# AREA OF A MINING SQUARE IS 86 Ha

By definition, a mining square is a quadrilateral limited by 4 vertices 30 arc seconds apart in latitude and longitude. For a constant altitude, this distance is constant in longitude, but is not constant in latitude. The surface area of a mining square therefore depends on the altitude and latitude.

The distance between two vertices is expressed by this spherical trigonometry equation:
Rterre*ArcCos(sin(destLat) * sin(sourceLat) + cos(destLong - sourceLong) * cos(destLat) * cos(sourceLat))

The radius of the earth is considered to be 6,378,000m and the altitude is 600m.

We see the mining square in yellow on this Google Earth map
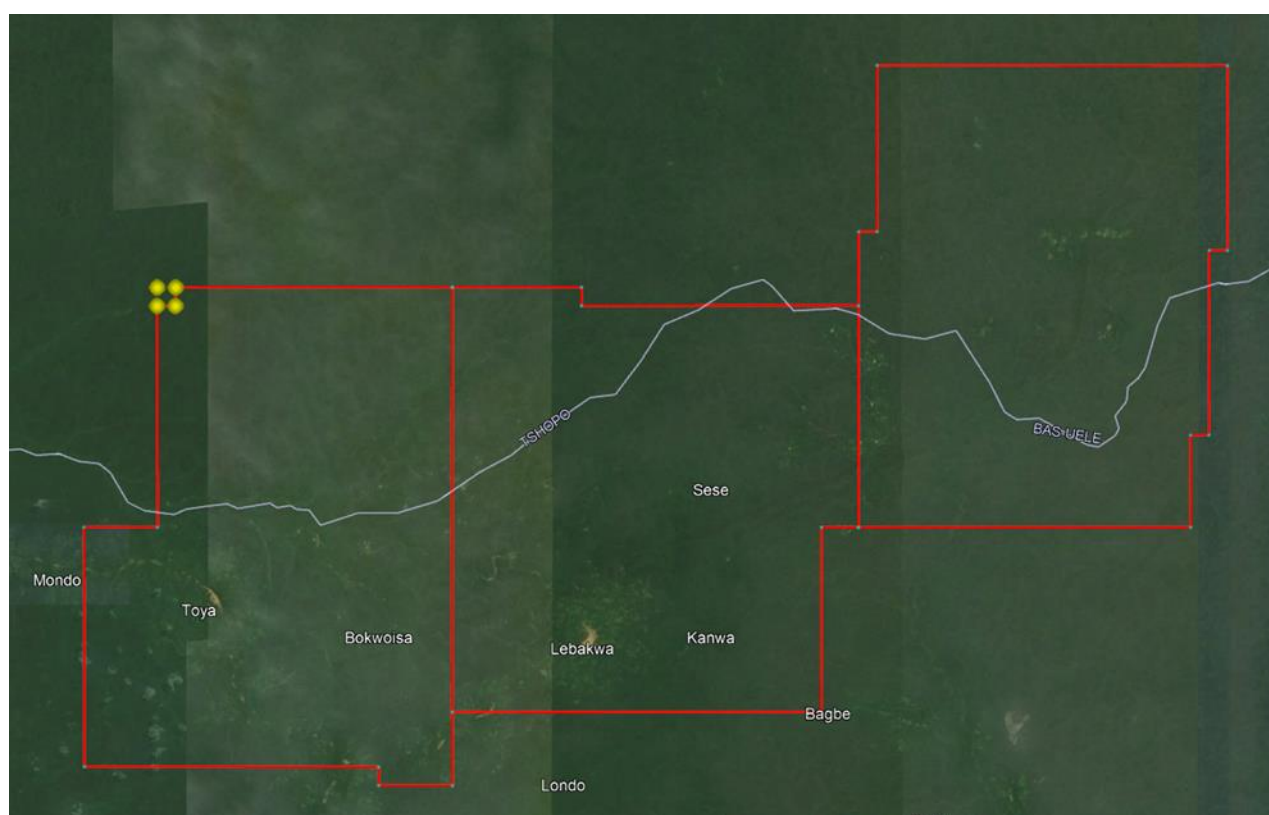
The geodetic coordinates of the vertices are:

Coordonnées	latitude	longitude		Latitude	longitude
NE	2,275000	25,541667		2°16'30.00"N	25°32'30.00"E
NO	2,275000	25,533333		2°16'30.00"N	25°32'0.00"E
SO	2,266667	25,533333		2°16'0.00"N	25°32'0.00"E
SE	2,266667	25,541667		2°16'0.00"N	25°32'30.00"E

At the latitude of 3PR 1323, 1324 & 1325 and at the considered altitude of approximately 600m, the distance between the vertices of the mining square are:

Calcul des distances					
NE-N0	source	dest			
longitude	25,541667	25,533333	0,44578618	0,445640736	927,00
latitude	2,275000	2,275000	0,03970624	0,03970624	
NO-SO	source	dest			
longitude	25,533333	25,533333	0,44564074	0,445640736	927,73
latitude	2,275000	2,266667	0,03970624	0,039560796	
SO-SE	source	dest			
longitude	25,533333	25,541667	0,44564074	0,44578618	927,00
latitude	2,266667	2,266667	0,0395608	0,039560796	
SE-NE	source	dest			
longitude	25,541667	25,541667	0,44578618	0,44578618	927,73
latitude	2,266667	2,275000	0,0395608	0,03970624	

The surface area would be 860,004 m2, or 86 hectares