

Population and Each Persons Share of Earth's Land

By Hulan E. Jack Jr.

Let's estimate each person's share of land on the earth. The estimate is based on the idea that every human on the planet gets an equal share of the land; The same size plot for each and every person on the planet. In 2005 there was an estimated 6.5 billion people on the 53 million square miles of land on the

earth. The calculation below shows that this means, on the average, we each have at most a 477 feet x 477 feet square (5.22 acres):

Let's call this "Your Ideal Share of the Earth's Land". In reality you may only have half

this area available because much of the earth's land is not very usable because it is mountains, desert, ice (Greenland and Antarctica), this leaves as little as a 337 f x 337 f square, of land to support all of our land bound needs Let's put this into perspective. As shown in the figure to the right, if we each stood in the middle of our own square, we would be mere 337 feet to our nearest neighbors - only a little more than an American 300 f (91.4 m) long foot ball field apart! And the ideal 477 f x 477 f square leaves you about one and a half foot ball fields apart!

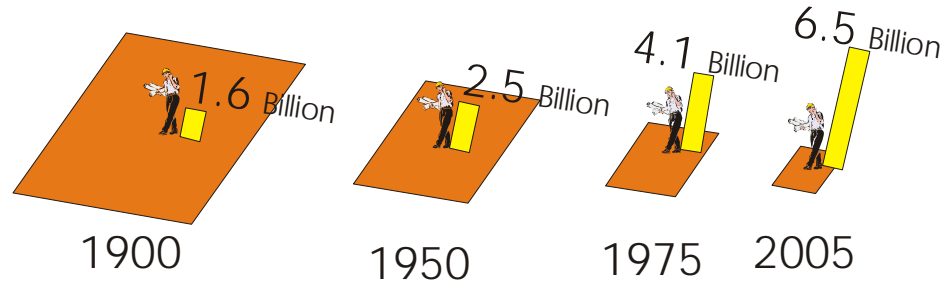


Figure 1 Your Shrinking Share of the Earth's Land

See the Geometric Meaning of Population Density

www.hejackjr.com/Index1/GeometricMeaningofPopulationDensity.pdf

The tables below show how this personal share has declined from 21 acres (8.6 hectare) in 1900 to 5.2 acres (2.1 hectare) in 2005 - 4 times smaller! Table 1a shows the data in a somewhat people friendly way. Table 1b presents the data in basically scientific/engineering notation to familiarize the reader with this form of representing numbers.

Learn about scientific notation.

www.hejackjr.com/Index1/Scientific_Notation.pdf

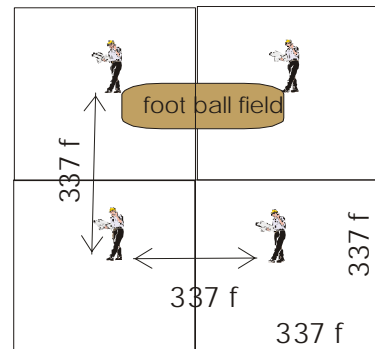


Figure 2 On Your 2005 Share your neighbor is only about a foot ball field away.

Table 1a The World from 1900 to 2005

The WORLD Population and Your Personal Share of it's 53 million square miles of land										
Year	Population	DENSITY	LAND per PERSON			YOUR PERSONAL SHARE OF THE EARTH's LAND				
		persons per square mile	square miles per person	acres per person	hectare per person	square feet per person (largest square)	length of the side of your largest personal square in feet	square feet per person (smallest square)	length of the side of your smallest personal square in feet	Size of Your Personal Square relative to 1900
	billion		hundredths			thousands		thousands		
2005	6.5	122.6	0.82	5.22	2.11	227	477	114	337	0.246
2000	6.1	115.1	0.87	5.56	2.25	242	492	121	348	0.262
1975	4.1	77.4	1.29	8.27	3.35	360	600	180	424	0.390
1950	2.5	47.2	2.12	13.57	5.49	591	769	296	544	0.640
1900	1.6	30.2	3.31	21.20	8.58	923	961	462	680	1.000

Table 1b The World from 1900 to 2005 (Scientific Notation)

The WORLD Population and Your Personal Share of it's 53 million square miles of land										
Year	Population	DENSITY	LAND per PERSON			YOUR PERSONAL SHARE OF THE EARTH's LAND				
		persons /sq. mi.	sq. mi /person or mi ² /person	acres /person	hectare /person	sq. ft. /person or f ² /person (largest)	length of the side of your largest personal square in feet	sq. ft. /person or f ² /person (smallest)	length of the side of your smallest personal square in feet	Size of Your Personal Square relative to 1900
2005	6.500E+09	122.6	8.154E-03	5.22	2.11	2.273E+05	476.8	1.137E+05	337.1	0.246
2000	6.100E+09	115.1	8.689E-03	5.56	2.25	2.422E+05	492.2	1.211E+05	348.0	0.262
1975	4.100E+09	77.4	1.293E-02	8.27	3.35	3.604E+05	600.3	1.802E+05	424.5	0.390
1950	2.500E+09	47.2	2.120E-02	13.57	5.49	5.910E+05	768.8	2.955E+05	543.6	0.640
1900	1.600E+09	30.2	3.313E-02	21.20	8.58	9.235E+05	961.0	4.617E+05	679.5	1.000

Table 1b presents the data in basically scientific/engineering notation to familiarize the reader with this form of representing numbers.

Sources: 1.U.S. Census Bureau (USCB), 2006, "Total Midyear Population for the World: 1950-2050", Data updated 8-24-2006, <http://www.census.gov/ipc/www/worldpop.html>

2. U.S. Census Bureau (USCB), Historical Estimates of World Population; <http://www.census.gov/ipc/www/worldhis.html>

See How to Do Calculations for The Table 1

www.hejackjr.com/Index1/HowtoCalculateTable1.pdf

All of our individual needs, except for fish and shipping, are land bound. In 2006 the land for each of us to satisfy all of our land bound needs is a about a foot ball field long and a foot ball field wide! Our plant food like vegetables, fruit and grains; plant fibers like cotton and wood are grown on land. The animals we eat and get wool and leather from are raised on land. The feed for these animals is grown on land. The minerals we need like iron, copper, coal, diamonds, are mined on land. The landfill for our garbage and un-recycled trash, appliances, electronics, etc., is on land. The factories to make and process the things we need are on land. The warehouses, the stores, the offices, etc, are all on land. Power plants, water treatment, and sewer treatment plants are on land. The highways, roads and streets to transport our goods our people are on land. We live on land, whether in an apartment or a house. So land is most important for our survival.

Land is so important that every living land creatures on the planet, from plants, insects, animals to humans spend a dominant amount of their energies fighting over it. For humans it ranges from agreements, contract negotiations, passage of laws, explorations, to the nastiness and brutalities of outright wars. Sometimes the contract negotiations and the laws can be just as nasty and brutal as outright war, but perhaps a bit more subtle. The control of land can vary from actual ownership to simply the rights to its wealth and/or use.

Thoughts on Some Consequences

First, let's just brain storm about some areas of possible consequences .

Space for recreation and social contact - parks, vacant lots, public spaces

Pollution - water, land, air, bio garbage, non-bio trash,

Material Resources - food, wood (for furniture, building,), metals, plastics, oil, coal, biofuels - fuel vs food

Human Settlement Patterns - urban, suburban, ex-urban, rural; cities, mega-cities.
Housing Patterns - single family, townhouses, apartment buildings -low rise, mid rise, high rise .
Costs of Housing - more people competing for the same space.
Transportation - individual car, mass transit, bicycles, walking.
Psychological - stress (close living, lack of recreation space, longer commutes, ...)
Rising Standards of Living - Resources used/person rises as population rises
Your Rights vs My Rights - private rights vs public rights
Limits on Use of Private Property -
Crime - real crime, levels of tolerance