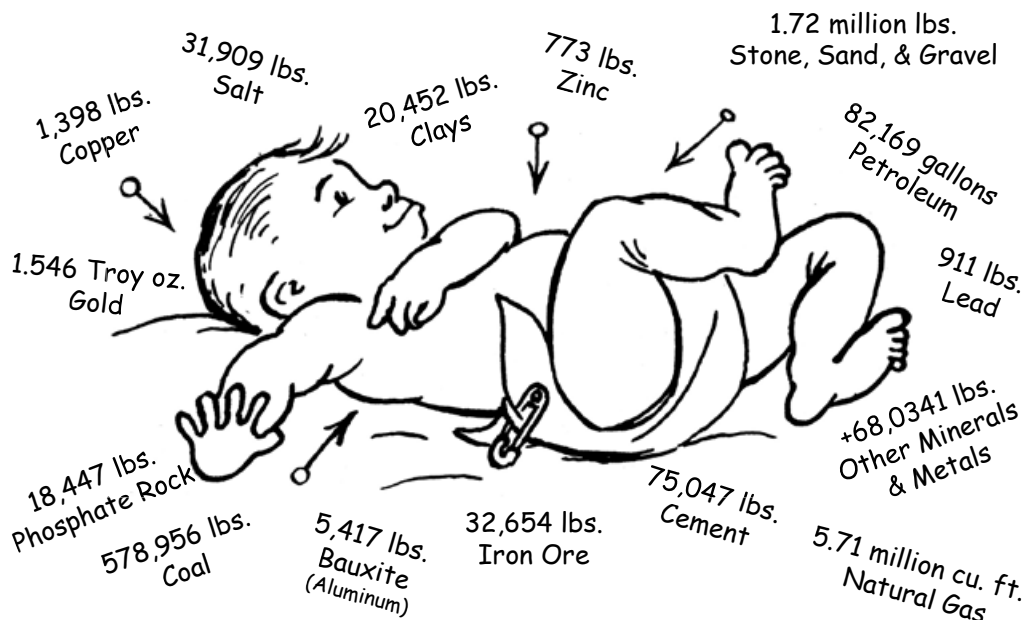


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From: Nelson Fugate, nfugate@mii.org

300 Million Americans Need 7 Billion Tons to Maintain Living Standard Every American Born Will Need . . .



3.7 million pounds of minerals, metals, and fuels in their lifetime

—download the *mii Baby* at www.mii.org

Maintaining the American standard of living required 7.1 billion tons of rocks and minerals last year to make the things we use and depend upon every day, says Nelson Fugate, president of the Denver-based Mineral Information Institute (MII). “Every year, nearly 48,000 pounds of new minerals must be provided for every person in the United States to make the products we buy and the various things we use,” says Fugate, “and with 300 million people in the U.S. expecting to live comfortably and affordably, mining has to occur somewhere.”

Each year the Institute calculates the annual and lifetime consumption of mineral and energy resources from information provided by the U.S. Geological Survey and other sources to show the dependence that Americans have on the mining industry. MII is a national non-profit organization that provides classroom programs about the important role our natural resources have in maintaining society.

The Institute claims we use minerals in almost everything we do. There are 125 million houses in the U.S. that require heating, cooling, and lighting, and two million new housing units are built every year and each needs a quarter million pounds of minerals and metals.

The luxury and necessity to travel to our jobs, to school, and numerous other reasons means each of us uses a share of the 4 million miles of roads that need to be built and maintained, along with the 237 million motor vehicles that travel on those roads, and contributes to our consumption of oil that averages 3 gallons per capita per day.

“Salt provides a good example,” says Fugate. “On average we use about 12 pounds per person a year in our food, but we are using more than 400 pounds per person every year for other uses, such as on our roads in the winter.”

In 1996, the annual consumption of minerals was 45,931 lbs. for each of the 265 million Americans, and their life expectancy was 76.1 years. Today, the annual consumption of those same minerals is 47,769 lbs. per capita and there are 300 million people in the USA, expected to live to an average of 77.8 years. That combination of more people, who are living longer, and consuming more materials means an extra billion tons of mineral products had to be mined and delivered to meet the needs of today’s Americans. In 1996, 6.1 billion tons of mineral and energy fuels were mined to meet the needs of American consumers and in 2006, 7.1 billion tons had to be mined to meet the demand.

Every year when the Institute provides the calculations for the annual consumption of minerals, it also adds up the total lifetime need for minerals for the average American, and produces a graphic it calls the *mii Minerals Baby*. With the average American now having a lifespan of 77.8 years (80.4 years for women, 75.2 years for men) the new *Minerals Baby* claims a lifetime need for 3.7 million pounds of minerals and energy fuels for that average American.

“We all use minerals, every day,” says Fugate, “and they have to come from somewhere. Every 5th Grade student in America hears about the Law of Conservation of Energy and Matter which states that they cannot be created or destroyed. This means that everything is made from something and that something has to come from our natural resources, most of it from mining.”

How much is a billion

Be careful of which numbering system you are using: a billion in the USA (short system) has nine zeros; a billion in Europe (long system) has 12 zeros.

In the U.S.—

- . . . a billion more tons were mined in 2006 than in 1996 (7.1 bt vs. 6.1 bt) to meet demand.
- . . . one billion seconds is 31 years, 259 days, 1 hour, 46 minutes, and 40 seconds
- . . . a billion pennies is \$10 million.
- . . . a billion dollars is a stack of \$1,000 bills 330 feet high. (a European billion would be 63 miles high.)

Every year — 47,769 pounds of new minerals must be provided for every person in the United States to make the things we use, every day



12,464 lbs. **Stone** used to make roads; buildings; bridges; landscaping; numerous chemical and construction uses



18 lbs. **Copper** used in buildings; electrical & electronic parts; plumbing; transportation



9,718 lbs. **Sand & Gravel** used to make concrete; asphalt; roads; blocks & bricks



12 lbs. **Lead** 75% used for transportation— batteries; electrical; communications; TV screens



965 lbs. **Cement** used to make roads; sidewalks; bridges; buildings; schools; houses



10 lbs. **Zinc** used to make metals rust resistant; various metals & alloys; paint; rubber; skin creams; health care; and nutrition



420 lbs. **Iron Ore** used to make steel— buildings; cars, trucks, planes, & trains; other construction; containers



44 lbs. **Soda Ash** used to make all kinds of glass, in powdered detergents, medicines, as a food additive, photography, water treatment.



410 lbs. **Salt** used in various chemicals; highway deicing; food & agriculture



6 lbs. **Manganese** used to make almost all steels for: construction; machinery; transportation



237 lbs. **Phosphate Rock** used to make fertilizers to grow food; animal feed supplements



665 lbs. **Other Nonmetals** numerous uses glass; chemicals; soaps; paper; computers; cell phones; etc.



263 lbs. **Clays** used to make floor & wall tile; dinnerware; kitty litter; bricks & cement; paper



30 lbs. **Other Metals** numerous uses same as nonmetals, but also electronics; TV & video equipment; recreation equipment; etc.



70 lbs. **Aluminum (Bauxite)** used to make buildings; beverage containers; autos; airplanes

Plus These Energy Fuels

- 1,056 gallons of **Petroleum**
- 7,442 lbs. of **Coal**
- 73,414 cu. ft. of **Natural Gas**
- 1/3 lb. of **Uranium**

To generate the energy each person uses in one year—
equivalent to 300 people working around the clock for each of us.



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Calculations

Year	Annual Lbs Per Capita	Lifetime Lbs Per Capita	Life Expectancy Rate Used	Annual Tons Consumed	USA Population
1776	1,200	39,600	33	1,680,000	2,800,000
1900	7,714	364,872	47.3	293,494,558	76,094,000
1950	25,938	1,768,972	68.2	1,974,808,007	152,271,417
1975	37,108	2,653,232	71.5	4,007,178,160	215,973,000
1995	47,769	3,620,898	75.5	6,276,023,781	262,765,000
1996	45,931	3,495,368	75.7	6,092,389,897	265,283,000
1997	46,216	3,535,524	75.8	6,190,656,308	267,901,000
1998	47,338	3,630,825	76.1	6,390,630,000	270,000,000
1999	48,427	3,714,351	76.5	6,605,927,070	272,820,000
2000	48,148	3,707,396	76.7	6,774,423,600	281,400,000
2001	47,122	3,637,818	76.7	6,710,102,117	284,797,000
2002	46,010	3,551,972	77	6,625,440,000	288,000,000
2003	45,524	3,519,005	77.2	6,623,742,000	291,000,000
2004	46,414	3,587,802	77.3	6,815,895,900	293,700,000
2005	47,502	3,686,155	77.5	7,010,345,160	295,160,000
2006	47,769	3,716,428	77.8	7,150,971,531	299,398,000

**Annual Per Capita History (in pounds)
Annual consumption of minerals divided by population**

Non-Fuel Minerals (lbs.)	2006	2005	2004	2003	2002	2001
Stone	12,464	12,428	12,095	11,376	12,262	12,634
Sand & Gravel	9,718	9,632	9,134	8,767	8,854	8,882
Cement	965	940	904	849	842	882
Iron Ore	420	425	441	425	429	548
Salt	410	400	405	380	384	419
Phosphate Rock	237	302	327	283	289	267
Clays	263	276	290	262	275	270
Sulfur	91	93	93	90	83	81
Bauxite	70	77	80	63	65	74
Soda Ash	44	49	47	47	48	47
Potash	38	46	43	40	43	42
Copper	18	17	20	18	21	21
Lead	12	11	11	11	12	13
Zinc	10	10	11	10	11	12
Manganese	6	6	6	5	5	5
Other Metals	30	29	26	26	20	19
Other Nonmetals	665	639	344	597	572	600
Total Non-Fuel Minerals	25,460	25,380	24,277	23,249	24,215	24,816
Fuel Minerals (lbs.)						
Natural Gas (lbs.)	7,323	6,866	7,081	7,331	7,021	7,000
Petroleum Products (lbs.)	7,544	7,667	7,646	7,521	7,473	7,624
Coal	7,442	7,589	7,410	7,423	7,301	7,682
Uranium	0.30	0.3	0.25	0.25	0.25	0.25
Total Fuel Minerals	22,309	22,122	22,137	22,275	21,795	22,306
Total All Above (lbs.)	47,769	47,502	46,414	45,524	46,010	47,122
Population (millions)	299	295	294	291	288	285
Life Expectancy (years)	77.80	77.6	77.3	77.3	77.2	77.2
Lifetime Needs (x 1,000 lbs.)	3,716.5	3,686.2	3,587.8	3,519.0	3,552	3,637.8
	2006	2005	2004	2003	2002	2001

Provided by Mineral Information Institute. Contact mii@mii.org with questions or comments.