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Materials Flow in the United States—A Global Context, 1900–2020

Data Report 1164

Supersedes USGS Fact Sheet 2017–3062

U.S. Department of the Interior
U.S. Geological Survey

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Tables

[Tables 1–5 follow the References Cited. Tables 2 and 5 are also available as separate spreadsheets at https://doi.org/10.3133/dr1164]

Conversion Factors

Multiply	By	To obtain
	Mass	
kilogram (kg)	2.205	pound avoirdupois (lb)
metric ton (t) (1,000 kg)	1.102	ton, short [2,000 lb]
million metric tons = 1 megaton (Mt)	1.102	million short tons
billion metric tons = 1 gigaton (Gt)	1.102	billion short tons

Abbreviations

COVID-19	coronavirus disease
NROs	nonrenewable organic materials

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By Grecia R. Matos

Introduction

During the last 12 decades (1900–2020), the amounts of raw materials used in the United States have increased significantly due to economic development, technological innovations, and population growth. Data on materials are presented here to provide an overview of the annual quantities (measured in physical terms) required for the standard of living in the United States and to provide insights into the consumption trajectory that developing countries may follow. The consumption patterns driving the use of raw materials were analyzed through the lens of economic disruptions and expansions during this period, illustrating the linkages between the selected materials and economic development. These annual material inputs to the U.S. economy (excluding food or fuel) were also analyzed in a global context. The data used were gathered by various agencies and compiled by the U.S. Geological Survey; see the section at the end of the report, "Data Sources Used To Track Flows of Raw Materials Usage."

U.S. Raw Materials

This study focused on raw materials, which can be grouped into four general categories: agricultural products, forestry products (wood products, paper and board, and recycled paper), nonrenewable organic materials (NROs), and nonfuel minerals (construction aggregates, industrial minerals, primary metals, and recycled metals). The overall magnitudes of the physical inputs to the U.S. economy from 1900 to 2020 are portrayed in figure 1. For the United States, the individual commodities contained in each of the four categories are listed in table 1 (tables 1–5 follow the References Cited). Table 2 provides the physical quantities used (in metric tons) of these raw materials on an annual basis by category. Materials use is presented by mass instead of monetary value to emphasize the physical rather than economic importance of each material.

A commodity is a raw material used in the production process to manufacture finished goods. It is measured as the quantity of material inputs to an economy, which are typically consumed by the industrial and manufacturing sectors. The data presented here represent the annual apparent inputs to consumption calculated as the sum of a given material's domestic production, imports, and recycling, minus exports. The data cover raw materials that were ready for use directly by the domestic consumer or in the manufacture of products consumed domestically. The scope excludes materials contained in final goods such as vehicles and semifinal goods such as magnets. In an industrial economy where the volume of goods flowing into and out of the country is large, tracking the flow of materials embedded in imported or exported products presents challenges beyond the purview of this analysis. This report supersedes U.S. Geological Survey Fact Sheet 2017–3062 (Matos, 2017); it expands the period of study from 1900 through 2014 to 1900 through 2020 and discusses the U.S. data in a global context.

Renewable and Nonrenewable Resources

Raw materials and their products derive from natural resources that are either harvested or mined. These may be classified as renewable or nonrenewable resources. Renewable resources such as products from agriculture, fisheries, forests, and wildlife can regenerate, so long as they are not overharvested, overfished, or overhunted. Nonrenewable resources covered in this study include materials extracted from geologic deposits, including metals, industrial minerals, nonfuel oil and gas, and coal feedstock. In 2020, only 5 percent of the about 3 million metric tons (Mt) of new materials entering the U.S. economy were renewable; in 1900, 45 percent of the new materials were renewable (table 2). Of the cumulative amount of materials used from 1900 to 2020, more than half was used during the last 30 years.

The changes in the quantities of renewable and nonrenewable resources used during the period indicate that the United States has become increasingly dependent on nonrenewable materials to sustain its standard of living. The growth of raw materials use has implications for the availability of future resources and the condition of the natural environment, which is affected by the wastes, emissions, and dispersive losses associated with the use of nonrenewable resources (Wagner, 2002). Figure 2 illustrates the shift from renewable to nonrenewable materials.

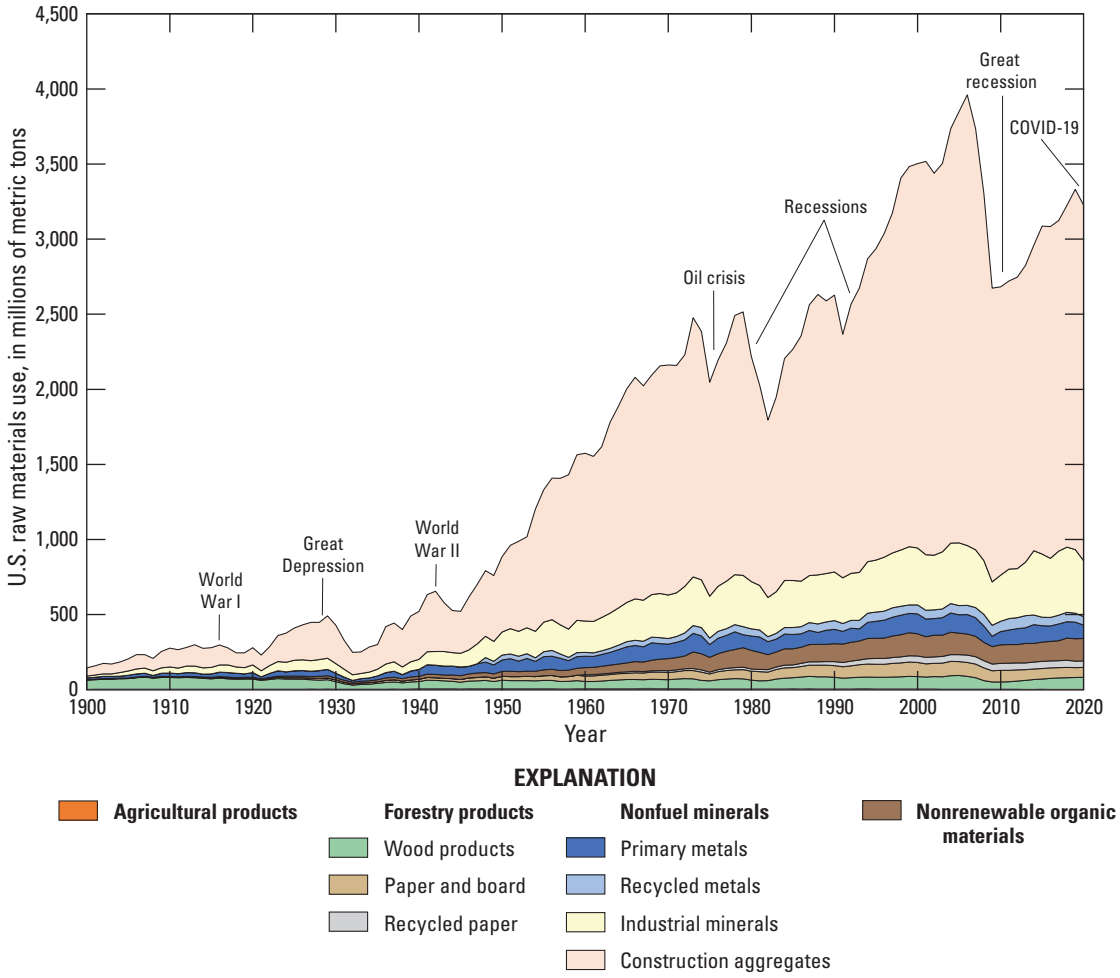

Figure 1. Graph showing the amounts of raw materials, by category, used annually in the United States from 1900 through 2020. The amount of agricultural products is plotted at the base of the graph but is not visible at the scale of this figure. Materials embedded in imported goods are not included. COVID-19, coronavirus disease pandemic. Data are from table 2.

U.S. Consumption by Category

The agricultural products category includes nonfood materials derived from plant products (such as cotton, flaxseeds, tobacco, and natural rubber), animal products (such as wool and leather), and fishery products (such as fishmeal used for fertilizers and other nonedible products used for pharmaceutical and ornamental purposes). The agricultural, wildlife, and fishery materials included in this category have been diminishing as a share of total consumption since 2000 to about 54 percent by mass in 2020, likely due to the increasing use of substitutes such as synthetic fibers for natural fiber and synthetic oils for natural oils and possibly due to an increased dependence on imported final or semifinal products (Wagner, 2002). This category is not significant by mass. The use of natural rubber represents one commodity in this group with a steady rise, accounting for 45 percent of this category in 2020. Natural rubber is used in aircraft and car tires, medical devices, and surgical gloves, among many other products.

The forestry products category includes nonfuel forest products such as paper and paperboard, recycled paper, and wood products. In 2020, about 66 percent of paper consumed in the United States was recycled. Since 1950, the quantity of wood products consumed in the United States has remained relatively constant. After the recession and the global financial crisis in 2007–09, there has been a steady growth in lumber, plywood, and other forestry products consumed in the United States, due in large part to the recovery of the housing and construction industries (Dezember, 2021). Also, because the recent coronavirus disease (COVID-19) pandemic caused people to stay home and work from home, there was a building boom requiring more wood products in 2020 (Dezember, 2021).

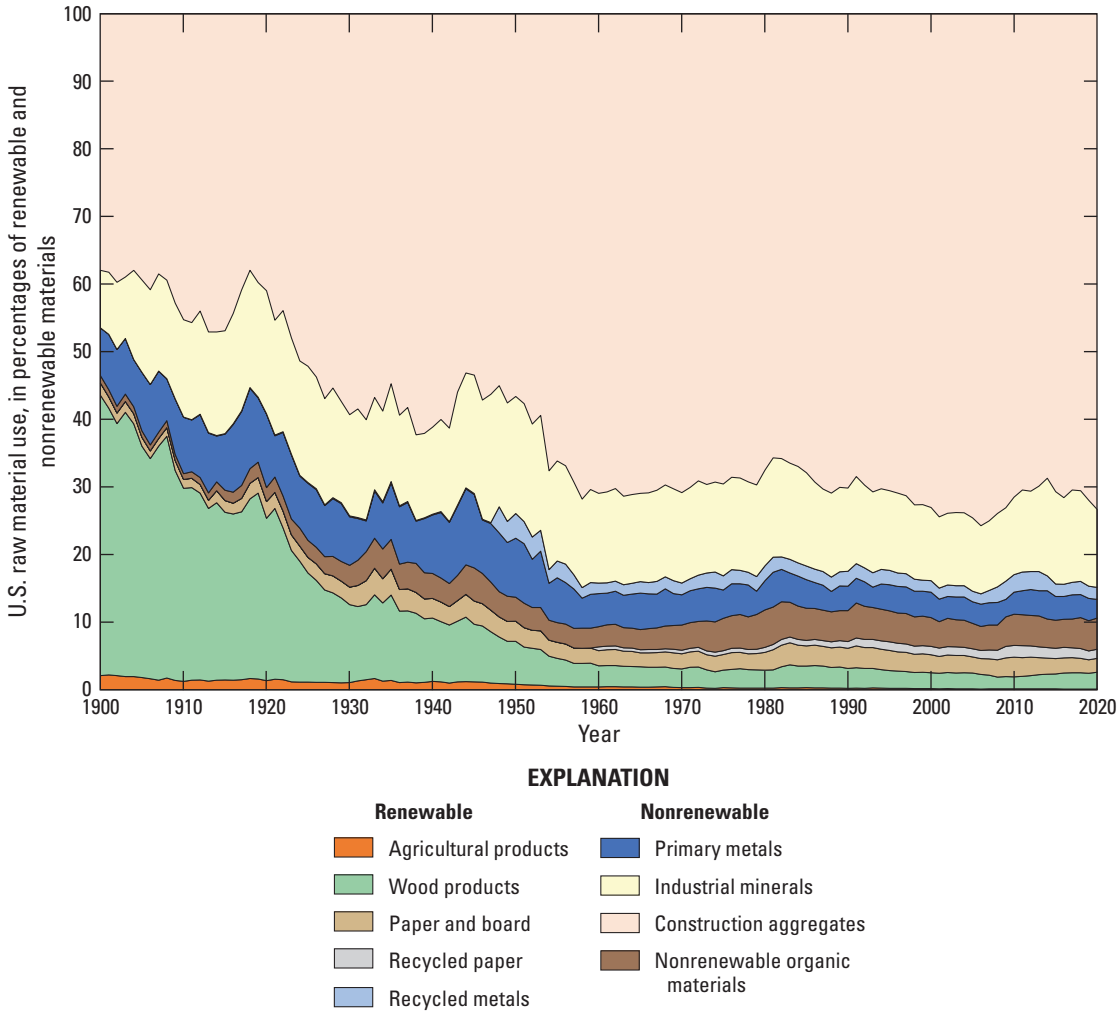

Figure 2. Graph showing the percentage shares of renewable and nonrenewable raw materials used annually in the United States from 1900 through 2020. Data are from table 2.

The nonrenewable organic materials (NROs) category includes products derived from feedstocks of petroleum (including natural gas liquids), dry natural gas, and coal for nonfuel applications (such as carbon blacks, coke, and olefins). This category includes resins used in the production of plastics, synthetic fibers, and synthetic rubber; feedstocks used in the production of solvents and other petrochemicals; lubricants and waxes; and asphalt and road oil. Use of NROs emerged gradually in the early part of the twentieth century, accounting for 1.59 Mt in 1900 (table 2). It experienced nearly continual growth to 153 Mt in 1999. The quantity of NROs used in the United States declined during the global financial crisis but has since recovered, reaching nearly 150 Mt in 2020 (table 2). The use of NROs increased because of the development of new technologies and products that displaced more traditional materials. In some applications, synthetic fibers, plastic feedstocks, and lubricants replaced wood, metals and other mineral-based commodities because of cost advantages and more desirable properties (Wagner, 2002). Since the 1980s, the consumption of NROs per capita (per person) was similar to the combined metal consumption, ranging from 0.4 to 0.6 metric ton (t) per capita (table 3; fig. 3).

The metals category includes commodities ranging from antimony and aluminum to vanadium and zinc. It includes ferrous, nonferrous, and precious metals as well as specialty metals used for high-technology applications such as indium, gallium, and lithium. Consumption data are distinguished by source as primary and secondary (recycled) materials. Clean energy technologies, including electric vehicles, wind turbines, batteries, and other components, require materials including cobalt, copper, lithium, manganese, nickel, silicon, and tellurium. In 2020, recycled metals accounted for nearly 40 percent of metals consumption by mass. Recycled metal flows maintained a steady level during the recession in 2007–09, despite

slow recovery of the construction sector. The steel industry supports the U.S. manufacturing sector; by mass, it dominates the total consumption of metals. It has also become the most recycled material, followed by aluminum and lead. However, on a per capita basis, metals consumption reached a peak in 1950; since that period, metal use has been declining, revealing trends to lighter materials and the decline in manufactured goods that use these metals. The downward trend is more evident in primary metals, whereas the use of recycled metals remained steady through the study period.

The industrial minerals category includes materials for use in the agriculture, construction, chemical, and industrial sectors of the economy. A variety of nonfuel minerals belong to this category, such as barite for oil and gas drilling; lime for steelmaking; fertilizer materials such as nitrogen, phosphate, and potash; fluorspar for acid; salt for ice control and chemicals; and graphite used in high-temperature lubricants, brushes for electrical motors, friction materials, and battery and fuel cells (U.S. Geological Survey, 2021).

The material inputs to the economy include the massive flows of construction aggregates. On the basis of mass, the construction aggregates category, including crushed stone and construction sand and gravel, made up 86 percent of new nonfuel minerals used in the United States in 2020. A significant expansion in the use of aggregates coincided with the building of the Interstate Highway System that began in the mid-1950s. Construction aggregates are used in the extensive system of roads and highways in the United States. Although consumption in 2020 remained well below the peak in 2006 (table 2), demand for these commodities is expected to increase owing to increases in infrastructure construction activity such as upgrading airports and ports and repairing and reconstructing bridges and highways.

Overview of U.S. Consumption Flows

The materials use pattern illustrates the dynamic nature of needs for materials to support the U.S. economy at different stages of economic development. Early stages of economic development require the establishment of basic manufacturing, infrastructure, and communications, which stimulates job growth and increasing national income. As the economic conditions diversify, demand for new materials and industries changes the pattern of use of materials. Subsequently, as the economy matures, more emphasis is placed on the service sector—the portion of the economy that produces a service, including banks, computer services, communications, education, health, real estate, recreation, and retail sales. Services are not as directly dependent on nonfuel minerals, and economic growth becomes decoupled from the overall mineral consumption (Menzie and others, 2004).

In the early 1900s, the United States experienced economic expansion due to electrification, the use of internal combustion engines for transportation, and the increase in mass-production methods in different industries (Gordon, 2016). These industries required commodities like cement, lubricants, steel, and wood products. These materials resulted in the foundation of early infrastructure and a growing industrial manufacturing sector. Cement applications surged and were mainly used for concrete blocks and mortars for industrial buildings (van Oss, 2002). Cement accounted for 25 percent by mass of all the industrial minerals used in 1900. Technological advances in the transportation and manufacturing sectors required the use of lubricants, derived from petroleum, which accounted for 93 percent of primary petroleum use and 75 percent of NROs by mass. Steel was used widely in the early development of the country, representing 92 percent of all metals used and 12 percent of all metals and minerals used by mass in 1900. Steel demand increased owing to (1) the manufacturing of airplanes, automobiles, equipment for defense, industrial machinery, medical instrumentation, steel frames for buildings, and industrial consumer goods and (2) the construction of bridges, dams, factories, houses, and railroads (National Material Company, 2018). Wood products were widely used at the time for shelter, railroad tracks, utility poles (electricity and telephone), and the manufacture of furniture and paper.

The short- and medium-term trends of raw material use correlate with major economic and military events affecting the United States such as World War I, the Great Depression of the 1930s, and World War II (fig. 1). Military events in the first half of the twentieth century and the continuing expansion of the military-industrial complex resulted in postwar economic expansion, driven by consumer demand for car ownership and housing in cities and towns. The United States moved from independent farming and individual trade shops of the previous century to an industrial economy in the 1920s (Smiley, 2004). The urban infrastructure expanded with subways, tunnels, and skyscrapers requiring building materials such as aluminum, cement, copper, lead, and steel and needing relatively fewer wood products (Matos and Wagner, 1998).

Continuous growth in the United States took place from the mid-1940s to the 1970s. The drivers behind this economic growth were the construction sector and the large-scale expansion of a middle class demanding more and improved goods and services. The purchases of consumer goods increased alongside industrial processing and manufacturing, and a different mix of nonfuel minerals and materials was required to satisfy demand for cars, televisions, and household appliances like refrigerators and washing machines (Gordon, 2016). Metal use per capita increased to 0.72 t in 1950 from 0.14 t in 1900 (table 3; fig. 3).

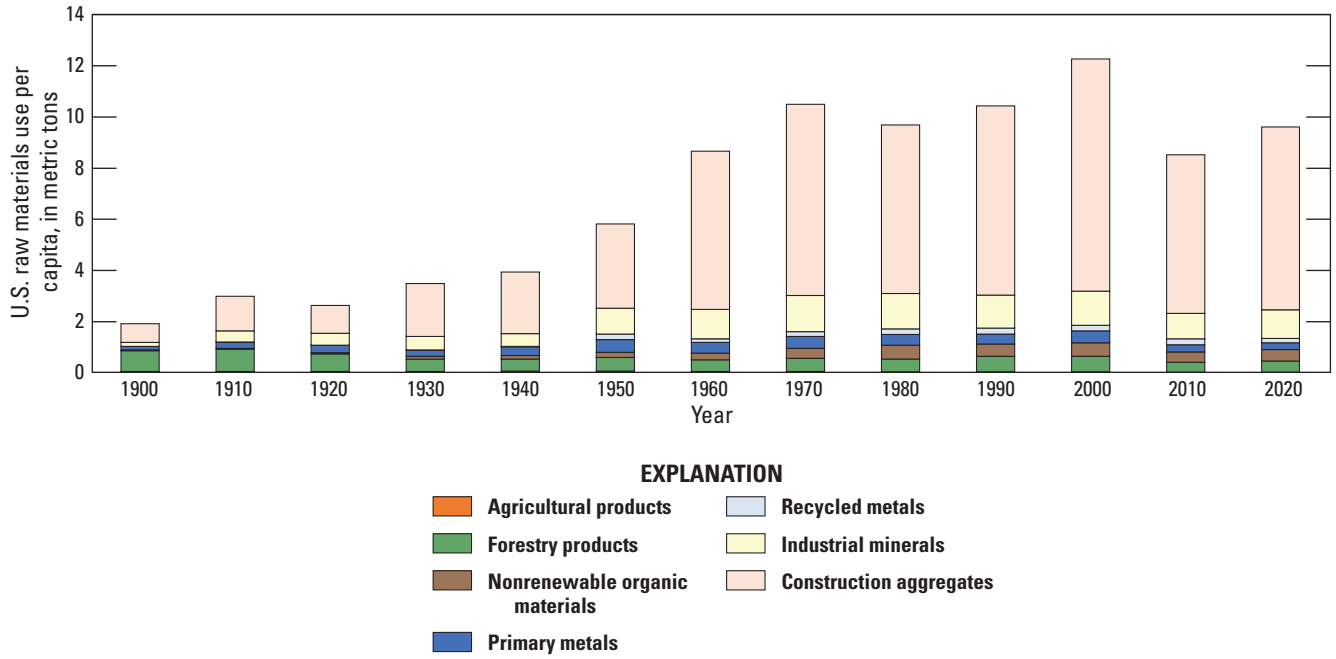

Figure 3. Graph showing the amounts of raw materials used annually per capita (in metric tons) in the United States from 1900 through 2020, by decade. The amount of agricultural products is plotted at the base of the graph but is not visible at the scale of this figure. Data are from table 3.

Events like the oil embargo of the 1970s, the economic recessions of the 1980s and early 1990s, and the global financial crisis of 2007–09 affected financial and economic conditions and temporarily diminished the use of materials. The U.S. economy exhibited a slow but steady recovery from 2008 through 2019, although it had not yet reached the highest expansion level of 2006 by mass. The COVID-19 public health emergency caused an initial economic crisis and contraction of materials use per capita. Effects of the COVID-19 pandemic disrupted supply chains and consumption of raw materials through 2020, and the effects may continue into the near future.

From 1991 to 2006, the United States experienced an extended period of economic prosperity and technological advancement with increasingly sophisticated defense systems, financial and media services, and telecommunications. The United States entered a computerized and modern world that was enabled by high-technology applications for commodities like silicon for semiconductors and solar energy industries; lithium for batteries in electric and hybrid vehicles and other electronics; titanium metal for aerospace applications; indium for electrically conductive films on flat-panel displays; and tantalum for capacitors in consumer electronics. These "minor metals" are often byproducts of processing of major metals and are critical for various technology applications that undergo unique and sophisticated processing to produce improved physical properties. Although these materials are not significant by mass, they are extremely important to a society driven by computers and telecommunication systems. The United States enjoyed an economic boom fueled by well-developed infrastructure and advancement in technology leading to the rise of the internet and mainstream adoption of electronics like personal computers, laptops, and cellphones. The needs continue to increase for materials that are lighter, function more effectively, and have unique features, such as gallium, indium, germanium, and graphite, among others. For metals, recycling technologies can provide "environmental benefits in terms of energy savings, reductions in the volume of waste, and reductions in emissions associated with the energy savings" (Matos and Wagner, 1998, p. 113).

During the twentieth century, per capita consumption of all materials increased almost sixfold—to reach the equivalent of over 12 t per capita in 2000—while the U.S. population increased only fourfold (table 3). In 2010 and 2020, the effects of the global financial crisis and the COVID-19 pandemic were reflected in per capita materials use (fig. 3). These events exposed the vulnerability of supply chains and risks of supply disruptions.

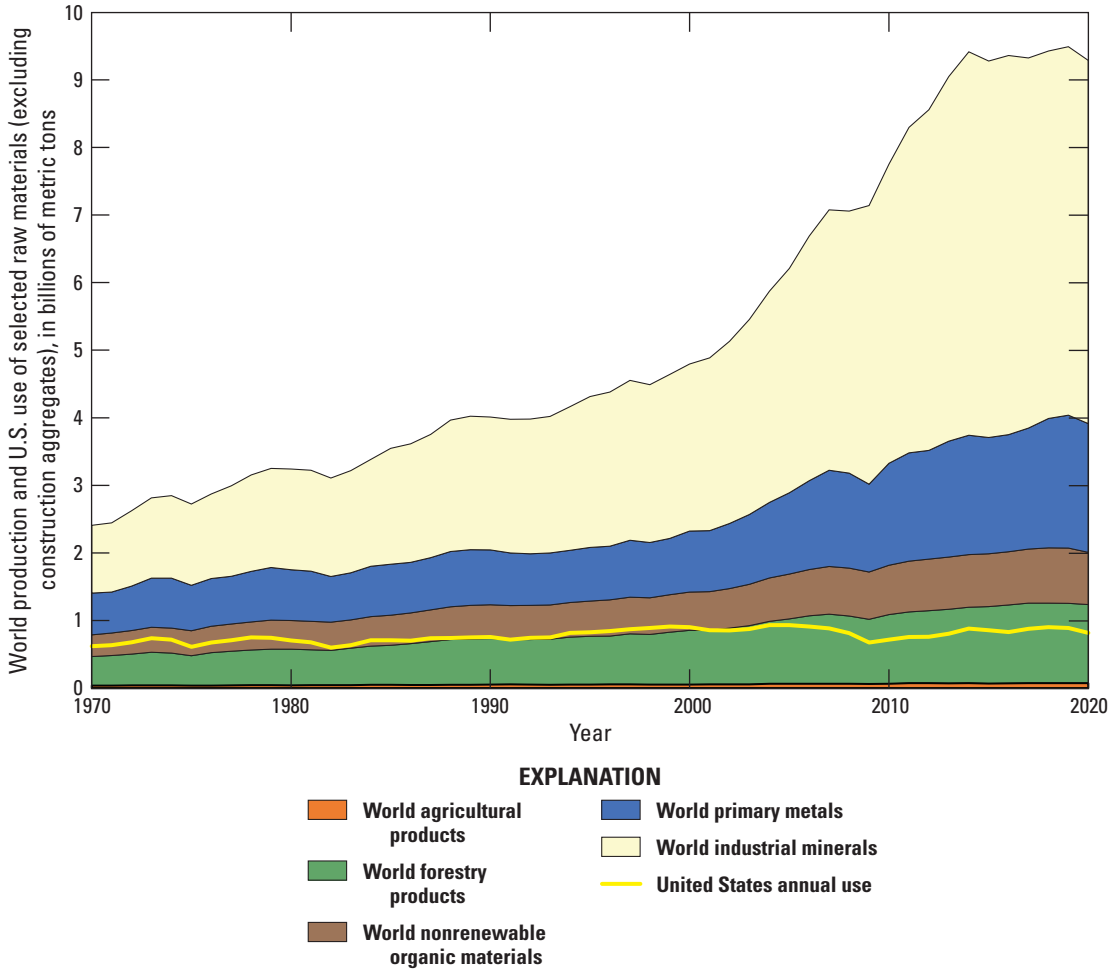

Figure 4. Graph showing the amounts of selected raw materials, by category, produced by the world annually and a line representing the sum of these materials used by the United States annually from 1970 through 2020. Construction aggregates are not included. Data are from table 5.

Global Comparison

To place the flows of materials in the United States in a global context, data on similar physical inputs to the global economy were compiled for the period 1970 through 2020. Selected types of raw materials produced in the world on a per capita basis are listed in table 4. The world production amounts of the materials in four categories—agricultural products, forestry products nonfuel minerals (except construction aggregates), and NROs—are presented in table 5, which lists the aggregated quantities (in metric tons) of these raw materials on an annual basis. The individual commodities contained in each of the four categories are displayed in figure 4. World totals in all categories include data for the United States. Construction aggregates were not included for this analysis because most countries outside the United States do not account for these materials, and there are no reliable statistical estimates. If the U.S. construction aggregates were included, they would represent about a third of the total global production by mass in 2020.

In the past 50 years, the growth of global resources has increased significantly, particularly owing to the rise of emerging market economies. In 2020, global flows reached about 9.3 billion metric tons (not including food or fuel), almost four times the materials consumed in 1970, whereas global population only doubled during the same period. The upward trend started slowly in the 1990s and accelerated around 2000 due to China's expansion to become the second largest economy in the world, following the United States. China is a leading producer but even larger consumer of nonfuel minerals; the country accounted for about 18 percent of the world's population in 2020 (World Bank, 2022).

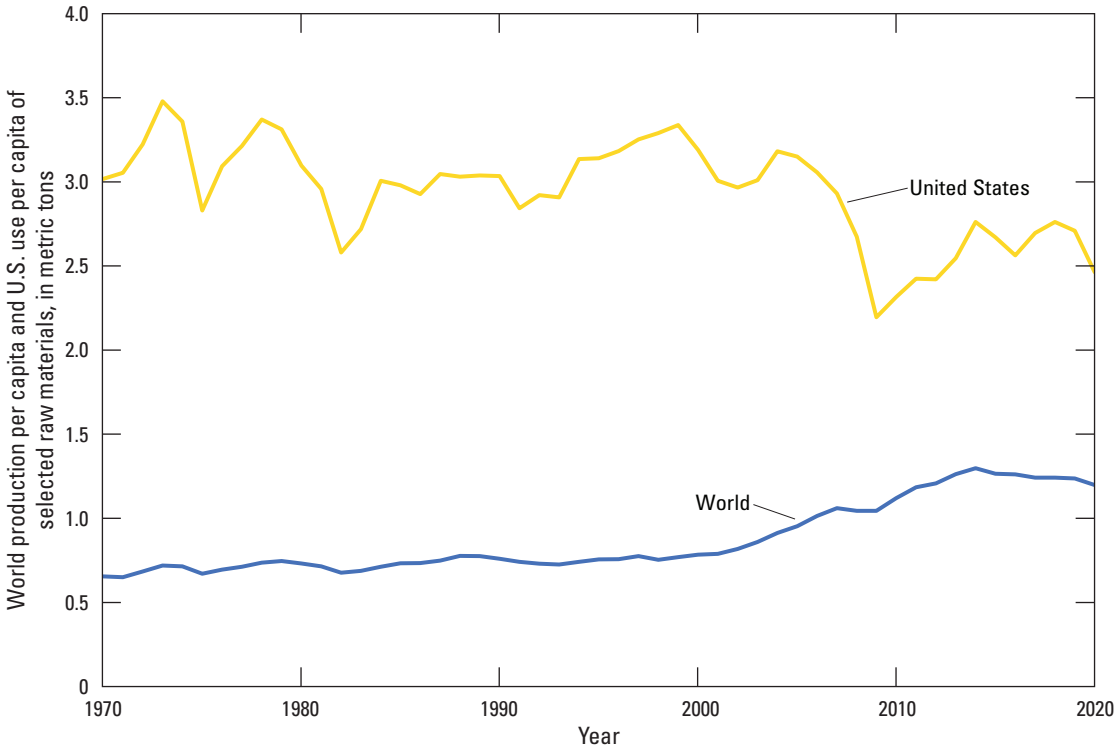

Figure 5. Graph showing the total amounts of selected raw materials produced by the world and used by the United States per capita from 1970 through 2020. The materials included are the same as those shown in figure 4. Construction aggregates are not included.

In contrast, the United States represents only 4 percent of the world's population. Notably, the static level of raw materials use in the last five decades is primarily the result of two factors: (1) the United States has an industrialized economy where the basic infrastructure is in place and (2) the Nation is experiencing declines in the manufacturing sector, dependency on importing final or semifinal products, and a shift toward a service-based economy that is dependent on fewer materials.

The United States consumed about twice the world's total materials production on a per capita basis by 2020 (fig. 5). The significant decrease in U.S. materials used per capita in 2009 was mainly due to the global economic recession. The driver behind the decline in the steel industry was reduced demand by the automotive industry (Fenton, 2011).

Modern societies are highly dependent upon energy and mineral resources to produce and deliver the material goods and services needed for everyday life. Global flows have increased considerably since 1970, and the continuation or acceleration of these trends could have long-term effects such as scarcity issues, unacceptable environmental impacts, and global equity issues (Rogich and Matos, 2008). On a per capita basis, however, the United States still leads the world in materials consumption.

Data Sources Used To Track Flows of Raw Materials Usage

The following is a list of data sources used for tracking the United States and global flows of raw materials:

- BP Statistical Review of World Energy (for world nonrenewable organic materials statistics)
- Food and Agriculture Organization of the United Nations; World Statistical Compendium for Raw Hides and Skins, Leather and Leather Footwear 1999–2015 (for animal and agricultural products statistics and forestry products statistics)
- National Oceanic and Atmospheric Administration, National Marine Fisheries Service; Fisheries of the United States (for fishery products statistics)
- Resources for the Future; Natural Resource Commodities—A Century of Statistics (for agricultural products statistics)
- U.S. Bureau of Mines and U.S. Geological Survey (for metals and minerals statistics)
  - Mineral Resources of the United States
  - Minerals Yearbook
- U.S. Department of Agriculture, Forest Service; U.S. Timber Production, Trade, Consumption, and Price Statistics (for forestry products and paper statistics)
- U.S. Department of Agriculture, National Agricultural Statistics Service (for agricultural products statistics)
  - Annual Agricultural Statistics
  - Economic Research Service data products
- U.S. Department of Commerce
  - U.S. Census Bureau (for population statistics)
  - U.S. Census Bureau; Statistical Abstract of the United States (for agricultural products statistics)
- U.S. Energy Information Administration; Annual Energy Review (for nonrenewable organic materials statistics)
- U.S. International Trade Commission
  - Interactive Tariff and Trade DataWeb (for agricultural products statistics)
  - Synthetic Organic Chemicals publication (for statistics on nonrenewable organic materials and statistics on primary products made from petroleum and natural gas)
- World Bank Open Data (for world population statistics)

Summary

Consumption of raw materials by the United States has risen in all commodity categories in absolute terms in the 120 years of the study due to economic development and population growth. The U.S. mining sector and mineral assets are major contributors to the economy and represent a vital foundation to the Nation's wellbeing.

In a finite world, a holistic and detailed understanding of the physical flows of materials is relevant, and the U.S. Geological Survey supports this effort by collecting and analyzing mineral commodity data of the United States and other countries in the world.

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I would like to thank Donald G. Rogich, retired from the U.S. Bureau of Mines as Division Chief of Mineral Commodities, for sharing insights and providing guidance that informed my work on materials flow and ultimately led to this report.

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Tables 1–5

Table 1. Lists by category of raw materials used in the United States from 1900 through 2020.

Agricultural products	Forestry products	Nonfuel minerals			Nonrenewable organic materials
		Construction aggregates	Metals (includes recycled metals)	Industrial minerals	
Cotton	Paper and paperboard, all grades:	Construction sand and gravel	Aluminum	Abrasives, manufactured	Asphalt and road oil:
Cottonseed	Paper and paperboard, primary:	Crushed stone	Antimony	Asbestos	All asphalts
Fishery products	Hardboard		Arsenic	Barite	All road oils (grades 0 to 5)
Flaxseed	Insulating board		Beryllium	Boron	Coal
Fur	Wet machine board		Bismuth	Bromine	Lubricants:
Leather hides	Recycled paper:		Cadmium	Cement	All lubricating oils
Mohair	Recovered paper at paper and paperboard mills		Cesium	Clays	Lubricants in greases
Natural rubber	Recovered paper for other uses		Chromium	Diamond, industrial	Miscellaneous oils, waxes, and other products:
Raw wool	Wood products:		Cobalt	Diatomite	All waxes
Silk, raw and waste	Lumber		Copper	Feldspar	Absorption oil
Tobacco	Plywood and veneer		Gallium	Fluorspar	All other nonfuel oils
	Other forestry products:		Germanium	Garnet, industrial	Petrolatum
	Cooperage		Gold	Gemstones	Natural gas for carbon black
	Fence posts		Indium	Graphite, natural	Pentanes plus
	Hewn ties		Iron and steel	Gypsum	Petrochemicals feedstock
	Poles and pilings		Lead	Hafnium	Petroleum coke
	Other miscellaneous products		Magnesium	Helium	Primary products from petroleum and natural gas
			Manganese	Iron oxide pigments	Special naphthas
			Mercury	Kyanite and related materials	
			Molybdenum	Lime	
			Nickel	Lithium	
			Niobium (columbium)	Magnesium compounds	
			Platinum group	Mica	
			Rare earths	Nitrogen	
			Rhenium	Peat	
			Selenium	Perlite	
			Silicon	Phosphate rock	
			Silver	Potash	
			Tantalum	Pumice and pumicite	
			Tellurium	Quartz crystal	
			Thallium	Salt	
			Tin	Sand and gravel, industrial	
			Titanium	Soda ash	
			Tungsten	Sodium sulfate	
			Vanadium	Stone, dimension	
			Zinc	Strontium	
				Sulfur	
				Talc and pyrophyllite	
				Thorium	
				Titanium dioxide	
				Vermiculite	
				Wollastonite	
				Zirconium	

Sources:

Food and Agriculture Organization of the United Nations; World Statistical Compendium for Raw Hides and Skins, Leather and Leather Footwear 1999–2015 (for animal and agricultural products statistics)

National Oceanic and Atmospheric Administration, National Marine Fisheries Service; Fisheries of the United States (for fishery products statistics)

Resources for the Future; Natural Resource Commodities—A Century of Statistics (for agricultural products statistics)

U.S. Bureau of Mines and U.S. Geological Survey; Mineral Resources of the United States and Minerals Yearbook (for metals and minerals statistics)

U.S. Department of Agriculture Forest Service, U.S. Timber Production, Trade, Consumption, and Price Statistics (for forestry products and paper statistics)

U.S. Department of Agriculture, National Agricultural Statistics Service; Annual Agricultural Statistics and Economic Research Service data products (for agricultural products statistics)

U.S. Department of Commerce, U.S. Census Bureau; Statistical Abstract of the United States (for agricultural products statistics)

U.S. Energy Information Administration; Annual Energy Review (for nonrenewable organic materials statistics)

U.S. International Trade Commission; Synthetic Organic Chemicals (for nonrenewable organic materials statistics); Interactive Tariff and Trade DataWeb (for agricultural products statistics)

Table 2. Amounts of raw materials used annually in the United States from 1900 through 2020, by category.

[Data are in thousands of metric tons and are rounded to three significant digits. Materials embedded in imported goods are not included. --, negligible or no data]

Year	Agricultural products	Forestry products			Nonfuel minerals				Nonrenewable organic materials	Total U.S. raw materials
		Wood	Paper and paperboard	Recycled paper	Construction materials	Industrial minerals	Metals			
							Primary	Recycled		
1900	3,040	60,300	2,640	--	55,300	12,400	10,300	--	1,590	146,000
1901	3,460	62,800	2,670	--	61,000	14,600	13,100	--	1,670	159,000
1902	3,660	65,600	2,690	--	70,000	17,400	14,800	--	1,760	176,000
1903	3,300	67,100	2,720	--	67,000	15,600	14,100	--	1,880	172,000
1904	3,560	69,000	2,750	--	70,100	24,300	12,900	--	1,900	185,000
1905	3,680	70,600	2,720	--	81,200	28,100	17,800	--	1,960	206,000
1906	3,740	75,800	2,690	--	95,200	32,700	20,800	12	2,040	233,000
1907	3,310	80,800	2,670	--	90,000	33,600	21,100	44	2,130	234,000
1908	3,570	74,200	2,640	--	81,900	30,200	12,900	29	2,180	208,000
1909	3,500	78,800	3,720	--	109,000	35,900	20,900	83	2,260	254,000
1910	3,380	78,800	3,680	--	125,000	39,800	23,000	123	2,370	276,000
1911	3,710	75,900	3,650	--	122,000	38,200	20,400	133	2,590	266,000
1912	4,090	77,700	3,610	--	124,000	43,000	26,200	184	2,933	282,000
1913	3,810	76,200	3,580	--	141,000	44,500	26,400	175	2,930	299,000
1914	3,890	72,400	4,890	--	130,000	42,300	18,800	148	3,310	276,000
1915	4,000	69,300	4,840	--	131,000	42,500	23,200	212	3,560	279,000
1916	4,140	73,000	4,800	--	132,000	48,500	29,800	278	4,230	297,000
1917	4,120	69,200	5,490	--	114,000	49,800	30,500	283	4,870	279,000
1918	4,050	65,200	5,690	--	93,300	42,600	29,300	263	5,360	246,000
1919	3,870	67,400	5,670	--	97,600	41,500	23,300	273	5,260	245,000
1920	3,750	67,200	6,900	--	115,000	50,800	30,300	293	5,530	280,000
1921	3,520	58,200	5,470	--	104,000	39,100	14,100	235	5,790	230,000
1922	4,180	64,100	7,130	--	125,000	51,100	26,700	367	5,160	285,000
1923	4,220	70,100	8,340	--	173,000	62,000	34,100	467	6,380	361,000
1924	4,260	67,200	8,420	--	194,000	63,700	29,000	470	8,390	377,000
1925	4,560	66,300	9,450	--	214,000	70,600	34,600	518	10,000	411,000
1926	4,600	65,100	10,500	--	232,000	71,400	36,600	613	10,600	432,000
1927	4,860	61,300	10,800	--	255,000	70,500	33,800	611	11,200	449,000
1928	4,750	59,500	11,300	--	249,000	72,700	38,500	671	12,900	449,000
1929	4,940	61,700	12,200	--	282,000	73,400	42,000	706	14,400	491,000
1930	4,410	49,500	11,200	--	255,000	64,200	30,600	584	13,900	429,000
1931	4,280	36,200	10,300	--	193,000	53,000	20,300	479	12,300	330,000
1932	3,640	27,500	8,830	--	149,000	36,800	11,300	365	10,600	248,000
1933	4,180	31,200	9,900	--	143,000	34,400	17,600	476	11,100	252,000
1934	3,620	32,900	10,200	--	168,000	38,200	19,400	498	12,500	285,000

Table 2. Amounts of raw materials used annually in the United States from 1900 through 2020, by category.—Continued

[Data are in thousands of metric tons and are rounded to three significant digits. Materials embedded in imported goods are not included. --, negligible or no data]

Year	Agricultural products	Forestry products			Nonfuel minerals				Nonrenewable organic materials	Total U.S. raw materials
		Wood	Paper and paperboard	Recycled paper	Construction materials	Industrial minerals	Metals			
							Primary	Recycled		
1935	4,070	38,000	11,600	--	165,000	43,600	25,100	611	13,200	301,000
1936	4,360	44,500	13,300	--	249,000	56,300	35,600	636	15,900	420,000
1937	5,010	46,800	14,500	--	259,000	61,800	39,300	682	17,400	444,000
1938	4,040	41,300	12,300	--	250,000	50,700	25,000	485	17,200	401,000
1939	5,280	46,000	14,500	--	304,000	61,000	39,300	559	18,900	490,000
1940	6,420	48,700	15,200	--	319,000	67,000	44,900	628	19,200	521,000
1941	7,280	56,300	18,500	--	380,000	86,000	61,300	864	22,400	633,000
1942	6,410	56,300	17,900	--	402,000	90,800	59,400	796	22,300	656,000
1943	6,640	52,100	17,600	--	325,000	96,800	59,400	788	21,700	580,000
1944	6,260	50,400	17,600	--	281,000	89,700	59,200	815	23,100	528,000
1945	6,070	44,500	17,800	--	279,000	91,400	56,600	847	25,600	522,000
1946	6,800	51,400	20,400	--	353,000	109,000	48,800	846	27,500	618,000
1947	6,800	53,000	22,400	--	394,000	133,000	60,600	1,110	28,900	700,000
1948	7,310	54,500	23,700	--	437,000	142,000	68,800	30,500	29,500	793,000
1949	6,630	47,700	22,400	--	438,000	133,000	60,500	23,700	28,300	760,000
1950	7,100	56,200	26,300	--	501,000	153,000	77,000	32,500	31,500	885,000
1951	6,860	53,600	27,700	--	555,000	167,000	84,600	31,500	34,600	961,000
1952	6,720	53,800	26,300	--	600,000	165,000	70,600	32,400	33,100	989,000
1953	6,820	53,500	28,400	--	605,000	173,000	85,100	31,400	34,700	1,020,000
1954	6,680	52,900	28,500	--	813,000	176,000	65,800	24,300	35,300	1,200,000
1955	6,880	54,700	31,500	--	881,000	197,000	88,300	35,000	38,700	1,330,000
1956	6,840	55,100	33,100	--	942,000	205,000	86,700	38,300	41,500	1,410,000
1957	5,990	48,700	32,000	--	976,000	193,000	81,900	29,200	40,900	1,410,000
1958	5,800	49,800	31,900	--	1,030,000	188,000	63,800	22,000	42,700	1,430,000
1959	6,390	54,600	35,100	--	1,100,000	215,000	77,900	27,300	46,300	1,560,000
1960	6,380	49,100	27,200	8,400	1,120,000	209,000	76,800	24,600	47,300	1,570,000
1961	6,740	48,500	28,200	8,400	1,100,000	209,000	72,800	23,800	48,600	1,550,000
1962	7,220	50,600	30,000	8,460	1,140,000	221,000	78,900	24,000	51,800	1,610,000
1963	7,400	54,200	30,700	8,970	1,270,000	233,000	85,300	27,800	52,800	1,770,000
1964	7,650	57,000	33,000	9,190	1,340,000	247,000	94,700	30,100	55,500	1,880,000
1965	7,120	60,700	31,700	9,560	1,420,000	261,000	108,000	33,800	59,400	1,990,000
1966	7,540	61,000	34,900	9,880	1,480,000	275,000	108,000	34,700	64,000	2,070,000
1967	8,020	58,600	34,900	9,280	1,430,000	273,000	101,000	37,700	64,500	2,010,000
1968	9,100	60,900	37,200	9,600	1,460,000	284,000	115,000	37,600	70,600	2,080,000
1969	6,930	61,000	38,200	11,200	1,520,000	293,000	102,000	41,100	75,700	2,140,000

Table 2. Amounts of raw materials used annually in the United States from 1900 through 2020, by category.—Continued

[Data are in thousands of metric tons and are rounded to three significant digits. Materials embedded in imported goods are not included. --, negligible or no data]

Year	Agricultural products	Forestry products			Nonfuel minerals				Nonrenewable organic materials	Total U.S. raw materials
		Wood	Paper and paperboard	Recycled paper	Construction materials	Industrial minerals	Metals			
							Primary	Recycled		
1970	6,560	60,200	36,800	11,400	1,530,000	289,000	97,000	37,400	80,400	2,150,000
1971	6,750	64,700	37,300	11,700	1,510,000	292,000	102,000	38,200	81,800	2,150,000
1972	7,540	66,900	40,500	12,400	1,540,000	311,000	107,000	45,800	85,400	2,220,000
1973	5,410	66,800	42,100	13,800	1,730,000	324,000	123,000	52,100	110,000	2,460,000
1974	4,770	58,000	40,900	14,200	1,650,000	318,000	119,000	56,200	107,000	2,370,000
1975	5,840	53,500	34,900	11,900	1,420,000	278,000	85,700	43,300	97,800	2,040,000
1976	5,880	60,200	39,700	14,000	1,500,000	299,000	103,000	46,300	106,000	2,180,000
1977	5,610	66,100	40,800	14,800	1,590,000	315,000	105,000	45,600	114,000	2,290,000
1978	5,340	68,800	43,100	15,200	1,730,000	332,000	117,000	47,300	121,000	2,480,000
1979	5,800	67,500	44,200	16,300	1,750,000	341,000	86,300	54,200	130,000	2,500,000
1980	5,040	58,800	42,500	16,300	1,500,000	314,000	95,500	48,800	123,000	2,200,000
1981	4,940	54,700	44,000	16,100	1,330,000	297,000	104,000	45,600	112,000	2,010,000
1982	5,330	55,300	41,800	15,500	1,180,000	261,000	86,200	33,200	100,000	1,780,000
1983	5,270	66,400	46,100	17,000	1,300,000	277,000	84,100	39,500	100,000	1,930,000
1984	5,650	71,500	49,500	18,600	1,480,000	314,000	98,000	43,000	109,000	2,190,000
1985	6,550	73,000	48,800	18,500	1,540,000	313,000	95,700	46,100	108,000	2,250,000
1986	6,160	78,000	50,200	20,400	1,630,000	304,000	90,000	46,900	108,000	2,340,000
1987	6,480	82,800	52,700	21,800	1,800,000	313,000	94,400	51,900	116,000	2,540,000
1988	5,870	80,300	52,900	23,700	1,870,000	327,000	79,300	56,300	116,000	2,610,000
1989	5,680	81,100	51,700	24,600	1,810,000	323,000	94,500	54,700	115,000	2,560,000
1990	5,490	77,200	51,300	26,400	1,840,000	323,000	95,100	57,900	120,000	2,600,000
1991	5,480	71,100	48,000	28,300	1,620,000	304,000	86,000	51,800	122,000	2,340,000
1992	5,250	74,900	48,600	30,800	1,790,000	313,000	92,800	53,400	126,000	2,540,000
1993	7,120	76,400	50,400	32,200	1,890,000	319,000	80,400	57,400	127,000	2,640,000
1994	7,080	77,700	50,300	36,000	2,020,000	342,000	108,000	61,300	134,000	2,830,000
1995	5,660	77,100	48,900	38,300	2,070,000	346,000	113,000	62,300	134,000	2,900,000
1996	5,850	77,800	46,400	39,100	2,150,000	360,000	119,000	60,500	136,000	3,000,000
1997	6,140	78,800	50,100	39,900	2,270,000	366,000	125,000	62,500	143,000	3,140,000
1998	5,790	80,600	50,700	40,900	2,480,000	374,000	130,000	59,500	148,000	3,370,000
1999	5,900	83,000	52,700	42,500	2,530,000	389,000	129,000	56,500	153,000	3,440,000
2000	5,420	82,300	50,600	42,900	2,560,000	378,000	132,000	59,300	149,000	3,460,000
2001	4,880	80,100	45,600	42,600	2,620,000	371,000	117,000	58,000	138,000	3,470,000
2002	5,070	82,600	45,000	43,200	2,540,000	364,000	111,000	58,900	144,000	3,400,000
2003	4,600	81,600	46,300	44,700	2,590,000	379,000	117,000	58,900	141,000	3,460,000
2004	4,730	89,100	48,900	45,600	2,760,000	404,000	128,000	61,900	150,000	3,690,000

Table 2. Amounts of raw materials used annually in the United States from 1900 through 2020, by category.—Continued

[Data are in thousands of metric tons and are rounded to three significant digits. Materials embedded in imported goods are not included. --, negligible or no data]

Year	Agricultural products	Forestry products			Nonfuel minerals				Nonrenewable organic materials	Total U.S. raw materials
		Wood	Paper and paperboard	Recycled paper	Construction materials	Industrial minerals	Metals			
							Primary	Recycled		
2005	4,390	90,100	45,900	46,500	2,870,000	417,000	123,000	60,900	144,000	3,800,000
2006	4,040	84,900	44,600	48,400	3,000,000	398,000	130,000	61,400	140,000	3,910,000
2007	4,020	75,800	41,300	49,300	2,800,000	385,000	123,000	67,500	137,000	3,690,000
2008	3,660	57,400	37,900	47,000	2,440,000	359,000	110,000	76,200	123,000	3,260,000
2009	3,470	48,300	28,800	45,400	1,950,000	289,000	68,800	72,900	116,000	2,630,000
2010	3,680	47,600	30,600	46,800	1,920,000	307,000	87,200	68,900	124,000	2,640,000
2011	3,520	50,400	27,300	47,900	1,920,000	330,000	97,200	75,200	124,000	2,670,000
2012	3,620	53,500	28,300	46,300	1,940,000	326,000	105,000	73,400	123,000	2,700,000
2013	3,170	59,000	25,800	45,500	1,980,000	356,000	105,000	80,400	129,000	2,780,000
2014	3,190	64,300	24,400	46,400	2,030,000	427,000	124,000	65,400	124,000	2,910,000
2015	3,360	67,800	23,000	47,200	2,180,000	421,000	109,000	57,000	128,000	3,040,000
2016	3,150	73,000	21,600	47,300	2,210,000	394,000	103,000	56,200	129,000	3,040,000
2017	3,030	74,900	23,400	46,100	2,200,000	426,000	112,000	58,300	133,000	3,080,000
2018	2,990	77,200	21,900	46,900	2,280,000	433,000	110,000	62,200	148,000	3,180,000
2019	2,640	78,300	22,400	43,900	2,400,000	423,000	110,000	60,200	149,000	3,290,000
2020	2,500	80,000	22,700	43,600	2,370,000	372,000	89,400	56,900	149,000	3,180,000

Sources:

Food and Agriculture Organization of the United Nations; World Statistical Compendium for Raw Hides and Skins, Leather and Leather Footwear 1999–2015 (for animal and agricultural products statistics)

National Oceanic and Atmospheric Administration, National Marine Fisheries Service; Fisheries of the United States (for fishery products statistics)

Resources for the Future; Natural Resource Commodities—A Century of Statistics (for agricultural products statistics)

U.S. Bureau of Mines and U.S. Geological Survey; Mineral Resources of the United States and Minerals Yearbook (for metal and mineral statistics)

U.S. Department of Agriculture Forest Service, U.S. Timber Production, Trade, Consumption, and Price Statistics (for forestry products and paper statistics)

U.S. Department of Agriculture, National Agricultural Statistics Service (for agricultural products statistics)

U.S. Department of Commerce, U.S. Census Bureau; Statistical Abstract of the United States (for agricultural products statistics)

U.S. Energy Information Administration; Annual Energy Review (for nonrenewable organic materials statistics)

U.S. International Trade Commission; Synthetic Organic Chemicals (for nonrenewable organic materials statistics); Interactive Tariff and Trade DataWeb (for agricultural products statistics)

Table 3. Amounts of raw materials used annually per capita in the United States from 1900 through 2020, by decade.

[Raw material data are in metric tons per capita (per person) and are based on data in table 2 of this report. Population statistics are from U.S. Department of Commerce, U.S. Census Bureau. --, not available or not applicable]

Year	Agricultural products	Forestry products			Nonfuel minerals				Nonrenewable organic materials	Total materials	U.S. population, in millions	Percentage change of U.S. population	Total materials minus aggregates
		Wood	Paper and paperboard	Recycled paper	Construction aggregates	Industrial minerals	Metals						
							Primary	Recycled					
1900	0.04	0.79	0.03	--	0.73	0.16	0.14	--	0.02	1.91	76.0	--	1.19
1910	0.04	0.85	0.04	--	1.35	0.43	0.25	0.00	0.03	2.99	92.4	21.4	1.64
1920	0.04	0.63	0.06	--	1.08	0.48	0.28	0.00	0.05	2.63	106.5	15.2	1.55
1930	0.04	0.40	0.09	--	2.07	0.52	0.25	0.00	0.11	3.49	123.1	15.6	1.42
1940	0.05	0.37	0.12	--	2.41	0.51	0.34	0.00	0.15	3.94	132.1	7.35	1.53
1950	0.05	0.37	0.17	--	3.29	1.01	0.51	0.21	0.21	5.81	152.3	15.3	2.52
1960	0.04	0.27	0.15	0.05	6.19	1.16	0.43	0.14	0.26	8.67	180.7	18.7	2.48
1970	0.03	0.29	0.18	0.06	7.47	1.41	0.47	0.18	0.39	10.50	205.1	13.5	3.02
1980	0.02	0.26	0.19	0.07	6.59	1.38	0.42	0.21	0.54	9.69	227.2	10.8	3.10
1990	0.02	0.31	0.21	0.11	7.39	1.30	0.38	0.23	0.48	10.40	249.5	9.79	3.03
2000	0.02	0.29	0.18	0.15	9.07	1.34	0.47	0.21	0.53	12.30	282.2	13.1	3.19
2010	0.01	0.15	0.10	0.15	6.20	0.99	0.28	0.22	0.40	8.52	309.3	9.63	2.32
2020	0.01	0.24	0.07	0.13	7.14	1.12	0.27	0.17	0.45	9.60	329.5	6.52	2.46

Table 4. Lists by category of selected raw materials produced in the world (including the United States) from 1970 through 2020.

Agricultural products	Forestry products[1]	Nonfuel minerals		Nonrenewable organic materials[2]
		Metals (includes recycled metals)	Industrial minerals	
Agave fiber	Sawnwood, coniferous	Aluminum	Asbestos	Nonfuel use of coal
Castor oil seed	Sawnwood, non-coniferous	Cadmium	Barite	Nonfuel use of gas
Cotton lint	Veneer sheets	Copper	Boron	Nonfuel use of petroleum products
Cottonseed[3]	Plywood	Lead	Cement	
Fibers	Particle board	Magnesium	Feldspar	
Flaxseed	Fiberboard, compressed	Molybdenum	Fluorspar	
Hempseed	Fiberboard, noncompressed	Nickel	Graphite	
Hides, buffalo[4]	Wood-based panels	Raw steel	Gypsum	
Hides, cattle[4]	Paper and paperboard	Tin	Industrial sand and gravel	
Jute	Recovered paper	Tungsten		
Linseed		Vanadium	Mica	
Natural rubber		Zinc	Nitrogen	
Raw silk			Phosphate rock	
Sisal			Potash	
Skins, goats[5]			Salt	
Skins, sheep[5]			Soda ash	
Tobacco, unmanufactured			Sulfur	
Wool, degreased			Talc	

[1]Conversion factors: https://www.forestresearch.gov.uk/tools-and-resources/statistics/forestry-statistics/forestry-statistics-2016-introduction/sources/timber/conversion-factors/.

[2]Noncombustion consumption of fossil fuels is assumed to be 7 percent of total fossil fuel consumption as in the United States (https://www.eia.gov/todayinenergy/detail.php?id=35672). Units are in metric tons of oil equivalent.

[3]About 10 percent used for nonfood purposes.

[4]Hides of bovines and equines, from which the hair has not been removed, in terms of fresh weight. Includes non-industrial production.

[5]Skins of sheep and goats, from which the hair has not been removed, in terms of fresh weight. Includes non-industrial production.

Sources:

BP Statistical Review of World Energy (for world nonrenewable organic materials statistics)

Food and Agriculture Organization of the United Nations; World Statistical Compendium for Raw Hides and Skins, Leather and Leather Footwear 1999–2015 (for animal and agricultural products statistics and forestry products statistics)

U.S. Bureau of Mines and U.S. Geological Survey; Mineral Resources of the United States and Minerals Yearbook (for metals and minerals statistics)

World Bank Open Data: https://data.worldbank.org/ (for world population statistics)

Table 5. Amounts of selected raw materials produced annually in the world (including the United States) from 1970 through 2020, by category and per capita.

[Construction aggregates are not included in the production data. Production data by category (left half of table) are in thousands of metric tons and are rounded to three significant digits. Production data per capita (right half of table) are in metric tons per person and are rounded to two or three significant digits. World population data are in billions and are rounded to four significant digits; the population data are included for comparison with the production data]

Year	World production amounts by category						U.S. total use without aggregates
	Agricultural products	Forestry products	Nonfuel minerals		Nonrenewable organic materials	World total without aggregates	
			Metals	Industrial minerals			
1970	38,100	429,000	620,000	1,000,000	320,000	2,410,000	619,000
1971	37,600	444,000	607,000	1,020,000	332,000	2,450,000	634,000
1972	38,300	464,000	657,000	1,110,000	350,000	2,620,000	676,000
1973	39,800	490,000	728,000	1,190,000	371,000	2,810,000	737,000
1974	39,400	480,000	739,000	1,220,000	370,000	2,850,000	718,000
1975	38,000	441,000	674,000	1,200,000	370,000	2,720,000	611,000
1976	38,200	487,000	705,000	1,250,000	390,000	2,870,000	674,000
1977	41,100	504,000	705,000	1,340,000	403,000	2,990,000	708,000
1978	41,400	522,000	747,000	1,420,000	417,000	3,150,000	750,000
1979	41,500	535,000	778,000	1,470,000	431,000	3,250,000	745,000
1980	40,400	535,000	750,000	1,490,000	425,000	3,240,000	704,000
1981	43,000	525,000	741,000	1,490,000	420,000	3,220,000	679,000
1982	43,800	515,000	676,000	1,460,000	416,000	3,110,000	598,000
1983	42,300	548,000	695,000	1,510,000	420,000	3,220,000	636,000
1984	48,200	573,000	746,000	1,580,000	437,000	3,380,000	709,000
1985	50,100	583,000	753,000	1,720,000	445,000	3,550,000	709,000
1986	45,900	611,000	748,000	1,750,000	454,000	3,610,000	703,000
1987	47,200	641,000	771,000	1,830,000	469,000	3,750,000	738,000
1988	49,800	667,000	819,000	1,940,000	486,000	3,960,000	741,000
1989	48,600	680,000	824,000	1,980,000	496,000	4,020,000	750,000
1990	51,600	683,000	812,000	1,970,000	500,000	4,010,000	757,000
1991	54,200	665,000	778,000	1,980,000	501,000	3,980,000	717,000
1992	51,600	667,000	765,000	1,990,000	505,000	3,980,000	745,000
1993	49,600	675,000	771,000	2,020,000	506,000	4,020,000	750,000
1994	50,700	704,000	770,000	2,130,000	512,000	4,160,000	816,000
1995	52,200	713,000	794,000	2,230,000	521,000	4,310,000	825,000
1996	53,700	716,000	795,000	2,280,000	537,000	4,380,000	844,000
1997	55,400	747,000	843,000	2,360,000	542,000	4,550,000	871,000
1998	52,200	740,000	817,000	2,330,000	544,000	4,490,000	889,000
1999	52,900	775,000	833,000	2,420,000	554,000	4,640,000	910,000
2000	53,100	801,000	902,000	2,470,000	568,000	4,790,000	900,000
2001	55,600	796,000	904,000	2,560,000	574,000	4,890,000	857,000
2002	53,800	833,000	961,000	2,700,000	588,000	5,130,000	853,000
2003	55,500	869,000	1,030,000	2,890,000	613,000	5,460,000	873,000
2004	63,100	924,000	1,120,000	3,130,000	642,000	5,870,000	932,000
2005	65,000	958,000	1,200,000	3,320,000	664,000	6,210,000	931,000
2006	65,300	1,000,000	1,320,000	3,620,000	683,000	6,690,000	912,000
2007	65,400	1,030,000	1,420,000	3,850,000	707,000	7,080,000	883,000

Table 5. Amounts of selected raw materials produced annually in the world (including the United States) from 1970 through 2020, by category and per capita.—Continued

[Construction aggregates are not included in the production data. Production data by category (left half of table) are in thousands of metric tons and are rounded to three significant digits. Production data per capita (right half of table) are in metric tons per person and are rounded to two or three significant digits. World population data are in billions and are rounded to four significant digits; the population data are included for comparison with the production data]

World population	Year	World production amounts per capita						U.S. total use per capita without aggregates
		Agricultural products	Forestry products	Nonfuel minerals		Nonrenewable organic materials	World total without aggregates	
				Metals	Industrial minerals			
3,680	1970	0.01	0.12	0.17	0.27	0.09	0.65	3.02
3,760	1971	0.01	0.12	0.16	0.27	0.09	0.65	3.05
3,840	1972	0.01	0.12	0.17	0.29	0.09	0.68	3.22
3,910	1973	0.01	0.13	0.19	0.30	0.09	0.72	3.48
3,990	1974	0.01	0.12	0.19	0.31	0.09	0.71	3.36
4,060	1975	0.01	0.11	0.17	0.30	0.09	0.67	2.83
4,140	1976	0.01	0.12	0.17	0.30	0.09	0.69	3.09
4,210	1977	0.01	0.12	0.17	0.32	0.10	0.71	3.21
4,280	1978	0.01	0.12	0.17	0.33	0.10	0.74	3.37
4,360	1979	0.01	0.12	0.18	0.34	0.10	0.75	3.31
4,430	1980	0.01	0.12	0.17	0.34	0.10	0.73	3.10
4,510	1981	0.01	0.12	0.16	0.33	0.09	0.71	2.96
4,590	1982	0.01	0.11	0.15	0.32	0.09	0.68	2.58
4,670	1983	0.01	0.12	0.15	0.32	0.09	0.69	2.72
4,760	1984	0.01	0.12	0.16	0.33	0.09	0.71	3.01
4,840	1985	0.01	0.12	0.16	0.35	0.09	0.73	2.98
4,920	1986	0.01	0.12	0.15	0.36	0.09	0.73	2.93
5,010	1987	0.01	0.13	0.15	0.36	0.09	0.75	3.05
5,100	1988	0.01	0.13	0.16	0.38	0.10	0.78	3.03
5,190	1989	0.01	0.13	0.16	0.38	0.10	0.78	3.04
5,280	1990	0.01	0.13	0.15	0.37	0.09	0.76	3.03
5,370	1991	0.01	0.12	0.14	0.37	0.09	0.74	2.84
5,450	1992	0.01	0.12	0.14	0.37	0.09	0.73	2.92
5,540	1993	0.01	0.12	0.14	0.36	0.09	0.73	2.91
5,620	1994	0.01	0.13	0.14	0.38	0.09	0.74	3.14
5,710	1995	0.01	0.13	0.14	0.39	0.09	0.76	3.14
5,790	1996	0.01	0.12	0.14	0.39	0.09	0.76	3.18
5,870	1997	0.01	0.13	0.14	0.40	0.09	0.78	3.25
5,950	1998	0.01	0.12	0.14	0.39	0.09	0.75	3.29
6,030	1999	0.01	0.13	0.14	0.40	0.09	0.77	3.34
6,110	2000	0.01	0.13	0.15	0.40	0.09	0.78	3.19
6,190	2001	0.01	0.13	0.15	0.41	0.09	0.79	3.01
6,270	2002	0.01	0.13	0.15	0.43	0.09	0.82	2.97
6,350	2003	0.01	0.14	0.16	0.45	0.10	0.86	3.01
6,430	2004	0.01	0.14	0.17	0.49	0.10	0.91	3.18
6,510	2005	0.01	0.15	0.18	0.51	0.10	0.95	3.15
6,590	2006	0.01	0.15	0.20	0.55	0.10	1.01	3.06
6,670	2007	0.01	0.15	0.21	0.58	0.11	1.06	2.93

Table 5. Amounts of selected raw materials produced annually in the world (including the United States) from 1970 through 2020, by category and per capita.—Continued

[Construction aggregates are not included in the production data. Production data by category (left half of table) are in thousands of metric tons and are rounded to three significant digits. Production data per capita (right half of table) are in metric tons per person and are rounded to two or three significant digits. World population data are in billions and are rounded to four significant digits; the population data are included for comparison with the production data]

Year	World production amounts by category						U.S. total use without aggregates
	Agricultural products	Forestry products	Nonfuel minerals		Nonrenewable organic materials	World total without aggregates	
			Metals	Industrial minerals			
2008	63,400	1,000,000	1,400,000	3,880,000	711,000	7,060,000	813,000
2009	61,700	957,000	1,300,000	4,120,000	698,000	7,140,000	673,000
2010	64,900	1,020,000	1,510,000	4,430,000	731,000	7,750,000	716,000
2011	71,500	1,050,000	1,600,000	4,820,000	751,000	8,300,000	755,000
2012	72,700	1,070,000	1,610,000	5,040,000	761,000	8,560,000	760,000
2013	70,700	1,100,000	1,710,000	5,390,000	772,000	9,050,000	806,000
2014	72,500	1,130,000	1,770,000	5,670,000	777,000	9,410,000	879,000
2015	68,100	1,140,000	1,720,000	5,570,000	782,000	9,280,000	856,000
2016	68,700	1,160,000	1,730,000	5,610,000	788,000	9,360,000	828,000
2017	72,100	1,180,000	1,790,000	5,480,000	800,000	9,320,000	876,000
2018	72,000	1,190,000	1,920,000	5,440,000	817,000	9,430,000	902,000
2019	72,800	1,180,000	1,970,000	5,450,000	819,000	9,490,000	889,000
2020	72,800	1,160,000	1,910,000	5,370,000	774,000	9,290,000	816,000

Sources:

BP Statistical Review of World Energy (for world nonrenewable organic materials statistics)

Food and Agriculture Organization of the United Nations; World Statistical Compendium for Raw Hides and Skins, Leather and Leather Footwear 1999–2015 (for animal and agricultural products, forestry products statistics)

U.S. Bureau of Mines and U.S. Geological Survey, Mineral Resources of the United States and Minerals Yearbook (for metal and mineral statistics)

World Bank database: https://data.worldbank.org/ (for world population statistics)

Table 5. Amounts of selected raw materials produced annually in the world (including the United States) from 1970 through 2020, by category and per capita.—Continued

[Construction aggregates are not included in the production data. Production data by category (left half of table) are in thousands of metric tons and are rounded to three significant digits. Production data per capita (right half of table) are in metric tons per person and are rounded to two or three significant digits. World population data are in billions and are rounded to four significant digits; the population data are included for comparison with the production data]

World population	Year	World production amounts per capita						U.S. total use per capita without aggregates
		Agricultural products	Forestry products	Nonfuel minerals		Nonrenewable organic materials	World total without aggregates	
				Metals	Industrial minerals			
6,760	2008	0.01	0.15	0.21	0.57	0.11	1.04	2.67
6,840	2009	0.01	0.14	0.19	0.60	0.10	1.04	2.20
6,920	2010	0.01	0.15	0.22	0.64	0.11	1.12	2.32
7,000	2011	0.01	0.15	0.23	0.69	0.11	1.18	2.42
7,090	2012	0.01	0.15	0.23	0.71	0.11	1.21	2.42
7,170	2013	0.01	0.15	0.24	0.75	0.11	1.26	2.55
7,250	2014	0.01	0.16	0.24	0.78	0.11	1.30	2.76
7,340	2015	0.01	0.16	0.23	0.76	0.11	1.26	2.67
7,420	2016	0.01	0.16	0.23	0.76	0.11	1.26	2.56
7,510	2017	0.01	0.16	0.24	0.73	0.11	1.24	2.70
7,590	2018	0.01	0.16	0.25	0.72	0.11	1.24	2.76
7,670	2019	0.01	0.15	0.26	0.71	0.11	1.24	2.71
7,750	2020	0.01	0.15	0.25	0.69	0.10	1.20	2.46

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