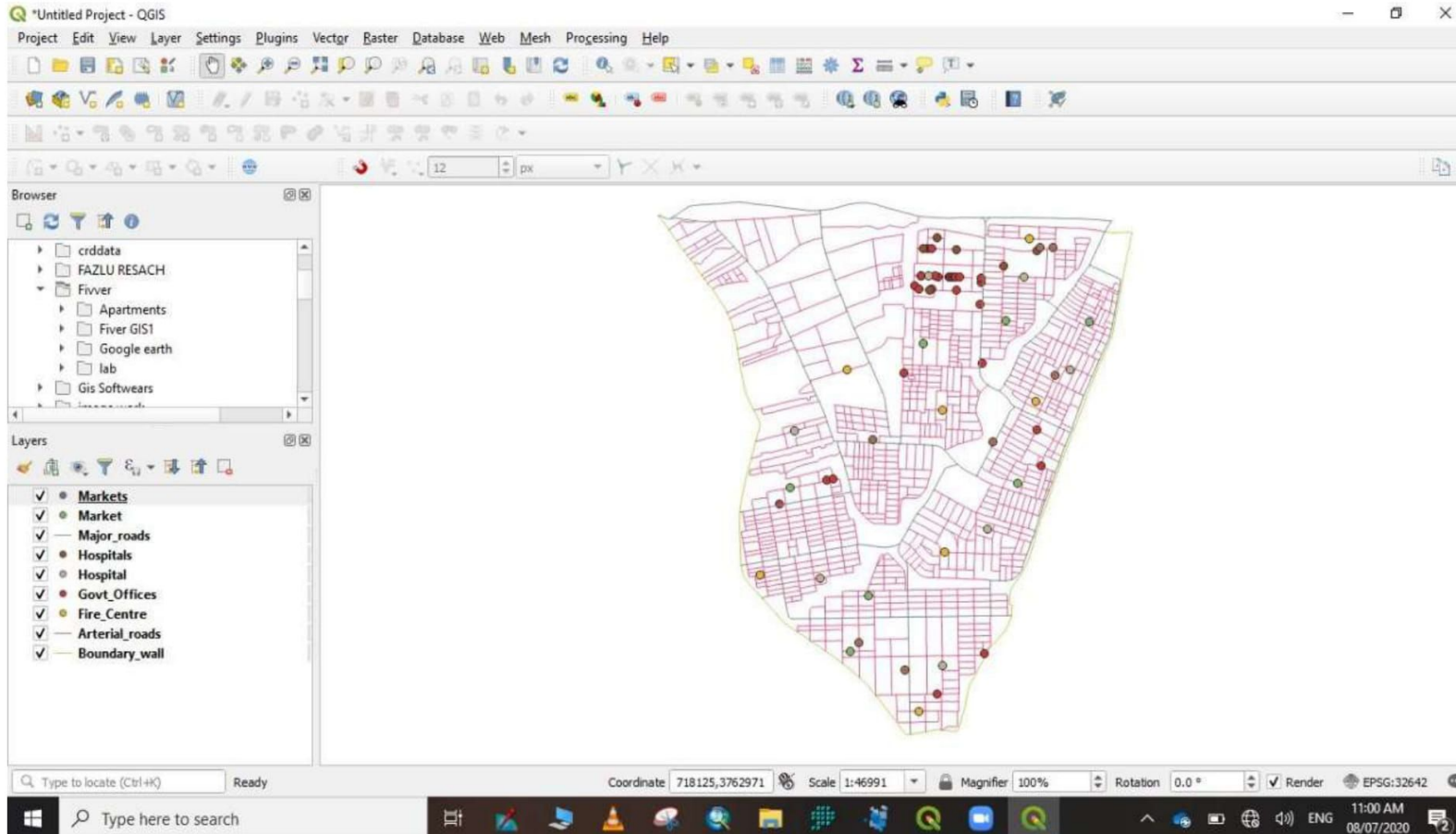
# SOLUTION

- ▶ We have an alternate option to minimize the water shortage crises  
(treatment of wastewater and its reuse)
- ▶ And treatment plant required selection of proper and appropriate land area
- ▶ So with the help of a wonderful software of GIS we can select the land area for wastewater treatment plant for Hayatabad

# CRITERIA IN GIS

- ▶ First of all we have to download osm file for Hayatabad.
- ▶ Then extract the data like schools, hospitals, govt offices etc. in layer from that osm file.
- ▶ Then create a buffer according to our need.
- ▶ We create 100m buffer from every element because we don't need this treatment plant closer to schools, hospital, offices, markets etc.
- ▶ And then we have to make decision among the available choices.

# DATA EXTRACTED FROM OSM FILE



# APPLING BUFFER

The screenshot shows the QGIS interface with the Buffer dialog box open. The dialog box has two tabs: Parameters and Log. The Parameters tab is active, showing the following information:

QGIS version: 3.10.0-A Coruña  
QGIS code revision: 6ffa89eb3e  
Qt version: 5.11.2  
GDAL version: 3.0.2  
GEOS version: 3.8.0-CAPI-1.13.1  
PROJ version: Rel. 6.2.1, November 1st, 2019

Processing algorithm...  
**Algorithm 'Buffer' starting...**

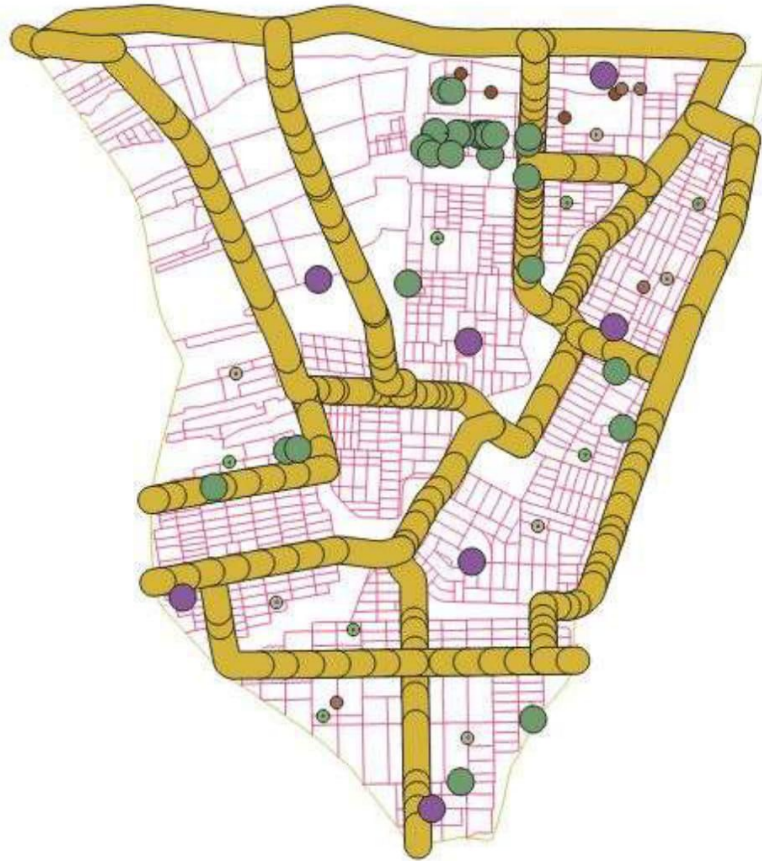
Input parameters:  
{ 'DISSOLVE' : False, 'DISTANCE' : 100,  
'END\_CAP\_STYLE' : 0, 'INPUT' : 'D:/Sikandar/6th  
Semester Of GIS & RS All Classes Material/6th  
semester/Multidisciplinary Application of Geomatics/  
Road Network Analysis/Hayatabad with file gdbase/  
Hayatabad.gdb/layername=Major\_roads', 'JOIN\_STYLE' :  
0, 'MITER\_LIMIT' : 2, 'OUTPUT' : 'TEMPORARY\_OUTPUT',  
'SEGMENTS' : 5 }

Execution completed in 0.50 seconds  
Results:  
{ 'OUTPUT' :  
'Buffered\_96c30020\_271c\_4b49\_9b41\_5c6f3884db72' }

Loading resulting layers  
Algorithm 'Buffer' finished

The dialog box also has a progress bar at the bottom showing 0% completion and buttons for Run, Close, and Help. The background shows the QGIS interface with a project browser on the left and a layers panel on the right. The layers panel shows a list of layers including 'Buffered', 'Markets', 'Market', 'Major\_roads', 'Hospitals', 'Hospital', 'Govt\_Offices', 'Fire\_Centre', 'Arterial\_roads', and 'Boundary\_wall'. The status bar at the bottom shows the coordinate 725772,3758383, scale 1:46991, magnifier 100%, rotation 0.0°, and EPSG:32642.

# FINAL RESULTS WE GET





# CONCLUSION

- ▶ Now after Applying buffer we get much suitable sites that is fit and good for treatment plant (the areas which are free and out of buffer in final result)