

WORLDWIDE DATA RELATED TO POTENTIALS FOR
WIDESCALE USE OF RENEWABLE ENERGY

by

Theodore B. Taylor^{†,*}
Robert P. Taylor[†]
Steven Weiss[†]

Report PU/CEES 132

March 1, 1982

**the
center for
energy and
environmental
studies**

princeton university

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INTRODUCTION

These international statistical tables were prepared in 1977 by Robert P. Taylor and Steven Weiss, under the direction of Theodore B. Taylor. The work was supported as part of a grant from the Rockefeller Foundation to T. B. Taylor Associates (now the Appropriate Solar Technology Institute, Inc., a non-profit, tax exempt corporation located in Damascus, Maryland). The grant was for a study of the prospects for worldwide use of solar energy. The data presented in these tables are therefore pertinent to assessments of the potential role that solar energy (taken to include direct use of solar radiation, as well as renewable forms of energy, such as wind, hydropower, and fuels derived from plants, that are indirectly derived from solar radiation) might play in different countries.

Because of the scope of the task, precise quantification of much of the information that follows is difficult. Governments often do not know exactly how much energy their country consumes or produces. In other categories information may also be less than exact. Yet, an examination of the data for a single country should indicate important patterns of energy production and consumption, and other country characteristics pertinent to the development of solar energy.

All generally recognized independent nations of the world are included in the tables. Six territories are also included: Brunei (U.K.), Hong Kong (U.K.), Netherland Antilles (Neth.), New Caledonia (Fr.), Puerto Rico (U.S.), and the U.S. Virgin Islands. Together these territories account for over 80 percent of all commercial energy production and consumption in territories.

The summary data accompanying each table provide world totals, developed nation totals, and developing nation totals. The list of developed nations

includes all the countries listed as developed in the United Nations' World Energy Supplies 1971-75 (United Nations, N.Y., 1977), plus the countries listed by the U.N. under the category of "centrally planned Europe" excluding Albania. Accordingly, in the following tables, the list of developed nations includes:

Australia	Hungary	Norway
Austria	Iceland	Poland
Belgium	Ireland	Portugal
Bulgaria	Israel	Romania
Canada	Italy	South Africa
Czechoslovakia	Japan	Spain
Denmark	Liechtenstein	Sweden
Finland	Luxembourg	Switzerland
France	Malta	USSR
German Democratic Republic	Monaco	United Kingdom
Federal Republic of Germany	Netherlands	US
Greece	New Zealand	Yugoslavia

In tables where U.S. data is out of character with the patterns in other developed countries, an additional summary total is presented for developed countries excluding the U.S. Similarly, China and the Organization of Petroleum Exporting Countries (OPEC) often inflate developing nation totals, and separate totals which omit one or the other or both are provided where deemed necessary.

Data for Namibia and the Transkei are included in South Africa's commercial energy totals. In all other tables, figures for South Africa include the Transkei but exclude Namibia. Commercial energy production (except for coal) and consumption statistics for South Africa also incorporate Botswana, Lesotho and Swaziland, but separate listing for these three countries are included in other tables when available. Commercial energy figures for San Marino are taken into account as part of Italy's total. French commercial energy reports contain data regarding Monaco. The source of all commercial energy information and industrial output data for the Republic

of China is The Statistical Yearbook of the Republic of China, 1976. Other data for the Republic of China are included in the totals for the People's Republic of China unless a separate figure is specified.

The base year selected for this project is 1975--unless otherwise indicated, all data in the charts are for the year 1975.

Footnotes from general sources have been omitted unless the omission of the note would distort the reported data.

ABBREVIATIONS

<u>Abbreviation</u>	<u>Country</u>
CAPE VRD	Cape Verde
C.AF.EMP	Central African Republic
PR CHINA	People's Republic of China
COMOROS	Comora Islands
EQ. GUIN	Equatorial Guinea
GRMN. DR	German Democratic Republic
GRMNY.FR	Federal Republic of Germany
GNA.BISS	Guinea-Bissau
KORE DPR	Democratic People's Republic of Korea
KOREA RP	Republic of Korea
LICHSTN	Liechtenstein
NETH.ANT	Netherlands Antilles
PAP.N.GN	Papua New Guinea
SAN MRNO	San Marino
S.TM.PRN	Sao Tome and Principe
SEYCHLLS	Seychelles
TRIN.TOB	Trinidad and Tobago
U.AR.EMR	United Arab Emirates
U.S.V.IS	U.S. Virgin Islands
AR YEMEN	Arab Republic of Yemen
DR YEMEN	People's Democratic Republic of Yemen

STANDARD ENERGY CONVERSIONS (EQUIVALENT VALUES IN VERTICAL COLUMNS)

Barrels of oil equivalent	1	7.40	4.78	6.82×10^{-7}	1.72×10^{-7}	1.63×10^{-10}	5.87×10^{-4}
Tons of oil equivalent	1.35×10^{-1}	1	6.45×10^{-1}	9.21×10^{-8}	2.32×10^{-8}	2.20×10^{-11}	7.92×10^{-5}
Metric tons of coal equivalent	2.09×10^{-1}	1.55	1	1.43×10^{-7}	3.60×10^{-8}	3.41×10^{-11}	1.23×10^{-4}
Kilocalories	1.46×10^6	1.08×10^7	7.00×10^6	1	2.52×10^{-1}	2.389×10^{-4}	8.60×10^2
British Thermal Units	5.80×10^6	4.30×10^7	2.78×10^7	3.97	1	9.479×10^{-4}	3.41×10^3
Joules	6.12×10^9	4.54×10^{10}	2.93×10^{10}	4.186×10^3	1.055×10^3	1	3.6×10^6
Kilowatt hours	1.70×10^3	1.26×10^4	8.15×10^3	1.16×10^{-3}	2.93×10^{-4}	2.78×10^{-7}	1

1 Therm = 100,000 BTU.

1 Quad = 10^{15} BTU.

An average value that can be used for the energy content of natural gas is 1,000 BTU/f³

For specific energy values of a wide range of commercial and noncommercial fuels, see Guyol, Nathaniel, "Energy Interrelationships. A Handbook of Tables and Conversion Factors for Combining and Comparing International Energy Data," Federal Energy Administration, (Washington, June, 1977), 60 pp.

MASS (EQUIVALENT VALUES IN VERTICAL COLUMNS)

Ton (MKS)	1	9.07×10^{-1}	1.00×10^{-3}	4.536×10^{-4}	1.00×10^{-6}
Ton (FPS)	1.102	1	1.102×10^{-3}	5.00×10^{-4}	1.102×10^{-6}
Kilogram	1.00×10^3	9.07×10^2	1	4.536×10^{-1}	1.00×10^{-3}
Pound	2.205×10^3	2.00×10^3	2.205	1	2.205×10^{-3}
Gram	1.00×10^6	9.07×10^5	1.00×10^3	4.536×10^2	1

POWER (EQUIVALENT VALUES IN VERTICAL COLUMNS)

BTU's/Hour	1	3.41	2.51×10^3	1.43×10^4
Watt	2.93×10^{-1}	1	7.35×10^2	4.19×10^3
Horsepower (MKS)	3.98×10^{-4}	1.36×10^{-3}	1	5.69
Kilocalories/Second	7.00×10^{-5}	2.39×10^{-4}	1.76×10^{-1}	1

1 HP(MKS) = 1.014 HP(FPS) = 13.34 HP(Boiler)

LENGTH (EQUIVALENT VALUES IN VERTICAL COLUMNS)

Kilometer	1	1.609	1.00×10^{-3}	3.05×10^{-4}	2.54×10^{-5}	1.00×10^{-5}
Mile	6.21×10^{-1}	1	6.21×10^{-4}	1.89×10^{-4}	1.58×10^{-5}	6.21×10^{-6}
Meter	1.00×10^3	1.609×10^3	1	3.05×10^{-1}	2.54×10^{-2}	1.00×10^{-2}
Foot	3.28×10^3	5.28×10^3	3.28	1	8.33×10^{-2}	3.28×10^{-2}
Inch	3.94×10^4	6.34×10^4	3.94×10^1	1.20×10^1	1	3.94×10^{-1}
Centimeter	1.00×10^5	1.609×10^5	1.00×10^2	3.05×10^1	2.54	1

AREA (EQUIVALENT VALUES IN VERTICAL COLUMNS)

Mile ²	1	3.86×10^{-1}	3.86×10^{-3}	1.56×10^{-3}	3.86×10^{-7}	3.59×10^{-8}	2.49×10^{-10}	3.86×10^{-11}
Kilometer ²	2.59	1	1.00×10^{-2}	4.05×10^{-3}	1.00×10^{-6}	9.29×10^{-8}	6.45×10^{-10}	1.00×10^{-10}
Hectare ²	2.59×10^2	1.00×10^2	1	4.05×10^{-1}	1.00×10^{-4}	9.29×10^{-6}	6.45×10^{-8}	1.00×10^{-8}
Acre ²	6.40×10^2	2.47×10^2	2.47	1	2.47×10^{-4}	2.30×10^{-5}	1.59×10^{-7}	2.47×10^{-8}
Meter ²	2.59×10^6	1.00×10^6	1.00×10^4	4.05×10^3	1	9.29×10^{-2}	6.45×10^{-4}	1.00×10^{-4}
Foot ²	2.79×10^7	1.08×10^7	1.08×10^5	4.36×10^4	1.08×10^1	1	6.94×10^{-3}	1.08×10^{-3}
Inch ²	4.01×10^9	1.55×10^9	1.55×10^7	6.27×10^6	1.55×10^3	1.44×10^2	1	1.55×10^{-1}
Centimeter ²	2.59×10^{10}	1.00×10^{10}	1.00×10^8	4.05×10^7	1.00×10^4	9.29×10^2	6.45	1

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VOLUME (EQUIVALENT VALUES IN VERTICAL COLUMNS)

Meter ³	1	1.59×10^{-1}	2.83×10^{-2}	3.79×10^{-3}	1.00×10^{-3}	2.96×10^{-5}	1.00×10^{-6}
Barrel	6.29	1	1.78×10^{-1}	2.38×10^{-2}	6.29×10^{-3}	1.86×10^{-4}	6.29×10^{-6}
Foot ³	3.53×10^1	5.61	1	1.34×10^{-1}	3.53×10^{-2}	1.04×10^{-3}	3.53×10^{-5}
Gallon	2.64×10^2	4.20×10^1	7.48	1	2.64×10^{-1}	7.81×10^{-3}	2.64×10^{-4}
Liter	1.00×10^3	1.59×10^2	2.83×10^1	3.79	1	2.96×10^{-2}	1.00×10^{-3}
Ounce	3.38×10^4	5.38×10^3	9.58×10^2	1.28×10^2	3.38×10^1	1	3.38×10^{-2}
Centimeter ³	1.00×10^6	1.59×10^5	2.83×10^4	3.79×10^3	1.00×10^3	2.96×10^1	1

PRIMARY COMMERCIAL ENERGY PRODUCTION (10^{15} Joules)

DIRECT SOLAR ENERGY POTENTIAL

	PRIMARY COMMERCIAL ENERGY PRODUCTION (10^{15} Joules)							DIRECT SOLAR ENERGY POTENTIAL		
	Total	Cr Pet Nat Gas Liquids	Natural Gas	Nucl Hydro	Coal Total	Bitu- minous	Lignite	Ave Yrly Insolation $\text{kJ/m}^2/\text{yr}$ 10^6	Annual Total kJ/yr 10^{15}	1975 Per Cap kJ/yr 10^9
AFGHNSTN	124	0.293	116	2.64	4.63	4.63	0	7.09	4,590	238
ALBANIA	124	99.0	6.04	4.69	14.6	--	14.6	5.00	144	58.1
ALGERIA	2,440	2,060	378	1.26	0.234	NA	NA	7.92	18,900	1,120
ANDORRA	NA	NA	NA	NA	NA	NA	NA	4.95	2.22	74.0
ANGOLA	349	346	0.0	3.43	0	0	0	7.62	9,500	1,580
ARGNTINA	1,220	911	266	27.8	14.7	14.7	--	5.91	16,400	646
AUSTRAL.	3,410	932	187	54.8	2,240	1,970	272	7.54	58,000	4,290
AUSTRIA	319	87.6	96.4	85.6	49.8	--	49.8	3.96	322	42.8
BAHAMAS	0	0.0	0.0	0.0	0	0	0	7.24	101	532
BAHRAIN	215	131	83.8	0.0	0	0	0	7.62	4.72	18.2
BANGLDSH	20.3	0.0	18.5	1.79	0	0	0	6.15	886	11.5
BARBADOS	0.088	0.0	0.088	0.0	0	0	0	7.87	3.38	14.1
BELGIUM	203	0.0	1.79	26.0	175	175	--	3.43	105	10.7
BENIN	0	0.0	0.0	0.0	0	0	0	6.29	708	228
BHUTAN	NA	NA	NA	NA	NA	NA	NA	6.13	288	246
BOLIVIA	145	81.2	61.2	2.78	0	0	0	7.89	8,670	1,540
BOTSWANA								7.58	4,550	6,590
BRAZIL	735	375	30.8	260	69.1	69.1	--	6.78	57,700	539
BRUNEI	624	375	249	0.0	0	0	0	5.69	32.8	219
BULGARIA	435	5.25	3.89	18.1	408	6.38	402	4.86	539	61.8
BURMA	44.0	41.0	0.586	1.70	0.744	0.744	--	6.40	4,330	139
BURUNDI	0	0.0	0.0	0.0	0	0	0	7.43	207	55.1
CAMBODIA	0	0.0	0.0	0.0	0	0	0	6.13	1,110	137
CAMEROON	4.10	0.0	0.0	4.10	0	0	0	6.25	2,970	464
CANADA	7,870	3,520	2,900	774	671	637	34.3	4.23	42,200	1,850
CAPE VRD	0	0.0	0.0	0.0	0	0	0	NA	NA	NA
C.AF.EMP	0.176	0.0	0.0	0.176	0	0	0	6.42	4,000	1,530
CHAD	0	0.0	0.0	0.0	0	0	0	8.27	10,620	2,640
CHILE	138	73.0	3.25	22.1	39.9	39.9	--	6.82	5,160	503
PR CHINA	17,500	3,460	137	133	13,800	NA	NA	5.52	53,000	64.4
REPCHINA	13.7	NA	0.088	NA	13.6	13.6	--	5.45	196	12.2
COLOMBIA	582	358	72.7	36.9	114	114	--	6.74	7,670	310
COMOROS	0	0.0	0.0	0.0	0	0	0	7.79	16.9	54.5
CONGO	78.0	77.1	0.674	0.205	0	0	0	5.70	1,950	1,440
COSTA RC	4.72	0.0	0.0	4.72	0	0	0	6.82	346	176

	PRIMARY COMMERCIAL ENERGY PRODUCTION (10^{15} Joules)							DIRECT SOLAR ENERGY POTENTIAL		
	Total	Cr Pet Nat Gas Liquids	Natural Gas	Nucl Hydro	Coal Total	Bitu- minous	Lignite	Ave Yrly Insolation $\text{kJ}/\text{m}^2/\text{yr}$ 10^6	Annual Total kJ/yr 10^{15}	1975 Per Cap kJ/yr 10^9
CUBA	7.56	6.48	0.967	0.410	0	0	0	7.62	873	94.2
CYPRUS	0	0.0	0.0	0.0	0	0	0	6.95	64.3	100
CZCHSLVK	2.390	6.27	34.6	14.4	2,330	822	1,505	3.91	500	33.8
DENMARK	7.27	7.18	0.0	0.088	0	0	0	3.58	154	30.4
DOMIN.RP	0.703	0.0	0.0	0.703	0	0	0	7.81	381	81.1
ECUADOR	355	352	1.20	1.58	0	0	0	7.39	2,096	311
EGYPT	390	363	2.14	24.5	0	0	0	7.68	7,690	207
EL SALVD	2.02	0.0	0.0	2.02	0	0	0	7.01	150	37.4
EQ. GUIN	0	0.0	0.0	0.0	0	0	0	5.33	150	484
ETHIOPIA	1.26	0.0	0.0	1.26	0	0	0	7.66	9,360	335
FIJI	0	0.0	0.0	0.0	0	0	0	7.37	135	233
FINLAND	44.7	0.0	0.0	44.0	0.733	NA	NA	3.39	1,120	238
FRANCE	1,220	83.8	289	279	565	509	56.0	4.50	2,460	46.5
GABON	491	489	1.85	0.029	0	0	0	5.43	1,450	2,740
GAMBIA	0	0.0	0.0	0.0	0	0	0	7.43	84.0	162
GRMN.DR	2,380	3.46	174	14.5	2,190	15.8	2,170	3.66	396	23.5
GRMNY.FR	4,640	248	671	139	3,580	2,500	1,084	3.83	952	15.4
GHANA	14.4	0.0	0.0	14.4	0	0	0	6.57	1,570	159
GREECE	180	0.0	0.0	7.24	173	--	173	5.33	703	77.7
GRENADA	0	0.0	0.0	0.0	0	0	0	7.87	2.67	26.7
GUATMALA	1.44	0.0	0.0	1.44	0	0	0	6.34	690	115
GUINEA	0.117	0.0	0.0	0.117	0	0	0	7.30	1,800	407
GNA.BISS	0	0.0	0.0	0.0	0	0	0	7.30	264	498
GUYANA	0	0.0	0.0	0.0	0	0	0	6.86	1,470	1,860
HAITI	0.410	0.0	0.0	0.410	0	0	0	7.81	217	47.4
HONDURAS	1.44	0.0	0.0	1.44	0	0	0	6.78	760	260
HONG KNG	0	0.0	0.0	0.0	0	0	0	5.46	5.68	1.30
HUNGARY	702	96.4	196	0.586	409	88.6	320	4.06	378	35.9
ICELAND	8.03	0.0	0.0	8.03	0	0	0	3.07	316	1,440
INDIA	3,340	358	35.8	129	2,820	2,790	27.3	7.45	24,400	40.8
INDONSIA	3,020	2,760	246	6.68	6.06	6.06	--	6.27	11,900	91.1
IRAN	12,500	11,600	859	20.2	29.3	29.3	--	7.33	12,100	366
IRAQ	4,840	4,780	64.5	0.0	0	0	0	7.28	3,170	285
IRELAND	68.3	0.0	0.0	2.64	65.7	NA	NA	3.53	248	79.2
ISRAEL	213	211	2.32	0.0	0	0	0	7.28	151	44.8

	PRIMARY COMMERCIAL ENERGY PRODUCTION (10 ¹⁵ Joules)							DIRECT SOLAR ENERGY POTENTIAL		
	Total	Cr Pet Nat Gas Liquids	Natural Gas	Nucl Hydro	Coal Total	Bitu- minous	Lignite	Ave Yrly Insolation kj/m ² /yr 10 ⁶	Annual Total kj/yr 10 ¹⁵	1975 Per Cap kj/yr 10 ⁹
ITALY	793	46.3	560	174	13.1	--	13.1	4.84	1,460	26.2
IVORY CT	0.996	0.0	0.0	0.996	0	0	0	6.50	2,096	429
JAMAICA	0.469	0.0	0.0	0.469	0	0	0	7.81	86	42.4
JAPAN	1,090	27.2	111	401	555	555	--	4.61	1,720	15.5
JORDAN	0	0.0	0.0	0.0	0	0	0	7.33	716	266
KENYA	2.34	0.0	0.0	2.34	0	0	0	7.70	4,490	335
KORE DPR	1.240	0.0	0.0	59.5	1,180	NA	NA	5.20	627	39.6
KOREA RP	521	0.0	0.0	6.07	515	NA	NA	5.62	553	16.3
KUWAIT	4,800	4,600	203	0.0	0	0	0	7.53	134	134
LAOS	0.908	0.0	0.0	0.908	0	0	0	5.81	1,380	418
LEBANON	2.87	0.0	0.0	2.87	0	0	0	7.05	73.3	25.5
LESOTHO								7.14	217	209
LIBERIA	1.14	0.0	0.0	1.14	0	0	0	6.61	736	430
LIBYA	3,270	3,140	127	0.0	0	0	0	7.77	13,700	5,610
LICHTSTN	NA	NA	NA	NA	NA	NA	NA	4.10	0.656	32.8
LUXMBORG	1.79	0.0	0.0	1.79	0	0	0	3.43	8.88	24.7
MADAGSCR	0.615	0.0	0.0	0.615	0	0	0	7.52	4,420	551
MALAWI	0.098	0.0	0.0	0.908	0	0	0	7.81	925	184
MALAYSIA	206	202	0.0	3.63	0	0	0	6.57	2,170	179
MALDIVES	NA	NA	NA	NA	NA	NA	NA	7.28	2.18	18.2
MALI	0.117	0.0	0.0	0.117	0	0	0	7.92	9,820	1,720
MALTA	0	0.0	0.0	0.0	0	0	0	6.15	1.97	5.97
MAURTNIA	0	0.0	0.0	0.0	0	0	0	8.10	8,350	6,330
MAURTIUS	0.147	0.0	0.0	0.147	0	0	0	NA	NA	NA
MEXICO	2,480	1,730	539	56.3	152	152	--	7.14	14,400	239
MONACO								4.91	0.007	0.233
MONGOLIA	29.4	0.0	0.0	0.0	29.4	4.78	24.6	5.35	8,370	5,810
MOROCCO	26.5	0.850	2.61	3.96	19.1	NA	NA	6.42	2,870	166
MOZMBQUE	17.8	0.0	0.0	1.06	16.7	16.7	--	7.58	5,940	643
NAURU	0	0.0	0.0	0.0	0	0	0	8.10	0.162	16.2
NEPAL	0.352	0.0	0.0	0.352	0	0	0	6.67	939	74.7
NETHLNDS	3,290	68.6	3,190	12.0	22.2	NA	NA	3.62	134	9.82
NETH.ANT	0	0.0	0.0	0.0	0	0	0	7.68	7.37	30.7
NEW CALD	1.29	0.0	0.0	1.29	0	0	0	7.10	135	1,038
NEW ZLND	154	6.01	13.7	65.3	69.4	66.7	2.67	5.16	1,390	450

	PRIMARY COMMERCIAL ENERGY PRODUCTION (10^{15} Joules)							DIRECT SOLAR ENERGY POTENTIAL		
	Total	Cr Pet Nat Gas Liquids	Natural Gas	Nucl Hydro	Coal Total	Bitu- minous	Lignite	Ave Yrly Insolation $\text{kJ}/\text{m}^2/\text{yr}$ 10^6	Annual Total kJ/yr 10^{15}	1975 Per Cap kJ/yr 10^9
NICARAGUA	1.41	0.0	0.0	1.41	0	0	0	6.88	894	414
NIGER	0	0.0	0.0	0.0	0	0	0	8.36	10,600	2,304
NIGERIA	3,840	3,810	15.7	8.44	9.20	9.20	--	6.95	6,420	102
NORWAY	689	399	0.0	279	11.4	NA	NA	2.95	956	238
OMAN	733	733	0.0	0.0	0	0	0	7.51	1,600	2,078
PAKISTAN	241	16.6	182	19.5	22.6	NA	NA	7.39	5,941	84.6
PANAMA	0.410	0.0	0.0	0.410	0	0	0	6.82	516	309
PAP.N.GN	0.645	0.0	0.0	0.645	0	0	0	6.97	3,220	1,170
PARAGUAY	1.61	0.0	0.0	1.61	0	0	0	6.74	2,740	1,034
PERU	199	157	16.8	22.5	2.92	2.92	--	7.73	9,930	626
PHILIPP	16.4	0.0	0.0	13.4	2.95	2.95	--	5.98	1,790	42.1
POLAND	5,640	25.2	225	8.59	5,380	5,027	350	3.92	1,230	36.2
PORTUGAL	29.7	0.0	0.0	23.2	6.50	NA	NA	5.85	539	61.5
PUERTO R	1.14	0.0	0.0	1.14	0	0	0	8.02	71.4	23.1
QATAR	1,006	920	86.1	0.0	0	0	0	7.62	83.8	931
RHODESIA	114	0.0	0.0	19.2	94.9	94.9	--	7.43	2,902	452
ROMANIA	2,390	648	1,280	31.4	429	226	203	4.53	1,076	50.8
RWANDA	0.527	0.0	0.029	0.498	0	0	0	7.81	206	49.0
SAN MRNO								4.65	0.279	14.0
S.TM.PRN	0	0.0	0.0	0.0	0	0	0	5.33	5.12	64.0
SAUD.ARB	15,500	15,400	129	0.0	0	0	0	7.64	16,400	1,830
SENEGAL	0	0.0	0.0	0.0	0	0	0	7.85	1,540	372
SEYCHLLS	0	0.0	0.0	0.0	0	0	0	NA	NA	NA
SIER LNE	0	0.0	0.0	0.0	0	0	0	6.80	488	175
SINGAPOR	0	0.0	0.0	0.0	0	0	0	6.29	3.65	1.62
SOMALIA	0	0.0	0.0	0.0	0	0	0	7.87	5,018	1,580
S.AFRICA	2,040	0.0	0.0	4.34	2,040	NA	NA	7.75	9,460	359
SPAIN	502	96.7	0.059	136	269	219	49.5	6.08	3,069	86.5
SR.LANKA	3.99	0.0	0.0	3.99	0	0	0	7.62	500	35.7
SUDAN	0.440	0.0	0.0	0.440	0	0	0	7.72	19,300	1,087
SURINAM	3.66	0.0	0.0	3.66	0	0	0	6.68	1,091	2,600
SWAZLND								7.24	126	257
SWEDEN	251	0.0	0.0	251	0.322	NA	NA	3.54	1,590	194
SWITZRLD	146	0.0	0.0	146	0	0	0	4.40	182	28.4
SYRIA	421	413	8.18	0.264	0	0	0	7.05	1,306	178

	PRIMARY COMMERCIAL ENERGY PRODUCTION (10^{15} Joules)							DIRECT SOLAR ENERGY POTENTIAL		
	Total	Cr Pet Nat Gas Liquids	Natural Gas	Nucl Hydro	Coal Total	Bitu- minous	Lignite	Ave Yrly Insolation kj/m ² /yr 10 ⁶	Annual Total kj/yr 10 ¹⁵	1975 Per Cap kj/yr 10 ⁹
TANZANIA	1.23	0.0	0.0	1.20	0.027	0.027	--	7.72	7,300	482
THAILAND	13.9	0.264	0.0	9.20	4.47	--	4.47	6.38	3,280	77.6
TOGO	0	0.0	0.0	0.0	0	0	0	6.29	352	159
TONGA	0	0.0	0.0	0.0	0	0	0	7.37	5.16	51.6
TRIN. TOB	536	484	51.6	0.0	0	0	0	6.67	34.2	31.4
TUNISIA	209	199	9.73	0.117	0	0	0	6.57	1,075	186
TURKEY	284	133	0.0	21.2	230	154	76.3	6.10	4,760	121
UGANDA	0.293	0.0	0.0	0.293	0	0	0	7.75	1,830	158
USSR	49,400	21,200	11,900	495	15,800	13,400	2,430	4.13	92,500	364
U. AR. EMR	3,530	3,460	65.9	0.0	0	0	0	7.62	637	2,900
UNTD. KGD	5,320	69.2	1,430	127	3,690	3,690	-	3.49	854	15.3
US	59,600	20,420	20,720	1,720	16,700	16,500	176	6.34	59,400	278
U. S. V. IS	0	0.0	0.0	0.0	0	0	0	8.02	2.73	30.3
UPPRVLT	0	0.0	0.0	0.0	0	0	0	7.14	1,960	325
URUGUAY	4.07	0.0	0.0	4.07	0	0	0	6.29	1,120	366
VTCN, CTY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VENZUELA	5,890	5,390	463	30.5	1.75	1.75	--	6.97	6,360	530
VIETNAM	126	0.0	0.0	1.49	125			5.91	1,970	44.9
WN. SAMOA	0.029	0.0	0.0	0.029	0	0	0	7.37	20.9	130
AR YEMEN	0	0.0	0.0	0.0	0	0	0	7.66	1,490	22.3
DM YEMEN	0	0.0	0.0	0.0	0	0	0	7.70	2,220	1,310
YUGOSLAV	828	160	68.0	69.7	530	17.6	512	7.63	1,950	91.3
ZAIRE	18.9	4.13	0.0	12.2	2.60	2.70	--	6.46	15,200	610
ZAMBIA	42.7	0.0	0.0	21.4	21.3	21.3	--	7.52	5,660	1,160
TOTALS										
TOTAL	251,000	118,000	48,600	6,470	77,800			6.28	812,000	206
DEVELOPED	156,000	48,400	44,100	5,400	58,300			5.22	286,000	256
DEVELOPING	94,700	69,600	4,500	1,070	19,500			7.05	526,000	187
DD - US	96,400	27,980	23,380	3,680	41,700			4.97	227,000	251
DG - PRC	81,470	66,140	4,363	5,270	5,700			7.28	473,000	237
DG - OPEC	33,200	10,800	1,850							

	PRIMARY COMMERCIAL ENERGY CONSUMPTION (10^{15} Joules)							ELECTRICITY			
	Total	Per Cap (10^9 Joules)	70-75 Growth Rate %	65-75 Growth Rate %	Cr Pet Nat Gas Liquids	Natural Gas	Nucl Hydro	Coal	Instald Capacity 10^3 kw	Total Pr'n 10^9 kwh	Capacity Fctr %
AFGHNSTN	27.2	1.41	8.9	5.7	17.1	4.34	5.54	0.190	325	0.748	26
ALBANIA	126	50.8	3.2	8.1	31.6	77.9	3.08	13.1	NA	1.80	NA
ALGERIA	370	22.1	17.1	12.1	132	231	1.26	6.12	1,110	3.74	38
ANDORRA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANGOLA	32.6	5.43	2.3	5.3	29.2	0.0	3.43	NA	523	1.31	29
ARGNTINA	1,303	10.1	0.6	2.3	914	316	27.8	45.1	9,260	29.5	36
AUSTRAL.	2,570	190	3.6	3.4	1,150	187	54.8	1,180	21,700	73.9	39
AUSTRIA	816	109	1.7	3.4	413	171	69.2	163	10,001	32.2	37
BAHAMAS	37.6	198	6.4	2.8	37.5	0.0	0.0	0.088	250	0.650	30
BAHRAIN	90.5	348	35.2	74.8	6.71	83.8	0.0	NA	155	0.590	43
BANGLDSH	64.0	0.833	-0.7	NA	33.7	18.5	1.79	9.96	933	1.70	21
BARBADOS	7.74	32.3	-0.5	10.3	7.65	0.088	0.0	0.0	67	0.214	36
BELGIUM	1,600	163	0.1	2.5	812	378	22.9	387	11,100	41.5	43
BENIN	4.75	1.53	4.4	5.0	4.75	0.0	0.0	0.0	15	0.057	
BHUTAN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BOLIVIA	49.9	8.86	5.8	5.3	40.1	6.97	2.78	0.0	346	1.00	33
BOTSWANA			NA	NA							
BRAZIL	2,106	19.7	7.2	6.2	1,670	30.8	260	145	19,600	78.1	45
BRUNEI	41.5	277	31.8	14.3	3.40	38.1	0.0	0.0	81	0.230	32
BULGARIA	1,220	140	3.9	6.4	539	45.1	31.1	607	7,060	25.2	41
BURMA	46.9	1.50	-2.5	0.4	42.5	0.586	1.70	2.08	263	0.773	34
BURUNDI	1.41	0.375	-2.8	1.4	1.32	0.0	0.088	0.0	6	0.001	2
CAMBODIA	3.84	0.473	-21.6	-10.0	3.84	0.0	0.0	NA	50	0.150	34
CAMEROON	19.5	3.05	2.7	5.8	15.4	0.0	4.10	0.029	225	1.19	60
CANADA	6,600	289	2.6	3.4	3,280	1,840	744	735	59,900	273	52
CAPE VRD	0.527	1.82	3.6	4.3	0.527	0.0	0.0	0.0	6	0.008	15
C.AF.EMP	1.79	0.686	-11.6	0.0	1.61	0.0	0.179	0.0	17	0.052	35
CHAD	4.63	1.15	9.3	8.0	4.63	0.0	0.0	0.0	22	0.056	29
CHILE	230	22.4	-10.0	-2.6	171	3.25	22.1	33.7	2,620	8.73	38
PR CHINA	16,700	20.3	6.5	6.1	2,710	137	133	13,700	NA	126	NA
REPCHINA			NA	NA	NA	NA	NA	NA	5,560	23.6	48
COLOMBIA	463	18.7	2.1	2.5	260	72.7	36.9	93.2	4,500	14.1	36
COMOROS	0.469	1.51	2.1	4.4	0.469	0.0	0.0	0.0	1	0.003	34
CONGO	8.23	6.10	1.5	5.9	7.35	0.674	0.205	0.0	32	0.110	39
COSTA RC	31.3	15.9	5.3	5.9	26.6	0.0	4.72	0.0	407	1.55	43

	PRIMARY COMMERCIAL ENERGY CONSUMPTION (10^{15} Joules)								ELECTRICITY		
	Total	Per Cap (10^9 Joules)	70-75 Growth Rate %	65-75 Growth Rate %	Cr Pet Nat Gas Liquids	Natural Gas	Nucl Hydro	Coal	Instald Capacity 10^3 kw	Total Pr'n 10^9 kwh	Capacity Fctr %
CUBA	321	34.6	2.8	2.2	314	3.14	0.410	3.49	1,700	6.15	41
CYPRUS	23.9	37.3	-1.5	3.2	23.9	0.0	0.0	0.0	239	0.716	34
CZCHSLVK	3,108	210	1.9	2.3	615	153	29.6	2,310	13,600	59.3	50
DENMARK	779	154	-1.6	2.4	653	0.0	3.34	123	6,270	17.6	32
DOMIN.RP	63.1	13.4	7.4	10.8	62.4	0.0	0.703	0.029	443	1.63	42
ECUADOR	87.2	13.0	8.3	7.5	84.4	1.20	1.58	0.0	407	1.29	36
EGYPT	441	11.8	8.0	2.7	369	2.14	24.5	45.1	3,890	10.4	31
EL SALVD	29.1	7.26	5.3	3.9	27.1	0.0	2.02	0.0	306	1.07	40
EQ. GUIN	0.904	2.92	9.2	-3.8	0.904	0.0	0.0	0.0	5	0.017	23
ETHIOPIA	23.4	0.837	-2.6	7.6	22.1	0.0	1.26	0.088	320	0.665	24
FIJI	9.79	16.9	4.4	5.3	9.58	0.0	0.0	0.205	83	0.241	33
FINLAND	658	140	3.2	5.9	463	28.6	58.3	108	7,400	25.6	39
FRANCE	6,140	116	-0.1	2.5	3,930	733	287	1,190	49,200	179	42
GABON	15.8	29.8	2.7	15.3	13.9	1.85	0.029	0.0	45	0.235	60
GAMBIA	0.996	1.92	5.3	6.2	0.996	0.0	0.0	0.0	10	0.027	31
GRMN.DR	3,380	201	2.5	2.3	624	286	16.9	2,450	16,900	84.5	57
GRMNY.FR	9,690	157	-0.3	2.0	4,810	1,600	167	3,110	74,400	302	46
GHANA	52.4	5.31	1.0	5.7	37.8	0.0	14.4	0.234	995	4.05	46
GREECE	555	61.3	11.3	10.3	357	0.0	7.27	191	4,870	15.2	36
GRENADA	0.908	9.08	0.5	10.9	0.908	0.0	0.0	0.0	7	0.025	41
GUATMALA	42.4	7.07	2.3	1.7	41.0	0.0	1.44	0.0	279	1.10	45
GUINEA	11.8	2.67	-1.3	-0.8	11.7	0.0	0.117	0.0	125	0.500	46
GNA.BISS	1.26	2.38	5.4	4.7	1.26	0.0	0.0	0.0	8	0.020	29
GUYANA	25.8	32.7	0.4	3.0	25.8	0.0	0.0	0.0	170	0.383	26
HAITI	3.98	0.869	-2.5	-1.8	3.57	0.0	0.410	0.0	75	0.158	24
HONDURAS	3.37	1.11	-1.5	3.3	1.93	0.0	1.44	0.0	144	0.480	38
HONG KNG	143	32.7	1.9	5.7	143	0.0	0.0	0.381	2,270	7.37	37
HUNGARY	1,120	106	2.8	2.6	390	224	15.4	489	4,290	20.5	55
ICELAND	30.1	137	2.4	2.1	22.1	0.0	8.03	0.0	514	2.30	51
INDIA	3,860	6.45	4.1	2.4	879	28.0	129	2,820	22,200	85.6	44
INDONESIA	711	5.44	8.2	4.7	451	246	6.68	6.86	1,260	3.61	33
IRAN	1,308	39.6	5.8	13.1	771	483	20.2	33.7	6,000	15.0	29
IRAQ	233	21.0	2.4	3.2	168	64.5	0.0	0.117	840	4.05	55
IRELAND	284	90.7	-0.3	3.3	199	0.0	2.64	82.3	2,051	7.73	43
ISRAEL	277	82.2	1.8	5.0	275	2.31	0.0	0.029	2,250	9.71	49

	PRIMARY COMMERCIAL ENERGY CONSUMPTION (10^{15} Joules)								ELECTRICITY		
	Total	Per Cap (10^9 Joules)	70-75 Growth Rate %	65-75 Growth Rate %	Cr Pet Nat Gas Liquids	Natural Gas	Nucl Hydro	Coal	Instald Capacity 10^3 kw	Total Pr'n 10^9 kwh	Capacity Fctr %
ITALY	4,930	88.3	1.5	5.6	3,520	850	184	375	43,300	146	38
IVORY CT	52.3	10.7	9.9	9.1	51.3	0.0	0.996	0.0	350	0.860	28
JAMAICA	84.9	41.8	1.5	5.1	84.4	0.0	0.469	0.029	677	2.33	39
JAPAN	11,800	106	1.6	7.1	8,640	378	401	2,350	112,000	476	49
JORDAN	32.2	12.0	5.9	2.8	32.2	0.0	0.0	0.0	55	0.443	92
KENYA	68.2	5.09	5.2	3.3	63.6	0.0	3.28	1.35	282	0.971	39
KORE DPR	1,302	82.1	6.5	6.3	52.7	0.0	59.4	1,190	NA	26.0	NA
KOREA RP	1,055	31.1	5.0	9.1	510	0.0	6.07	539	5,140	20.8	46
KUWAIT	254	254	-1.5	2.0	51.3	203	0.0	0.0	875	5.15	67
LAOS	6.09	1.85	-8.5	6.1	5.80	0.0	0.293	0.0	55	0.255	53
LEBANON	77.9	27.1	6.9	3.7	74.7	0.0	2.87	0.293	608	1.85	35
LESOTHO											
LIBERIA	20.1	11.8	-2.3	7.2	19.0	0.0	1.14	0.0	300	0.870	33
LIBYA	93.2	38.2	19.3	15.9	93.2	0.0	0.0	0.0	300	0.900	34
LICHSTN									NA	NA	NA
LUXMBORG	162	450	-2.3	0.1	56.8	16.3	10.5	78.5	1,160	1.49	15
MADAGSCR	19.7	2.46	0.0	4.4	14.7	0.0	0.615	4.40	95	0.335	40
MALAWI	8.35	1.66	4.0	4.0	5.68	0.0	0.908	1.76	79	0.292	42
MALAYSIA	195	16.1	2.2	4.3	184	5.86	3.63	1.52	1,180	5.85	57
MALDIVES	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MALI	4.13	0.725	3.6	0.8	4.01	0.0	0.117	0.0	33	0.095	33
MALTA	9.08	27.5	1.1	3.4	9.08	0.0	0.0	0.0	115	0.338	34
MAURTNIA	4.19	3.17	-5.6	3.7	4.01	0.0	0.0	0.176	39	0.095	28
MAURTIUS	7.01	7.79	8.1	4.8	6.83	0.0	0.147	0.029	121	0.320	30
MEXICO	2,150	35.7	3.1	4.4	1,380	548	57.4	167	11,052	43.3	45
MONACO											
MONGOLIA	46.1	32.0	4.2	4.6	16.5	0.0	0.0	29.6	266	0.818	35
MOROCCO	139	8.03	8.8	5.7	111	2.61	3.96	21.5	730	2.95	46
MOZMBQUE	66.4	7.19	6.2	6.3	31.9	0.0	17.9	16.6	393	0.717	21
NAURU	1.55	155	7.0	9.1	1.55	0.0	0.0	0.0	9	0.026	33
NEPAL	3.78	0.301	-7.8	1.1	3.28	0.0	0.352	0.147	59	0.122	24
NETHLNDS	2,310	169	3.2	5.7	741	1,460	11.1	99.3	14,000	54.3	44
NETH.ANT	86.7	361	-5.7	-2.1	86.7	0.0	0.0	0.0	290	1.40	55
NEW CALD	36.4	280	1.1	5.0	32.2	0.0	1.29	2.87	323	1.79	63
NEW ZLND	282	91.3	1.5	2.5	151	13.7	65.3	51.9	4,901	20.1	47

	PRIMARY COMMERCIAL ENERGY CONSUMPTION (10^{15} Joules)								ELECTRICITY		
	Total	Per Cap (10^9 Joules)	70-75 Growth Rate %	65-75 Growth Rate %	Cr Pet Nat Gas Liquids	Natural Gas	Nucl Hydro	Coal	Instald Capacity 10^3 kw	Total Pr'n 10^9 kwh	Capacity Fctr %
NICARAGUA	30.3	14.0	2.8	7.0	28.9	0.0	1.41	0.0	252	0.932	42
NIGER	4.78	1.04	7.0	10.4	4.78	0.0	0.0	0.0	20	0.070	40
NIGERIA	166	2.64	11.2	5.6	135	15.7	8.44	6.53	860	3.21	43
NORWAY	541	135	-1.0	2.7	244	0.0	259	38.1	17,090	77.6	52
OMAN	7.59	9.86	10.8	31.3	7.59	0.0	0.0	0.0	91	0.310	39
PAKISTAN	376	5.35	13.3	8.4	150	182	19.5	24.7	2,240	9.45	48
PANAMA	42.2	25.3	4.8	4.1	41.6	0.0	0.088	0.469	275	1.39	58
PAP.N.GN	22.4	8.12	15.0	13.9	21.8	0.0	0.645	0.0	350	0.969	44
PARAGUAY	11.9	4.49	1.8	1.5	10.8	0.0	1.05	0.0	166	0.510	35
PERU	313	19.7	1.6	2.4	263	16.8	22.5	10.5	2,350	8.30	40
PHILIPP	407	9.57	1.2	3.9	390	0.0	13.4	3.75	3,019	12.4	47
POLAND	4,990	147	3.2	3.6	516	311	6.74	4,160	20,057	97.2	55
PORTUGAL	252	28.8	5.5	6.3	210	0.0	23.6	18.3	3,150	10.7	39
PUERTO R	290	93.9	-0.7	4.8	289	0.0	1.14	0.0	4,016	16.2	46
QATAR	95.1	1,060	13.5	30.3	9.02	86.1	0.0	0.0	30	0.100	38
RHODESIA	141	22.0	2.0	2.8	24.0	0.0	19.5	97.9	1,190	6.13	59
ROMANIA	2370	57.6	4.8	6.2	527	1270	22.4	548	11,600	53.7	53
RWANDA	1.67	0.398	4.9	9.2	1.14	0.029	0.498	0.0	35	0.140	46
SAN MRNO											
S.TM.PRN	0.234	2.93	-3.5	2.6	0.234	0.0	0.0	0.0	3	0.008	30
SAUD.ARB	368	41.0	10.6	8.4	239	129	0.0	0.0	450	2.49	63
SENEGAL	23.6	5.70	7.0	3.8	23.6	0.0	0.0	0.0	120	0.389	37
SEYCHLLS	0.820	13.7	15.4	11.4	0.820	0.0	0.0	NA	10	0.025	29
SIER LNE	9.32	3.34	-3.9	5.6	9.32	0.0	0.0	NA	75	0.193	29
SINGAPOR	142	63.1	8.9	11.7	142	0.0	0.0	0.029	1,120	4.18	43
SOMALIA	3.31	1.04	-1.6	3.3	3.31	0.0	0.0	0.0	18	0.042	27
S.AFRICA	2,470	93.7	3.2	1.7	507	0.0	3.55	1,957	14,200	75.4	61
SPAIN	2,230	62.9	7.2	7.7	1,550	51.6	133	492	24,500	81.4	38
SR.LANKA	51.8	3.70	-3.7	0.7	47.8	0.0	3.98	0.029	281	1.15	47
SUDAN	72.5	4.08	1.5	5.6	72.1	0.0	0.440	0.0	120	0.350	33
SURINAM	25.5	60.7	-3.3	5.5	20.9	0.0	3.66	0.967	301	1.60	61
SWAZLND											
SWEDEN	1,480	180	-0.8	3.1	1,150	0.0	254	79.4	23,200	80.6	40
SWITZRLD	687	107	0.5	3.1	539	24.1	115	8.56	12,800	42.3	38
SYRIA	103	14.0	-1.0	4.5	94.1	8.17	0.264	0.088	684	1.67	28

	PRIMARY COMMERCIAL ENERGY CONSUMPTION (10^{15} Joules)								ELECTRICITY		
	Total	Per Cap (10^9 Joules)	70-75 Growth Rate %	65-75 Growth Rate %	Cr Pet Nat Gas Liquids	Natural Gas	Nucl Hydro	Coal	Instald Capacity 10^3 kw	Total Pr'n 10^3 kwh	Capacity Fctr %
TANZANIA	30.9	2.04	2.1	3.0	29.6	0.0	1.20	0.059	165	0.656	45
THAILAND	701	16.6	2.8	8.1	343	0.0	9.82	4.75	2,500	7.91	36
TOGO	4.25	1.91	-0.6	5.2	4.25	0.0	0.0	0.0	25	0.118	54
TONGA	0.469	469			0.469	0.0	0.0	0.0	3	0.005	19
TRIN.TOB	99.1	90.9	6.2	8.4	47.5	51.6	0.0	0.0	334	1.21	41
TUNISIA	71.6	12.4	11.4	7.4	61.8	9.73	0.117		426	1.35	36
TURKEY	723	18.5	5.6	6.4	489	0.0	21.6	212	4,170	15.6	43
UGANDA	18.5	1.60	-5.8	3.5	16.5	0.0	1.99	0.0	163	0.830	58
USSR	41,400	163	4.6	4.4	15,200	11,400	454	14,300	217,000	1,039	55
U.AR.EMR	89.1	405	15.0	67.5	23.2	65.9	0.0	0.0	175	0.500	33
UNTD.KGD	8,660	155	-0.3	0.4	3,400	1,470	127	3,660	78,900	272	39
US	68,800	322	-0.04	1.8	30,470	21,300	1,740	15,300	524,000	2,001	44
U.S.V.IS	47.0	522	-6.0	35.1	47.0	0.0	0.0	0.0	224	0.768	39
UPPRVLT	3.46	0.574	9.0	6.2	3.46	0.0	0.0	0.0	18	0.053	34
URUGUAY	84.7	27.7	0.6	0.5	79.4	0.0	4.07	1.20	796	2.60	37
VTCN.CTY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VENZUELA	926	77.2	2.6	2.4	425	463	30.5	7.85	4,705	21.2	51
VIETNAM	250	5.69	NA	NA	140	0.0	1.49	109	900	2.09	27
WN.SAMOA	0.732	4.58	7.2	3.2	0.703	0.0	0.029	0.0	9	0.025	32
AR YEMEN	9.61	1.44	23.6	17.2	9.61	0.0	0.0	0.0	14	0.049	40
DM YEMEN	16.3	9.64	-6.7	-2.8	16.3	0.0	0.0	0.0	70	0.180	29
YUGOSLAV	1,209	56.6	5.8	5.0	466	68.0	70.6	604	9,043	40.0	50
ZAIRE	57.1	2.29	-0.8	0.4	31.4	0.0	12.9	12.8	1,220	3.44	32
ZAMBIA	72.3	14.8	0.4	0.2	26.0	0.0	20.2	26.1	1,031	6.19	69
TOTALS											
TOTAL	234,000	59.4			102,500	47,900	6470	76,700	1,570,000	6,430	46
DVELOPED	192,000	171			86,000	44,300	5400	57,200	1,420,000	5,740	46
DVELOPNG	42,000	14.9			16,500	3,600	1070	19,500	150,000	690	41
DD - US	123,000	136			55,500	23,000	3660	41,900	896,000	3,740	48
DG - PRC	25,300	12.7			13,800	1,610	937	5,800	NA	564	NA
DG - OPEC					13,900						

	ELECTRICITY				Gasoline C'n	ELECTRICITY				Gasoline C'n	
	kw yr/ per cap/ per year	hydro instald cap kw 10 ³	hydro pr'n kwh 10 ⁹	capacity fctr %		kw yr/ per cap/ per year	hydro instald cap kw 10 ³	hydro pr'n kwh 10 ⁹	capacity fctr %		
AFGHNSTN	0.004	233	0.730	36	6.84	CUBA	0.076	44	0.110	29	46.3
ALBANIA	0.083	NA	1.30	NA	4.72	CYPRUS	0.128	0	0.0	--	3.73
ALGERIA	NA	NA	NA	NA	26.9	CZCHSLVK	0.457	1,690	3.82	26	74.3
ANDORRA	0.025	368	0.950	29	NA	DENMARK	0.397	9	0.024	30	98.0
ANGOLA	0.025	286	0.346	14	4.48	DOMIN.RP	0.040	96	0.194	23	15.3
ARGNTINA	0.133	1,530	5.20	39	186	ECUADOR	0.022	303	0.440	17	32.3
AUSTRAL.	0.624	5,600	23.7	48	447	EGYPT	0.032	2,450	6.80	32	59.8
AUSTRIA	0.489	6,085	23.7	44	105	EL SALVD	0.030	108	0.558	59	5.62
BAHAMAS	0.391	0	0.0	--	3.78	EQ. GUIN	0.006	1	0.002	23	0.236
BAHRAIN	0.259	0	0.0	--	3.73	ETHIOPIA	0.003	206	0.352	20	3.63
BANGLDSH	0.003	110	0.500	52	2.45	FIJI	0.047	0	0.0	--	2.36
BARBADOS	0.102	0	0.0	--	2.69	FINLAND	0.620	2,340	12.2	60	63.7
BELGIUM	0.484	503	0.430	10	130	FRANCE	0.386	17,600	59.9	39	748
BENIN	0.002	0	0.0	--	1.42	GABON	0.051	3	0.008	30	1.60
BHUTAN	NA	NA	NA	NA	NA	GAMBIA	0.006	0	0.0	--	0.519
BOLIVIA	0.020	236	0.770	37	15.4	GRMN.DR	0.572	680	1.27	21	116
BOTSWANA	NA					GRMNY.FR	0.558	5,570	17.1	35	973
BRAZIL	0.083	16,200	72.0	51	488	GHANA	0.047	925	4.00	49	11.9
BRUNEI	0.175	0	0.0	--	1.37	GREECE	0.192	1,420	2.01	16	45.0
BULGARIA	0.330	1,790	2.45	16	79.3	GRENADA	0.029	0	0.0	--	0.330
BURMA	0.003	101	0.470	53	8.40	GUATMALA	0.021	124	0.395	36	10.6
BURUNDI	neg1	0	0.0	--	0.566	GUINEA	0.013	20	0.035	20	1.89
CAMBODIA	0.002	0	0.0	--	0.708	GNA.BISS	0.004	0	0.0	--	0.330
CAMEROON	0.021	197	1.16	67	5.24	GUYANA	0.055	170	0.0	0	2.12
CANADA	1.37	37,300	202	62	1,205	HAITI	0.004	32	0.110	39	1.32
CAPE VRD	0.003	0	0.0	--	0.094	HONDURAS	0.018	70	0.395	64	4.34
C.AF.EMP	0.002	11	0.049	51	0.614	HONG KNG	0.193	0	0.0	--	5.10
CHAD	0.002	0	0.0	--	3.30	HUNGARY	0.222	48	0.161	38	57.3
CHILE	0.097	1,460	6.14	48	42.9	ICELAND	1.19	394	2.23	65	4.01
PR CHINA	0.017	NA	37.0	NA	395	INDIA	0.016	8,440	33.2	45	57.4
REPCHINA	0.168	NA	NA	NA	NA	INDONSIA	0.003	450	1.85	47	83.3
COLOMBIA	0.065	3,067	10.2	38	118	IRAN	0.052	850	5.60	75	138
COMOROS	0.001	0	0.0	--	0.142	IRAQ	0.042	0	0.0	--	23.2
CONGO	0.009	15	0.060	46	1.13	IRELAND	0.282	532	0.730	16	38.2
COSTA RC	0.079	241	1.31	62	6.56	ISRAEL	0.329	0	0.0	--	38.5

	ELECTRICITY				Gasoline C'n		ELECTRICITY				Gasoline C'n
	kw yr/ per cap/ per year	hydro instald cap ³ kw 10 ³	hydro pr'n kwh 10 ⁹	capacity fctr %			kw yr/ per cap/ per year	hydro instald cap ³ kw 10 ³	hydro pr'n kwh 10 ⁹	capacity fctr %	
ITALY	0.299	17,400	44.6	29	543	NICARAGUA	0.049	107	0.390	42	7.08
IVORY CT	0.020	224	0.280	14	13.0	NIGER	0.002	0	0.0	--	1.09
JAMAICA	0.131	21	0.131	71	13.0	NIGERIA	0.006	320	2.34	83	49.4
JAPAN	0.490	24,900	86.3	40	1,003	NORWAY	2.21	16,900	77.5	52	54.3
JORDAN	0.019	55	0.0	0	7.50	OMAN	0.046	0	0.0	--	3.12
KENYA	0.008	172	0.649	43	12.0	PAKISTAN	0.015	867	4.85	64	15.4
KORE DPR	0.187	NA	16.5	NA	23.1	PANAMA	0.095	15	0.110	84	11.2
KOREA RP	0.070	621	1.68	31	18.5	PAP.N.GN	0.040	45	0.180	46	4.34
KUWAIT	0.588	0	0.0	--	24.7	PARAGUAY	0.023	97	0.450	53	3.78
LAOS	0.009	40	0.250	71	3.30	PERU	0.060	1,400	6.25	51	74.3
LEBANON	0.074	246	0.800	37	24.2	PHILIPP	0.033	1,050	3.72	40	90.7
LESOTHO	NA					POLAND	0.326	827	2.38	33	149
LIBERIA	0.058	75	0.320	49	3.02	PORTUGAL	0.139	1,950	6.44	38	38.4
LIBYA	0.042	0	0.0	--	21.1	PUERTO R	0.598	95	0.204	25	82.5
LICHSTN	NA	NA	NA	NA		QATAR	0.127	0	0.0	--	3.26
LUXMBORG	0.472	932	0.500	6	8.54	RHODESIA	0.109	705	5.32	86	8.50
MADAGSCR	0.005	40	0.173	49	4.11	ROMANIA	0.289	2,630	8.71	38	114
MALAWI	0.007	47	0.252	61	1.70	RWANDA	0.004	34	0.137	46	0.425
MALAYSIA	0.055	293	1.01	39	27.5	SAN MRNO	NA				
MALDIVES	NA	NA	NA	NA	NA	S.TM.PRN	0.014	2	0.003	17	0.094
MALI	0.002	7	0.035	57	1.70	SAUD.ARB	0.032	0	0.0	--	53.8
MALTA	0.117	0	0.0	--	1.89	SENEGAL	0.011	0	0.0	--	5.00
MAURTNIA	0.008	0	0.0	--	0.566	SEYCHLLS	0.048	0	0.0	--	0.189
MAURTIUS	0.041	25	0.040	18	2.12	SIER LNE	0.008	0	0.0	--	1.98
MEXICO	0.082	4,203	15.6	42	396	SINGAPOR	0.212	0	0.0	--	14.1
MONACO	NA					SOMALIA	0.002	0	0.0	--	0.802
MONGOLIA	0.065	0	0.0	--	7.08	S.AFRICA	0.317	197	1.20	70	175
MOROCCO	0.019	399	1.10	31	17.6	SPAIN	0.262	12,000	28.8	27	217
MOZMBQUE	0.009	117	0.293	29	5.48	SR.LANDA	0.009	195	1.10	64	4.15
NAURU	0.297	0	0.0	--	0.142	SUDAN	0.002	30	0.125	48	10.8
NEPAL	0.001	42	0.095	26	0.850	SURINAM	0.435	180	1.02	65	1.18
NETHLNDS	0.454	0	0.0	--	172	SWAZLND	NA				
NETH.ANT	0.666	0	0.0	--	3.82	SWEDEN	1.12	12,700	57.7	52	198
NEW CALD	1.57	68	0.358	60	2.93	SWITZRLD	7.54	9,800	33.1	39	122
NEW ZLND	0.243	3,660	18.1	56	75.8	SYRIA	0.026	16	0.075	54	16.3

ELECTRICITY

	kw yr/ per cap/ per year	hydro instald cap kw 10 ³	hydro pr'n kwh 10 ⁹	capacity fctr %	Gasoline C'n
TANZANIA	0.005	50	0.331	76	5.14
THAILAND	0.021	950	2.55	31	33.2
TOGO	0.006	2	0.004	23	1.37
TONGA	0.006	0	0.0	--	0.142
TRIN.TOB	0.127	0	0.0	--	9.77
TUNISIA	0.027	29	0.031	12	6.23
TURKEY	0.045	1,770	9.68	62	68.3
UGANDA	0.008	156	0.815	60	5.76
USSR	0.466	40,520	126	35	3,370
U.AR.EMR	0.259	0	0.0	--	4.96
UNTD.KGD	0.555	2,460	4.95	23	747
US	1.07	66,800	306	52	13,600
U.S.V.IS	0.974	0	0.0	--	17.2
UPPRVLT	0.001	0	0.0	--	1.32
URUGUAY	0.097	252	1.13	51	9.68
VTCN.CTY	NA	NA	NA	NA	NA
VENZUELA	0.202	1,570	8.43	61	214
VIETNAM	0.005	NA	0.420	NA	42.5
WN.SAMOA	0.018	1	0.006	68	0.283
AR YEMEN	negl	0	0.0	--	2.22
DM YEMEN	0.001	0	0.0	--	5.33
YUGOSLAV	0.214	4,801	19.3	46	83.5
ZAIRE	0.016	1,160	3.37	33	8.45
ZAMBIA	0.144	759	5.94	89	7.74
TOTALS					
TOTAL		357,000	1,460	47	28,300
DEVELOPED		300,038	1,170	45	24,800
DEVELOPING		57,000	290	68	3,500
DD - US		233,000	864	42	11,200
DG - PRC					3,105
DG - OPEC					2,820

BIOMASS ENERGY (Joules 10¹⁵)

	Actual Noncom- mercial Pr'n	Potential Energy from Manure (Animal Population 10 ³)							
		Cattle & Buffalo		Horses, Mules		Pigs		Sheep & Goats	
		Pop.	Energy	Donkeys, Pop.	Camels Energy	Pop.	Energy	Pop.	Energy
AFGHNSTN		3,645	58.8	1,991	16.1	neg1	neg1	19,650	52.5
ALBANIA		399	6.44	118	0.952	117	0.597	1,837	4.90
ALGERIA		1,245	20.1	915	7.38	4	0.020	10,900	29.1
ANDORRA		NA	NA	NA	NA	NA	NA	NA	NA
ANGOLA		2,950	47.6	6	0.048	355	1.81	1,100	2.94
ARGENTINA	71.0 ¹	58,000	936	3,840	31.0	5,580	28.1	44,400	119
AUSTRAL.	84.8 ²	32,806	613	453	3.66	2,196	6.15	151,742	605
AUSTRIA		2,581	48.1	40	0.323	3,517	9.85	200	0.798
BAHAMAS		4	0.064	4	0.032	16	0.082	46	0.123
BAHRAIN		5	0.081	1	0.008	neg1	neg1	12	0.032
BANGLDSH	184 ³	28,117	454	43	0.347	neg1	neg1	13,151	35.1
BARBADOS		22	0.355	5	0.040	36	0.184	70	0.187
BELGIUM	1.54 ⁴	2,889	53.9	64	0.516	4,666	13.1	85	0.339
BENIN		760	12.3	7	0.056	358	1.83	1,640	4.38
BHUTAN		199	3.21	41	0.331	55	0.281	59	0.158
BOLIVIA	39.3 ¹	2,420	39.1	1,149	9.27	1,158	5.91	10,498	28.0
BOTSWANA		2,300	37.1	51	0.412	18	0.092	1,420	3.79
BRAZIL	1,243 ⁵	92,646	1,500	17,127	138	35,000	179	42,500	113
BRUNEI		21	0.339	0	0	15	0.077	1	0.003
BULGARIA		1,622	30.2	484	3.91	3,422	9.58	10,090	40.3
BURMA		9,810	158	74	0.597	2,022	10.3	1,003	2.68
BURUNDI		784	12.7	0	0	32	0.163	968	2.58
CAMBODIA		2,620	42.3	12	0.097	850	4.34	3	0.008
CAMEROON		2,600	42.0	119	0.960	400	2.04	3,600	9.61
CANADA		14,016	261	349	2.82	5,909	16.5	583	2.33
CAPE VRD		19	0.307	11	0.089	19	0.097	27	0.072
C.AF.EMP		463	7.47	1	0.008	61	0.311	630	1.68
CHAD		3,200	51.6	750	6.05	6	0.031	4,200	11.2
CHILE	49.2 ¹	3,606	58.2	500	4.04	900	4.59	6,745	18.0
PR CHINA	9,209 ⁶	93,580	1,510	20,304	164	241,475	1,230	133,066	355
REPCHINA		NA	NA	NA	NA	NA	NA	NA	NA
COLOMBIA	170 ¹	23,222	375	1,620	13.1	1,877	9.57	2,786	7.44
COMOROS		74	1.19	3	0.024	neg1	neg1	87	0.232
CONGO		45	0.726	0	0	15	0.077	78	0.208
COSTA RC	15.9 ¹	1,816	29.3	105	0.847	225	1.15	3	0.008

BIOMASS ENERGY (Joules 10¹⁵)

	Actual Noncom- mercial Pr'n	Potential Energy from Manure (Animal Population 10 ³)							
		Cattle & Buffalo		Horses, Mules		Pigs		Sheep & Goats	
		Pop.	Energy	Donkeys, Camels Pop.	Energy	Pop.	Energy	Pop.	Energy
CUBA	164 ¹	5,450	88.0	890	7.18	1,450	7.40	420	1.12
CYPRUS		17	0.274	47	0.379	114	0.581	495	1.32
CZCHSLVK		4,566	85.1	71	0.572	6,719	18.8	1,011	4.03
DENMARK		3,048	56.8	56	0.451	7,748	21.7	64	0.256
DOMIN.RP	53.8 ¹	1,900	30.7	387	3.12	820	4.18	395	1.05
ECUADOR	67.3 ¹	2,800	45.2	577	4.66	2,200	11.2	2,251	6.01
EGYPT		4,551	73.5	1,688	13.6	16	0.082	3,392	9.06
EL SALVD	31.5 ¹	1,062	17.1	104	0.839	420	2.14	18	0.048
EQ. GUIN		4	0.065	negl	negl	8	0.041	40	0.107
ETHIOPIA		25,315	409	7,970	64.3	20	0.102	41,000	109
FIJI		173	2.79	34	0.274	31	0.158	55	0.147
FINLAND		1,843	34.4	38	0.307	1,078	3.02	126	0.503
FRANCE		24,700	460	488	3.94	12,000	33.6	11,336	45.2
GABON		5	0.081	negl	negl	5	0.026	120	0.320
GAMBIA	8.26 ⁷	300	4.84	4	0.032	8	0.041	185	0.494
GRMN.DR		5,585	104	83	0.670	11,519	32.3	1,925	7.68
GRMNY.FR	37.4 ⁴	14,430	269	325	2.62	20,234	56.7	1,075	4.29
GHANA		1,000	16.1	29	0.234	390	1.99	3,700	9.88
GREECE	24.4 ⁴	1,214	22.6	647	5.22	858	2.40	12,900	51.5
GRENADA		5	0.081	5	0.040	10	0.051	8	0.021
GUATMALA	47.9 ¹	2,030	32.8	168	1.36	880	4.49	636	1.70
GUINEA		1,489	24.0	4	0.032	33	0.168	775	2.07
GNA.BISS		256	4.13	3	0.024	171	0.872	250	0.668
GUYANA		275	4.44	4	0.032	120	0.612	166	0.443
HAITI	52.2 ¹	742	12.0	702	5.67	1,735	8.85	1,435	3.83
HONDURAS	26.3 ¹	1,690	27.3	443	3.58	510	2.60	67	0.179
HONG KNG		11	0.178	1	0.008	386	1.97	0	0
HUNGARY	22.0 ⁴	2,017	37.6	167	1.35	8,293	23.2	2,056	8.20
ICELAND		67	1.25	42	0.339	6	0.017	846	3.38
INDIA	5,420 ⁴	241,036	3,890	3,130	25.3	7,101	36.2	109,679	293
INDONSIA	557 ⁹	9,510	153	708	5.71	4,378	22.3	10,633	28.4
IRAN	33.4 ⁹	6,630	107	2,330	18.8	67	0.342	49,000	131
IRAQ		2,448	39.5	1,112	8.97	negl	negl	18,504	49.4
IRELAND		7,000	130	171	1.38	947	2.65	4,031	16.1
ISRAEL		300	5.59	21	0.169	79	0.221	335	1.34

BIOMASS ENERGY (Joules 10¹⁵)

	Actual Noncom- mercial Pr'n	Potential Energy from Manure (Animal Population 10 ³)							
		Cattle & Buffalo		Horses, Mules		Pigs		Sheep & Goats	
		Pop.	Energy	Donkeys, Pop.	Camels Energy	Pop.	Energy	Pop.	Energy
ITALY	93.5 ⁴	8,234	153	561	4.53	8,813	24.7	8,953	35.7
IVORY CT		500	8.07	2	0.016	200	1.02	1,960	5.23
JAMAICA		280	4.52	45	0.363	233	1.19	305	0.814
JAPAN		3,650	68.0	60	0.484	8,243	23.1	140	0.559
JORDAN		49	0.791	70	0.565	neg1	neg1	1,192	3.18
KENYA		7,600	123	532	4.29	68	0.347	7,500	20.0
KOREA DPR		781	12.6	37	0.299	1,520	7.75	392	1.05
KOREA RP	200 ⁴	1,778	28.7	10	0.081	1,818	9.27	258	0.689
KUWAIT		8	0.129	6	0.048	neg1	neg1	192	0.513
LAOS		1,548	25	33	0.266	1,313	6.70	39	0.104
LEBANON		84	1.36	35	0.282	24	0.122	562	1.50
LESOTHO		550	8.88	108	0.872	82	0.418	2,510	6.70
LIBERIA		34	0.549	neg1	neg1	90	0.459	342	0.913
LIBYA		121	1.95	208	1.68	neg1	neg1	4,438	11.8
LICHTSTN		8	0.149	neg1	neg1	8	0.022	2	0.008
LUXMBORG		214	3.99	2	0.016	95	0.266	4	0.016
MADAGSCR		9,700	157	3	0.024	740	3.77	1,820	4.86
MALAWI		600	9.68	neg1	neg1	160	0.816	780	2.08
MALAYSIA		688	11.1	5	0.040	1,069	5.45	392	1.05
MALDIVES		NA	NA	NA	NA	NA	NA	NA	NA
MALI		3,886	62.7	623	5.03	23	0.117	7,800	20.8
MALTA		8	0.149	3	0.024	27	0.076	19	0.076
MAURTNIA		1,900	30.7	1,021	8.24	neg1	neg1	4,800	12.8
MAURTIUS		51	0.823	neg1	neg1	4	0.020	69	0.184
MEXICO	43.8 ⁴	27,863	450	11,055	89.2	11,466	58.5	13,836	36.9
MONACO		NA	NA	NA	NA	NA	NA	NA	NA
MONGOLIA		2,365	38.2	2,934	23.7	15	0.078	19,077	50.9
MOROCCO		3,350	54.1	2,065	16.7	11	0.056	22,800	60.9
MOZMBQUE		1,390	22.4	20	0.161	180	0.918	698	1.86
NAURU		neg1	neg1	neg1	neg1	2	0.010	neg1	neg1
NEPAL		10,460	169	neg1	neg1	315	1.61	4,650	12.4
NETHLNDS		4,953	92.3	60	0.484	7,272	20.4	780	3.11
NETH.ANT		8	0.129	3	0.024	6	0.301	29	0.077
NEW CALD		126	2.03	9	0.073	30	0.153	19	0.051
NEW ZLND		9,653	180	74	0.597	500	1.40	55,542	222

BIOMASS ENERGY (Joules 10¹⁵)

	Actual Noncom- mercial Pr'n	Potential Energy from Manure (Animal Population 10 ³)							
		Cattle & Buffalo		Horses, Mules		Pigs		Sheep & Goats	
		Pop.	Energy	Donkeys, Pop.	Camels Energy	Pop.	Energy	Pop.	Energy
NICARAGUA	20.2 ¹	2,500	40.4	223	1.80	600	3.06	10	0.027
NIGER		2,500	40.4	780	6.29	26	0.133	7,200	19.2
NIGERIA		11,000	178	988	7.97	880	4.49	30,150	80.5
NORWAY		915	17.1	22	0.178	669	1.87	1,709	6.82
OMAN		75	1.21	35	0.282	negl	negl	265	0.708
PAKISTAN	311 ¹²	23,952	387	2,174	17.5	91	0.464	32,585	87.0
PANAMA	9.08 ¹	1,348	21.8	169	1.36	181	0.923	6	0.016
PAP.N.GN		130	2.10	1	0.008	1,166	5.95	15	0.040
PARAGUAY	21.6 ¹	4,936	79.7	354	2.86	800	4.08	455	1.21
PERU	94.2 ¹	4,200	67.8	1,526	12.3	1,900	9.69	18,960	50.6
PHILIPP	269 ⁴	7,300	118	310	2.50	9,700	49.5	1,382	3.69
POLAND	14.7 ⁴	13,254	247	2,237	18.1	21,311	59.7	3,235	12.9
PORTUGAL	55 ⁴	1,160	21.6	297	2.40	2,220	6.22	4,752	19.0
PUERTO R		553	8.93	23	0.186	223	1.14	26	0.069
QATAR		6	0.097	9	0.073	negl	negl	85	0.227
RHODESIA		4,231	68.3	97	0.783	154	0.785	1,256	3.35
ROMANIA		5,983	112	594	4.79	8,566	24.0	14,372	57.3
RWANDA		740	11.9	negl	negl	64	0.326	699	1.87
SAN MRNO		NA	NA	NA	NA	NA	NA	NA	NA
S.TM.PRN		4	0.065	negl	negl	3	0.015	3	0.008
SAUD.ARB		311	5.02	754	6.08	negl	negl	4,824	12.9
SENEGAL		2,411	38.9	429	3.46	412	2.10	2,968	7.92
SEYCHLLS		5	0.081	negl	negl	20	0.102	3	0.008
SIER LNE		290	4.68	negl	negl	35	0.179	239	0.638
SINGAPOR		12	0.194	negl	negl	1,241	6.33	2	0.005
SOMALIA		3,056	49.3	3,133	25.3	8	0.041	9,022	24.1
S.AFRICA	45.8 ⁴	15,161	283	557	4.49	1,384	3.88	42,563	170
SPAIN	60.5 ⁴	4,417	82.3	657	5.30	7,865	22.0	18,649	74.4
SR.LANKA		2,454	39.6	2	0.016	49	0.250	577	1.54
SUDAN		14,665	237	3,293	26.6	7	0.036	23,300	62.2
SURINAM		43	0.694	negl	negl	13	0.066	9	0.024
SWAZLND		623	10.1	19	0.153	16	0.082	323	0.862
SWEDEN	136 ¹⁰	1,910	35.6	52	0.420	2,419	6.78	415	1.66
SWITZRLD	15.2 ⁴	1,965	36.6	48	0.387	187	5.50	433	1.72
SYRIA		505	8.15	369	2.98	negl	negl	5,994	16.0

BIOMASS ENERGY (Joules 10¹⁵)

	Actual Noncom- mercial Pr'n	Potential Energy from Manure (Animal Population 10 ³)							
		Cattle & Buffalo		Horses, Mules Donkeys, Camels		Pigs		Sheep & Goats	
		Pop.	Energy	Pop.	Energy	Pop.	Energy	Pop.	Energy
TANZANIA	300 ⁷	12,000	194	160	1.29	24	0.122	7,500	20.0
THAILAND	554 ⁷	10,723	173	167	1.35	4,962	25.3	78	0.208
TOGO		230	3.71	3	0.024	255	1.30	1,350	3.60
TONGA		4	0.065	7	0.056	46	0.235	5	0.013
TRIN.TOB		63	1.02	5	0.040	56	0.286	49	0.131
TUNISIA		870	14.0	577	4.66	9	0.046	4,061	10.8
TURKEY	383 ¹¹	14,409	233	2,718	21.9	15	0.077	59,285	158
UGANDA		4,200	67.8	16	0.129	74	0.377	2,750	7.34
USSR	879 ¹³	109,549	2,042	7,505	60.6	72,272	202	151,205	603
U. AR. EMR		NA	NA	NA	NA	NA	NA	NA	NA
UNTD. KGD		14,616	272	145	1.17	7,523	21.1	28,263	113
US		131,826	2,460	8,961	72.3	55,062	154	15,662	62.5
U. S. V. IS		7	0.113	1	0.008	4	0.020	8	0.021
UPPRVLT		1,700	27.4	260	2.10	140	0.714	3,200	8.54
URUGUAY	4.99 ¹	11,362	183	415	3.35	450	2.30	16,012	42.8
VTCN. CTY		NA	NA	NA	NA	NA	NA	NA	NA
VENZUELA	37.7 ¹	9,089	147	1,067	8.61	1,795	9.15	1,528	4.08
VIETNAM		4,235	68.4	71	0.573	13,104	66.8	49	0.131
WN. SAMOA		21	0.339	3	0.024	47	0.240	neg1	neg1
AR YEMEN		1,100	17.8	764	6.17	neg1	neg1	10,600	28.3
DM YEMEN		101	1.63	71	0.573	neg1	neg1	1,155	3.08
YUGOSLAV	52.1 ⁴	5,938	111	1,065	8.59	7,683	21.5	8,150	32.5
ZAIRE		1,111	17.9	1	0.008	599	3.05	2,957	7.90
ZAMBIA		1,797	29.0	1	0.008	122	0.622	228	0.608
TOTALS									
TOTAL		1,330,000	22,600	135,000	1,092	673,000	2,730	1,440,000	4,586
DEVELOPED		452,000	8,430	26,400	213	303,000	848	553,000	2,220
DEVELOPING		878,000	14,170	108,600	879	370,000	1,880	887,000	2,366
DD - US		320,000	5,970	17,400	140	248,000	694	537,000	2,160
DG - PRC		784,000	12,700	88,300	715	129,000	650	754,000	2,011
DG- OPEC									

BIOMASS ENERGY

	Poultry		Total Manure Energy Joules 10 ¹⁵	Energy Per Cap Joules 10 ⁹	Potential Crop Residue Energy (Pr'n in 10 ³ metric tons)					
	Pop. 10 ³	Energy Joules 10 ¹⁵			WHEAT		RICE		MAIZE	
			Pr'n	Energy Joules 10 ¹⁵	Pr'n	Energy Joules 10 ¹⁵	Pr'n	Energy Joules 10 ¹⁵		
AFGHNSTN	8,000	0.560	124	6.43	2,900	91.9	450	7.83	800	8.16
ALBANIA	2,310	0.162	13.1	5.28	330	10.5	17	0.296	245	2.50
ALGERIA	16,050	1.12	57.7	3.44	652	20.7	3	0.052	5	0.051
ANDORRA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANGOLA	4,900	0.343	52.7	8.78	8	0.254	35	0.609	450	4.59
ARGNTINA	34,000	2.69	1,128	44.1	8,560	271	350	6.09	7,700	78.5
AUSTRAL.	44,800	5.96	1,230	91.0	11,732	372	387	6.73	139	1.42
AUSTRIA	12,445	1.64	60.7	8.07	945	30.0	0	0	981	10.0
BAHAMAS	735	0.051	0.352	1.85	0	0	0	0	0	0
BAHRAIN	168	0.011	0.132	0.508	NA	NA	NA	NA	NA	NA
BANGLDSH	35,957	2.52	492	6.40	117	3.71	18,468	321	3	0.031
BARBADOS	375	0.026	0.792	3.30	0	0	0	0	2	0.020
BELGIUM	32,138	4.24	72.1	7.36	694	22.0	0	0	37	0.377
BENIN	3,700	0.259	18.8	6.05	0	0	8	0.139	310	3.16
BHUTAN	100	0.007	3.99	3.41	60	1.90	274	4.77	55	0.561
BOLIVIA	5,655	0.396	82.7	14.7	65	2.06	119	2.07	330	3.37
BOTSWANA	530	0.037	41.4	60.0	1	0.032	0	0	10	0.102
BRAZIL	285,711	21.6	1,950	18.2	1,500	47.6	7,674	134	16,491	168
BRUNEI	898	0.063	0.482	3.21	0	0	4	0.070	0	0
BULGARIA	34,466	4.82	88.8	10.2	3,100	98.3	61	1.06	2,000	20.4
BURMA	22,551	1.58	173	5.54	64	2.03	9,339	163	75	0.765
BURUNDI	2,600	0.182	15.6	4.15	10	0.317	6	0.104	350	3.57
CAMBODIA	6,042	0.423	47.2	5.82	0	0	800	13.9	70	0.714
CAMEROON	8,650	0.606	55.2	8.63	0	0	14	0.244	350	3.57
CANADA	95,568	14.8	297	13.0	17,078	541	0	0	3,623	37.0
CAPE VRD	58	0.004	0.569	1.96	0	0	0	0	13	0.133
C.AF.EMP	1,241	0.087	9.56	3.66	0	0	13	0.226	46	0.469
CHAD	2,833	0.198	69.1	17.1	4	0.127	37	0.644	8	0.082
CHILE	19,000	1.33	86.2	8.41	1,003	31.8	76	1.32	329	3.36
PR CHINA	1,301,786	91.1	3,350	4.07	41,001	1,300	116,470	2,027	33,120	338
REPCHINA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COLOMBIA	39,000	2.73	408	16.5	85	2.69	1,614	28.1	723	7.37
COMOROS	0	0.0	1.45	4.68	0	0	12	0.209	4	0.041
CONGO	729	0.051	1.06	0.785	0	0	5	0.087	9	0.092
COSTA RC	4,800	0.336	31.6	16.0	0	0	132	2.30	57	0.581

BIOMASS ENERGY

	Poultry		Total Manure Energy Joules 10 ¹⁵	Energy Per Cap Joules 10 ⁹	Potential Crop Residue Energy (Pr'n in 10 ³ metric tons)					
	Pop. 10 ³	Energy Joules 10 ¹⁵			WHEAT		RICE		MAIZE	
			Pr'n	Energy Joules 10 ¹⁵	Pr'n	Energy Joules 10 ¹⁵	Pr'n	Energy Joules 10 ¹⁵		
CUBA	16,000	1.12	105	11.3	0	0	420	7.31	125	1.28
CYPRUS	1,649	0.115	2.67	4.17	40	1.27	0	0	0	0
CZCHSLVK	38,982	5.18	114	7.70	4,500	143	0	0	600	6.12
DENMARK	17,427	2.40	81.6	16.1	538	17.1	0	0	0	0
DOMIN.RP	7,651	0.536	39.6	8.43	0	0	238	4.14	53	0.541
ECUADOR	10,110	0.708	67.8	10.1	48	1.52	330	5.74	260	2.65
EGYPT	30,012	2.10	98.3	2.64	2,033	64.4	2,450	42.6	2,600	26.5
EL SALVD	8,900	0.623	20.8	5.19	0	0	37	0.644	381	3.89
EQ. GUIN	108	0.008	0.221	0.713	NA	NA	NA	NA	NA	NA
ETHIOPIA	53,833	3.77	586	21.1	618	19.6	0	0	1,077	11.0
FIJI	641	0.045	3.41	5.88	0	0	23	0.400	4	0.041
FINLAND	9,333	1.21	8.48	1.80	559	17.7	0	0	0	0
FRANCE	203,095	26.4	569	10.8	15,041	477	46	0.800	8,143	83.1
GABON	289	0.020	0.447	0.843	0	0	1	0.017	2	0.020
GAMBIA	280	0.020	5.43	10.4	0	0	20	0.348	NA	NA
GRMN.DR	47,530	6.18	151	8.96	3,000	95.1	0	0	32	0.326
GRMNY.FR	91,217	12.1	345	5.58	7,013	222	0	0	531	5.42
GHANA	10,500	0.735	28.9	2.93	0	0	85	1.48	525	5.36
GREECE	31,336	4.13	85.9	9.49	2,078	65.9	100	1.74	537	5.48
GRENADA	250	0.018	0.211	2.11	0	0	0	0	0	0
GUATMALA	12,000	0.840	41.2	6.87	45	1.43	41	0.713	984	10.0
GUINEA	4,800	0.336	26.6	6.02	0	0	400	6.96	300	3.06
GNA.BISS	333	0.023	5.72	10.8	0	0	32	0.557	4	0.041
GUYANA	9,500	0.665	6.19	7.84	0	0	260	4.52	6	0.061
HAITI	3,511	0.246	30.6	6.68	0	0	110	1.91	250	2.55
HONDURAS	7,600	0.532	34.2	11.3	1	0.032	16	0.278	220	2.24
HONG KNG	3,918	0.274	2.43	0.556	0	0	4	0.070	0	0
HUNGARY	56,637	7.57	77.9	7.39	4,000	127	69	1.20	7,100	72.4
ICELAND	239	0.031	5.02	22.8	0	0	0	0	0	0
INDIA	118,378	8.29	4,250	7.11	24,235	768	70,500	1,230	5,600	57.1
INDONSIA	131,142	9.18	219	1.68	0	0	23,100	402	3,500	35.7
IRAN	55,145	3.86	261	7.90	5,483	174	1,386	24.1	60	0.612
IRAQ	7,699	0.539	98.4	8.85	845	26.8	200	3.48	20	0.204
IRELAND	10,897	1.55	152	48.6	212	6.72	0	0	0	0
ISRAEL	15,200	1.98	9.30	2.76	241	7.64	0	0	14	0.143

BIOMASS ENERGY

	Poultry		Total Manure Energy Joules 10 ¹⁵	Energy Per Cap Joules 10 ⁹	Potential Crop Residue Energy (Pr'n in 10 ³ metric tons)					
	Pop. 10 ³	Energy Joules 10 ¹⁵			WHEAT		RICE		MAIZE	
			Pr'n	Energy Joules 10 ¹⁵	Pr'n	Energy Joules 10 ¹⁵	Pr'n	Energy Joules 10 ¹⁵		
ITALY	110,000	14.3	232	4.16	9,620	305	1,009	17.6	5,232	53.4
IVORY CT	6,600	0.462	14.8	3.03	0	0	470	8.18	100	1.02
JAMAICA	3,841	0.269	7.16	3.53	0	0	NA	NA	10	0.102
JAPAN	280,755	36.5	129	1.16	241	7.64	17,101	298	11	0.112
JORDAN	2,765	0.194	4.73	1.76	60	1.90	0	0	NA	NA
KENYA	15,239	1.07	149	11.1	158	5.01	32	0.557	1,600	16.3
KOREA DPR	22,233	1.56	23.3	1.47	142	4.50	3,700	64.4	2,058	21.1
KOREA RP	19,305	1.35	40.1	1.18	136	4.31	6,485	113	58	0.592
KUWAIT	5,883	0.412	1.10	1.10	0	0	0	0	NA	NA
LAOS	14,303	1.00	33.1	10.1	0	0	910	15.8	28	0.286
LEBANON	6,858	0.480	3.74	1.30	65	2.06	0	0	1	0.010
LESOTHO	968	0.068	16.9	16.3	51	1.62	0	0	100	1.02
LIBERIA	2,130	0.149	2.07	1.21	0	0	200	3.48	0	0
LIBYA	1,300	0.091	15.5	6.35	70	2.22	0	0	2	0.020
LICHSTN	45	0.006	0.185	9.25	0	0	0	0	0	0
LUXMBORG	278	0.038	4.33	12.0	35	1.11	0	0	0	0
MADAGSCR	17,000	1.19	167	20.8	0	0	1,936	33.7	120	1.22
MALAWI	7,700	0.539	13.1	2.60	1	0.032	14	0.244	1,000	10.2
MALAYSIA	43,889	3.07	20.7	1.71	0	0	2,005	34.9	12	0.122
MALDIVES	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MALI	9,667	0.677	89.3	15.7	4	0.127	90	1.57	60	0.612
MALTA	1,157	0.152	0.477	1.45	2	0.063	0	0	0	0
MAURTNIA	2,900	0.203	51.9	39.3	NA	NA	NA	NA	3	0.031
MAURTIUS	458	0.032	1.06	1.18	0	0	1	0.017	2	0.020
MEXICO	153,000	10.7	645	10.7	2,735	86.7	623	10.8	9,000	91.8
MONACO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MONGOLIA	100	0.007	113	78.5	300	9.51	0	0	0	0
MOROCCO	23,590	1.65	27.0	1.56	1,575	49.9	29	0.505	371	3.78
MOZMBQUE	16,045	1.12	26.5	2.87	4	0.127	90	1.57	250	2.55
NAURU	4	neg1	0.010	1.00	NA	NA	NA	NA	NA	NA
NEPAL	20,000	1.40	184	14.6	357	11.3	2,582	44.9	784	8.00
NETHLNDS	65,222	8.48	125	9.16	528	16.7	0	0	7	0.071
NETH.ANT	61	0.004	0.535	2.23	0	0	0	0	0	0
NEW CALD	181	0.013	2.32	17.8	NA	NA	0	0	1	0.010
NEW ZLND	6,038	0.809	405	131	203	6.44	0	0	205	2.09

BIOMASS ENERGY

	Poultry		Total	Energy	Potential Crop Residue Energy (Pr'n in 10 ³ metric tons)					
	Pop.	Energy	Manure	Per Cap	WHEAT		RICE		MAIZE	
	10 ³	Joules 10 ¹⁵	Energy Joules 10 ¹⁵	Joules 10 ⁹	Pr'n	Energy Joules 10 ¹⁵	Pr'n	Energy Joules 10 ¹⁵	Pr'n	Energy Joules 10 ¹⁵
NICARAGUA	3,514	0.246	45.5	21.1	0	0	84	1.46	241	2.46
NIGER	7,350	0.515	66.5	14.5	2	0.063	35	0.609	5	0.051
NIGERIA	85,000	5.95	277	4.40	6	0.190	368	6.40	1,000	10.2
NORWAY	6,709	0.874	26.8	6.68	48	1.52	0	0	0	0
OMAN	724	0.051	2.25	2.92	3	0.095	0	0	0	0
PAKISTAN	34,493	2.41	494	7.03	7,673	243	3,804	66.2	780	7.96
PANAMA	4,037	0.283	24.4	14.6	0	0	178	3.10	61	0.622
PAP.N.GN	1,076	0.075	8.17	2.96	0	0	2	0.035	NA	NA
PARAGUAY	8,773	0.614	88.5	33.4	45	1.43	45	0.783	342	3.49
PERU	25,000	1.75	142	8.95	150	4.76	500	8.70	625	6.38
PHILIPP	54,274	3.80	177	4.16	0	0	6,512	113	2,650	27.0
POLAND	163,404	22.3	360	10.6	5,210	165	0	0	50	0.510
PORTUGAL	15,703	2.24	51.5	5.88	646	20.5	121	2.11	509	5.19
PUERTO R	4,391	0.307	10.6	3.43	0	0	2	0.035	1	0.010
QATAR	55	0.004	0.401	4.46	NA	NA	NA	NA	NA	NA
RHODESIA	8,300	0.581	73.8	11.5	85	2.69	5	0.087	1,400	14.3
ROMANIA	67,672	8.80	207	9.77	5,200	165	56	0.974	9,000	91.8
RWANDA	553	0.039	14.1	3.36	3	0.095	2	0.035	66	0.673
SAN MRNO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S.TM.PRN	7	neg1	0.088	1.10	NA	NA	NA	NA	NA	NA
SAUD.ARB	9,267	0.649	24.6	2.74	175	5.55	3	0.052	6	0.061
SENEGAL	9,000	0.630	53.0	12.8	0	0	145	2.52	50	0.510
SEYCHLLS	94	0.007	0.198	3.30	NA	NA	NA	NA	NA	NA
SIER LNE	3,243	0.227	5.72	2.05	0	0	500	8.70	13	0.133
SINGAPOR	15,765	1.10	7.63	3.39	0	0	0	0	0	0
SOMALIA	2,400	0.168	98.9	31.2	1	0.032	0	0	168	1.71
S.AFRICA	25,450	3.44	465	17.6	1,820	57.7	3	0.052	9,531	97.2
SPAIN	46,660	6.25	190	5.36	4,302	136	378	6.58	1,843	18.8
SR.LANKA	6,802	0.476	41.9	3.00	0	0	1,154	20.1	35	0.357
SUDAN	21,500	1.51	327	18.4	273	8.65	15	0.261	20	0.204
SURINAM	920	0.064	0.848	2.02	0	0	176	3.06	NA	NA
SWAZLND	457	0.032	11.2	22.9	0	0	5	0.087	120	1.22
SWEDEN	13,574	1.84	46.3	5.65	1,476	46.8	0	0	0	0
SWITZRLD	6,159	0.801	45.0	7.03	320	10.1	0	0	120	1.22
SYRIA	5,729	0.401	11.5	1.56	1,550	49.1	3	0.052	32	0.326

BIOMASS ENERGY

	Poultry		Total Manure Energy Joules 10 ¹⁵	Energy Per Cap Joules 10 ⁹	Potential Crop Residue Energy (Pr'n in 10 ³ metric tons)					
	Pop. 10 ³	Energy Joules 10 ¹⁵			WHEAT		RICE		MAIZE	
			Pr'n	Energy Joules 10 ¹⁵	Pr'n	Energy Joules 10 ¹⁵	Pr'n	Energy Joules 10 ¹⁵		
TANZANIA	22,300	1.63	217	14.3	50	1.59	170	2.96	900	9.18
THAILAND	73,500	5.15	205	4.85	0	0	15,092	263	3,000	30.6
TOGO	2,035	0.142	8.78	3.96	0	0	15	0.261	120	1.22
TONGA	138	0.010	0.379	3.79	0	0	0	0	0	0
TRIN. TOB	6,200	0.434	1.91	1.75	0	0	20	0.348	4	0.041
TUNISIA	13,611	0.953	30.5	5.29	1,035	32.8	0	0	0	0
TURKEY	41,006	3.64	417	10.6	14,750	468	262	4.56	1,100	11.2
UGANDA	11,500	0.805	76.5	6.62	10	0.317	20	0.348	870	8.87
USSR	792,000	113	3,021	11.9	66,144	2,097	2,000	34.8	7,314	74.6
U. AR. EMR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
UNTD. KGD	123,569	17.7	425	7.59	4,435	141	0	0	0	0
US	392,259	53.2	2,802	13.1	58,074	1,840	5,789	101	146,481	1,490
U. S. V. IS	82	0.006	0.168	1.87	0	0	0	0	0	0
UPPRVLT	7,200	0.504	39.3	6.52	0	0	40	0.696	62	0.632
URUGUAY	7,548	0.528	232	75.8	456	14.5	189	3.29	157	1.60
VTCN. CTY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VENZUELA	28,217	1.98	248	20.7	1	0.032	369	6.42	686	7.00
VIETNAM	101,500	7.11	143	3.26	0	0	12,000	209	320	3.26
WN. SAMOA	96	0.007	0.610	3.81	0	0	0	0	NA	NA
AR YEMEN	3,110	0.218	52.5	7.87	78	2.47	0	0	107	1.09
DM YEMEN	1,380	0.097	5.38	3.18	12	0.380	0	0	13	0.133
YUGOSLAV	53,986	0.578	174	8.15	4,396	139	37	0.644	9,392	95.8
ZAIRE	10,987	0.769	29.6	1.19	1	0.032	221	3.85	433	4.42
ZAMBIA	8,227	0.576	1.84	0.376	NA	NA	1	0.017	508	5.18
TOTALS										
TOTAL	6,250,000	629	31,600	8.06	355,000	11,300	344,000	5,990	322,000	3,280
DEVELOPED	2,910,000	390	12,060	10.8	233,000	7,400	27,200	473	213,000	2,170
DEVELOPING	3,340,000	239	19,540	6.97	122,000	3,900	317,000	5,517	109,000	1,110
DD - US	2,520,000	337	9,260	10.2	175,000	5,560	21,411	372	66,500	680
DG - PRC	2,038,000	299	16,200	8.14	80,990	2,600	200,530	3,490	75,900	772
DG - OPEC										

BIOMASS ENERGY (Crop Energy in 10^{15} Joules, Per Capita Energy in 10^9 Joules)

	Potential Crop Residue Energy (Pr'n in 10^3 metric tons)									Per Capita Energy		
	Barley		Roots & Tubers		Sugar Cane		Sugar Beet		TOTAL	Crop	Manure	Manure
	Pr'n	Energy	Pr'n	Energy	Pr'n	Energy	Pr'n	Energy	Energy	Energy	& Crop Energy	& Crop Energy Rural Pop.
AFGHNSTN	400	15.9	23	0.048	53	0.315	68	0.201	44.4	2.30	8.73	10.3
ALBANIA	10	0.398	104	0.217	0	0	178	0.527	14.4	5.81	11.1	16.8
ALGERIA	307	12.2	327	0.683	0	0	160	0.474	34.2	2.04	5.48	11.0
ANDORRA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANGOLA	0	0	1,792	3.75	470	2.79	0	0	12.0	2.00	10.8	12.7
ARGNTINA	594	23.6	2,074	4.33	16,000	95.0	0	0	414	16.3	60.4	318
AUSTRAL.	3,300	131	701	1.47	22,160	132	0	0	645	47.7	139	992
AUSTRIA	1,006	40.0	1,579	3.30	0	0	3,134	9.28	92.6	12.3	20.4	42.5
BAHAMAS	0	0	0	0	200	1.19	0	0	1.19	6.26	8.12	19.3
BAHRAIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BANGLDSH	16	0.637	1,598	3.34	6,742	40.0	0	0	369	4.80	11.2	12.3
BARBADOS	0	0	24	0.050	917	5.45	0	0	5.52	23.0	26.3	27.4
BELGIUM	426	17.0	1,049	2.19	0	0	4,913	14.5	56.1	5.73	13.1	101
BENIN	0	0	1,389	2.90	0	0	0	0	6.20	0.199	8.04	9.35
BHUTAN	8	0.318	41	0.086	0	0	0	0	7.64	6.53	9.94	10.2
BOLIVIA	76	3.02	1,126	2.35	2,320	13.8	0	0	26.7	4.74	19.4	29.9
BOTSWANA	0	0	6	0.013	0	0	0	0	0.147	0.213	60.2	69.2
BRAZIL	18	0.716	30,571	63.9	89,935	534	0	0	948	8.85	27.0	64.4
BRUNEI	0	0	3	0.006	0	0	0	0	0.076	0.507	3.72	10.3
BULGARIA	1,721	68.5	346	0.723	0	0	1,800	5.33	191	21.9	32.1	78.3
BURMA	0	0	85	0.178	1,700	10.1	0	0	176	5.63	11.2	13.8
BURUNDI	0	0	5,647	11.8	0	0	0	0	15.8	4.20	8.35	8.61
CAMBODIA	0	0	52	0.108	210	1.25	0	0	16.0	1.97	7.79	9.62
CAMEROON	0	0	2,049	4.28	311	1.85	0	0	9.94	1.55	10.2	12.7
CANADA	9,520	379	2,116	4.42	0	0	943	2.79	964	42.2	55.2	230
CAPE VRD	0	0	32	0.067	9	0.053	0	0	0.253	0.872	2.83	3.01
C.AF.EMP	0	0	1,154	2.41	0	0	0	0	3.11	1.19	4.85	6.65
CHAD	0	0	99	0.207	0	0	0	0	1.06	0.263	17.4	19.8
CHILE	121	4.82	747	1.56	0	0	1,617	4.79	37.7	3.68	12.1	50.4
PR CHINA	21,000	836	155,272	325	42,140	250	6,700	19.8	5,096	6.19	10.3	13.3
REPCHINA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COLOMBIA	122	4.86	2,656	5.55	19,411	115	0	0	163	6.59	23.1	64.2
COMOROS	0	0	114	0.238	0	0	0	0	0.488	1.57	6.25	6.59
CONGO	0	0	706	1.48	410	2.44	0	0	4.10	3.04	3.82	6.07
COSTA RC	0	0	32	0.067	2,298	13.7	0	0	16.4	8.32	24.4	41.3

BIOMASS ENERGY (Crop Energy in 10^{15} Joules, Per Capita Energy in 10^9 Joules)

	Potential Crop Residue Energy (Pr'n in 10^3 metric tons)								Per Capita Energy			
	Barley		Roots & Tubers		Sugar Cane		Sugar Beet		TOTAL Energy	Crop Energy	Manure & Crop Energy	Manure & Crop Energy
	Pr'n	Energy	Pr'n	Energy	Pr'n	Energy	Pr'n	Energy				
CUBA	0	0	597	1.25	53,500	318	0	0	328	35.4	46.7	117
CYPRUS	58	2.31	170	0.355	0	0	0	0	3.94	6.16	10.3	18.1
CZCHSLVK	2,900	115	3,560	7.44	0	0	7,572	22.4	294	19.9	27.6	62.7
DENMARK	5,176	206	661	1.38	0	0	3,033	8.98	233	46.0	62.2	311
DOMIN.RP	0	0	408	0.853	9,436	56.1	0	0	61.6	13.1	21.5	36
ECUADOR	65	2.59	850	1.78	5,500	32.7	2	0.006	47.0	6.98	17.1	28.0
EGYPT	118	4.70	864	1.81	7,000	41.6	0	0	182	4.89	7.53	13.2
EL SALVD	0	0	29	0.061	3,000	17.8	0	0	22.4	5.59	10.8	17.7
EQ. GUIN	0	0	76	0.159	0	0	0	0	0.159	0.513	1.23	1.35
ETHIOPIA	700	27.9	940	1.96	1,125	6.68	0	0	67.1	2.40	23.4	26.3
FIJI	0	0	171	0.357	2,318	13.8	0	0	14.6	25.2	31.1	46.3
FINLAND	1,155	46.0	680	1.42	0	0	630	1.86	67.0	14.2	16.0	38.2
FRANCE	9,336	372	7,219	15.1	0	0	22,859	67.7	1,016	19.2	30.0	99.9
GABON	0	0	183	0.382	0	0	0	0	0.419	0.791	1.63	1.97
GAMBIA	0	0	8	0.017	0	0	0	0	0.365	0.702	11.1	13.0
GRMN.DR	3,000	119	13,404	28.0	0	0	6,959	20.6	263	15.6	24.6	98.3
GRMNY.FR	6,971	277	10,853	22.7	0	0	17,300	51.2	578	9.35	14.9	124
GHANA	0	0	4,000	8.36	300	1.78	0	0	17.1	1.73	4.66	6.56
GREECE	924	36.8	803	1.68	0	0	2,500	7.40	119	13.1	22.6	48.2
GRENADA	0	0	NA	NA	9	0.053	0	0	0.053	0.530	2.64	2.87
GUATMALA	0	0	37	0.077	4,900	29.1	0	0	41.3	6.88	13.8	20.8
GUINEA	0	0	605	1.26	0	0	0	0	11.3	2.56	8.57	10.2
GNA.BISS	0	0	84	0.176	0	0	0	0	0.774	1.46	11.1	13.9
GUYANA	0	0	22	0.046	4,064	24.1	0	0	28.7	36.3	44.2	73.6
HAITI	0	0	287	0.600	2,969	17.6	0	0	22.7	4.96	11.6	14.5
HONDURAS	0	0	56	0.117	1,570	9.33	0	0	12.0	3.95	15.2	21.1
HONG KNG	0	0	2	0.004	0	0	0	0	0.074	0.017	0.573	5.73
HUNGARY	705	28.1	1,674	3.50	0	0	4,500	13.3	246	23.3	30.7	60.3
ICELAND	0	0	13	0.027	0	0	0	0	0.027	0.123	22.9	163
INDIA	3,150	125	14,299	29.9	140,196	833	0	0	3,043	5.09	12.2	15.2
INDONSIA	0	0	17,486	36.5	14,306	85.0	0	0	559	4.28	5.96	7.26
IRAN	1,438	57.2	559	1.17	900	5.35	4,600	13.6	276	8.36	16.3	28.5
IRAQ	437	17.4	15	0.031	100	0.594	65	0.192	48.7	43.8	13.2	33.9
IRELAND	886	35.3	1,000	2.09	0	0	1,304	3.86	48.0	15.3	63.9	133
ISRAEL	27	1.07	158	0.330	0	0	207	0.613	9.80	2.91	5.67	40.5

BIOMASS ENERGY (Crop Energy in 10^{15} Joules, Per Capita Energy in 10^9 Joules)

	Potential Crop Residue Energy (Pr'n in 10^3 metric tons)									Per Capita Energy		
	Barley		Roots & Tubers		Sugar Cane		Sugar Beet		TOTAL	Crop Energy	Manure & Crop Energy	Manure & Crop Energy Rural Pop.
	Pr'n	Energy	Pr'n	Energy	Pr'n	Energy	Pr'n	Energy	Energy			
ITALY	648	25.8	3,058	6.39	0	0	10,080	29.8	438	7.85	12.0	25.5
IVORY CT	0	0	2,542	5.31	330	1.96	0	0	16.5	3.37	6.40	8.89
JAMAICA	0	0	212	0.443	3,759	22.3	0	0	22.8	11.2	14.8	23.2
JAPAN	221	8.80	5,156	10.8	2,052	12.2	2,170	6.42	344	3.10	4.26	15.2
JORDAN	16	0.637	1	0.002	0	0	0	0	2.54	0.944	2.70	4.74
KENYA	20	0.796	1,419	2.97	2,000	11.9	0	0	37.6	2.81	13.9	15.5
KORE DPR	366	14.6	1,430	2.99	0	0	0	0	108	6.81	8.28	13.4
KOREA RP	2,119	84.3	1,970	4.12	0	0	0	0	206	6.07	7.25	12.3
KUWAIT	NA	NA	0	0	0	0	0	0	0	0.00	1.10	1.41
LAOS	0	0	45	0.094	8	0.048	0	0	16.2	4.91	14.9	17.6
LEBANON	7	0.279	81	0.169	0	0	162	0.480	3.00	1.05	2.35	6.02
LESOTHO	NA	NA	0	0	0	0	0	0	2.64	2.54	18.8	19.8
LIBERIA	0	0	283	0.591	0	0	0	0	4.07	2.38	3.59	4.99
LIBYA	200	7.96	67	0.140	0	0	0	0	10.3	4.22	10.6	14.9
LICHSTN	0	0	10	0.021	0	0	0	0	0.021	1.05	10.3	14.7
LUXMBORG	58	2.31	28	0.059	0	0	0	0	3.48	9.67	21.7	67.9
MADAGSCR	0	0	1,948	4.07	1,300	7.72	0	0	46.7	5.82	26.6	31.0
MALAWI	0	0	287	0.600	707	4.20	0	0	15.3	3.04	5.63	5.87
MALAYSIA	0	0	487	1.02	700	4.16	1	0.003	40.2	3.33	5.03	6.90
MALDIVES	0	0	5	0.010	0	0	0	0	0.010	0.083	NA	NA
MALI	0	0	181	0.378	80	0.475	0	0	3.16	0.554	16.2	18.4
MALTA	2	0.080	22	0.0046	0	0	0	0	0.189	0.573	2.02	33.3
MAURTNIA	NA	NA	5	0.010	0	0	0	0	0.041	0.031	39.3	43.7
MAURTIUS	0	0	10	0.021	4,316	25.6	0	0	25.7	28.6	29.7	53.1
MEXICO	598	23.8	798	1.67	32,000	190	98	0.290	405	6.73	17.5	44.8
MONACO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MONGOLIA	34	1.35	23	0.048	0	0	0	0	10.9	7.57	86.0	159
MOROCCO	1,587	63.2	200	0.418	63	0.374	1,792	5.30	123	7.11	8.67	13.8
MOZMBQUE	0	0	2,378	4.97	2,200	13.1	0	0	22.3	2.41	5.28	5.87
NAURU	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NEPAL	22	0.876	372	0.777	250	1.49	0	0	60.1	4.78	19.4	20.2
NETHLNDS	336	13.4	5,003	10.5	0	0	5,927	17.5	58.2	4.26	13.4	58.4
NETH.ANT	0	0	0	0	0	0	0	0	0	0	2.23	3.28
NEW CALD	0	0	21	0.044	0	0	0	0	0.054	0.415	18.3	32.5
NEW ZLND	334	13.3	236	0.493	0	0	0	0	22.3	7.22	138	72.8

BIOMASS ENERGY (Crop Energy in 10^{15} Joules, Per Capita Energy in 10^9 Joules)

	Potential Crop Residue Energy (Pr'n in 10^3 metric tons)								Per Capita Energy			
	Barley		Roots & Tubers		Sugar Cane		Sugar Beet		TOTAL Energy	Crop Energy	Manure & Crop Energy	Manure & Crop Energy Rural Pop.
	Pr'n	Energy	Pr'n	Energy	Pr'n	Energy	Pr'n	Energy				
NICARAGUA	0	0	19	0.040	2,250	13.4	0	0	17.4	8.06	29.1	57.1
NIGER	0	0	315	0.658	75	0.445	0	0	1.83	0.398	14.9	16.1
NIGERIA	0	0	27,018	56.5	700	4.16	0	0	79.2	1.26	5.67	6.74
NORWAY	445	17.7	435	0.909	0	0	0	0	20.1	5.01	11.7	21.3
OMAN	0	0	NA	NA	1	0.006	0	0	0.101	0.131	3.05	NA
PAKISTAN	137	5.45	442	0.924	21,242	126	98	0.290	450	6.40	13.4	18.2
PANAMA	0	0	80	0.167	1,722	10.2	0	0	14.1	8.44	23.1	45.2
PAP.N.GN	0	0	1,169	2.44	450	2.67	0	0	5.15	1.87	4.83	5.42
PARAGUAY	0	0	1,227	2.56	1,400	8.32	0	0	16.6	6.26	39.7	64.0
PERU	170	6.77	2,754	5.76	9,000	53.5	0	0	85.9	5.41	14.4	35.9
PHILIPP	0	0	1,355	2.83	24,616	146	0	0	289	6.80	11.0	16.1
POLAND	3,660	146	46,500	97.2	0	0	15,345	45.4	454	13.3	23.9	53.2
PORTUGAL	90	3.58	927	1.94	0	0	0	0	33.3	3.80	9.68	13.1
PUERTO R	0	0	40	0.084	3,205	19.0	0	0	19.1	6.18	9.61	22.9
QATAR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RHODESIA	2	0.080	23	0.048	2,500	14.9	0	0	32.1	5.00	16.5	20.4
ROMANIA	800	31.8	2,900	6.06	0	0	4,902	14.5	309	14.6	24.4	42.0
RWANDA	0	0	1,172	2.45	9	0.053	0	0	3.31	0.788	4.15	4.27
SAN MRNO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S.TM.PRN	0	0	2	0.004	0	0	0	0	0.004	0.050	1.15	1.48
SAUD.ARB	22	0.876	0	0	0	0	0	0	6.54	0.729	3.47	4.23
SENEGAL	0	0	186	0.389	0	0	0	0	3.42	0.827	13.6	19.5
SEYCHLLS	0	0	1	0.002	0	0	0	0	0.002	0.033	3.33	4.54
SIER LNE	0	0	105	0.219	0	0	0	0	9.05	3.24	5.29	6.09
SINGAPOR	0	0	4	0.008	0	0	0	0	0.008	0.004	3.39	0.00
SOMALIA	0	0	31	0.065	280	1.66	0	0	3.47	1.09	32.3	43.6
S.AFRICA	64	2.55	877	1.83	18,000	107	0	0	266	10.1	27.7	53.3
SPAIN	6,728	268	5,204	10.9	300	1.78	6,020	17.8	443	12.5	17.8	45.8
SR.LANKA	0	0	914	1.91	318	1.89	0	0	24.3	1.74	4.73	6.07
SUDAN	NA	NA	1,441	3.01	1,409	8.37	0	0	20.5	1.15	19.6	22.5
SURINAM	0	0	3	0.006	205	1.22	0	0	4.29	10.2	12.2	24.0
SWAZLAND	0	0	11	0.023	1,591	9.45	0	0	10.8	22.0	44.9	48.8
SWEDEN	1,878	74.7	951	1.99	0	0	2,111	6.25	130	15.9	21.5	113
SWITZRLD	180	7.16	1,000	2.09	0	0	480	1.42	22.0	3.44	10.5	23.3
SYRIA	597	23.8	120	0.251	0	0	301	0.891	74.4	10.1	11.7	20.9

BIOMASS ENERGY (Crop Energy in 10^{15} Joules, Per Capita Energy in 10^9 Joules)

	Potential Crop Residue Energy (Pr'n in 10^3 metric tons)									Per Capita Energy		
	Barley		Roots & Tubers		Sugar Cane		Sugar Beet		TOTAL Energy	Crop Energy	Manure & Crop Energy	Manure & Crop Energy Rural Pop.
	Pr'n	Energy	Pr'n	Energy	Pr'n	Energy	Pr'n	Energy				
TANZANIA	1	0.040	4,059	8.48	1,260	74.8	0	0	96.1	6.34	20.7	22.2
THAILAND	0	0	6,702	14.0	17	0.101	0	0	308	7.28	12.1	13.9
TOGO	0	0	1,571	3.28	0	0	0	0	4.76	2.14	6.10	7.18
TONGA	0	0	105	0.219	0	0	0	0	0.219	2.19	5.98	7.48
TRIN. TOB	0	0	21	0.044	1,422	8.45	0	0	8.88	8.15	9.90	11.3
TUNISIA	210	8.36	128	0.268	0	0	69	0.204	41.6	7.21	12.5	20.8
TURKEY	4,300	171	2,327	4.86	0	0	6,500	19.2	679	17.3	28.0	45.9
UGANDA	0	0	1,674	3.50	438	2.60	0	0	15.6	1.35	7.97	8.67
USSR	35,768	1,420	88,480	185	0	0	66,000	195	4,006	15.7	27.6	69.1
U.A.R. EMR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
UNTD. KGD	8,436	336	4,536	9.48	0	0	5,309	15.7	502	8.97	16.6	69.0
US	8,340	332	14,945	31.2	25,854	154	26,553	78.6	4,027	18.9	32.0	123
U.S.V. IS	0	0	0	0	NA	NA	0	0	0	0	1.87	2.47
UPPRVLT	0	0	118	0.246	0	0	0	0	1.57	0.260	6.78	7.29
URUGUAY	51	2.03	200	0.418	325	1.93	571	1.69	25.5	8.33	84.2	420
VTCN. CTY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VENZUELA	0	0	631	1.32	5,321	31.6	0	0	46.4	3.87	24.6	98.2
VIETNAM	0	0	2,415	5.05	1,574	9.35	0	0	227	5.17	8.43	9.92
WN. SAMOA	0	0	13	0.027	2	0.012	0	0	39	244	248	309
AR YEMEN	230	9.15	78	0.163	5	0.030	0	0	12.9	0.089	9.81	10.5
DM YEMEN	2	0.080	1	0.002	0	0	0	0	0.595	0.352	3.54	4.78
YUGOSLAV	703	28.0	3,191	6.67	0	0	4,220	12.5	283	13.3	21.4	35.1
ZAIRE	1	0.040	9,544	19.9	615	3.65	0	0	31.9	1.28	2.47	3.29
ZAMBIA	0	0	165	0.345	680	4.04	0	0	9.58	1.96	2.33	3.53
TOTALS												
TOTAL	155,000	6,170	562,000	1,170	633,000	3,760	250,000	739	32,300	8.24	16.3	28.6
DEVELOPED	116,000	4,600	229,000	476	68,400	407	224,000	671	16,200	14.5	25.3	74.8
DEVELOPING	39,000	1,570	333,000	694	564,600	3,353	26,000	68	16,100	5.74	12.7	19.2
DD - US	107,700	4,270	214,000	445	42,500	253	19,700	592	12,200	12.7	22.3	66.6
DG - PRC	18,000	734	178,000	369	522,000	3,103	19,300	48	11,000	5.55	13.7	45.5
DG - OPEC												

	AVERAGE TEMPERATURE (°C)				POPULATION (10 ³)				70-75 Growth Rate	
	# of Sta- tions	Jan.	Apr.	July	Oct.	TOTAL	Urban	Rural		% Urban
AFGHNSTN	2	-4	8	18	6	19,280	2,892	16,388	15	2.4
ALBANIA	1	6	13	23	14	2,480	843	1,637	34	3.0
ALGERIA	3 ¹	7	12	22	16	16,780	8,390	8,390	50	3.2
ANDORRA	1	-2	4	13	6	30	NA	NA	NA	7.3
ANGOLA	4	18	18	12	17	6,000 ¹	900	5,100	15	NA
ARGNTINA	7 ²	18	12	5	11	25,380	20,558	4,822	81	1.3
AUSTRAL.	9 ³	19	15	9	14	13,510	11,619	1,891	86	1.5
AUSTRIA	2	-5	4	14	6	7,520	3,910	3,610	52	0.3
BAHAMAS	1	18	21	24	23	190	110	80	58	3.6
BAHRAIN	NA	NA	NA	NA	NA	260	203	57	78	3.5
BANGLDSH	1	13	23	26	24	76,820	6,914	69,906	9	2.4
BARBADOS	1	21	22	23	23	240	10	230	4	0.6
BELGIUM	NA	NA	NA	NA	NA	9,790	8,517	1,273	87	0.3
BENIN	1	23	26	23	24	3,110	435	2,675	14	2.7
BHUTAN	NA	NA	NA	NA	NA	1,170	35	1,135	3	2.1
BOLIVIA	3 ⁴	11	9	5	9	5,630	1,971	3,659	35	2.7
BOTSWANA	3	18	13	4	16	690	90	600	13	3.6
BRAZIL	22 ¹¹	21	19	16	19	107,140	62,141	44,999	58	3.0
BRUNEI	NA	NA	NA	NA	NA	150	96	54	64	2.9
BULGARIA	2	-3	6	16	8	8,720	5,145	3,575	59	0.5
BURMA	2	16	25	24	23	31,240	5,936	25,304	19	2.5
BURUNDI	NA	NA	NA	NA	NA	3,760	113	3,647	3	2.3
CAMBODIA	1	22	24	24	24	8,110	1,541	6,569	19	2.8
CAMEROON	2	16	18	18	17	6,400	1,280	5,120	20	1.9
CANADA	21 ⁵	-15	-2	11	2	22,830	17,351	5,479	76	1.4
CAPE VRD	1	20	21	24	24	290	17	273	6	2.3
C.AF.EMP	2	20	22	21	21	2,610	705	1,905	27	2.2
CHAD	3	13	21	23	21	4,030	484	3,546	12	2.1
CHILE	8 ⁶	12	10	7	9	10,250	7,790	2,460	76	1.8
PR CHINA	11 ⁷	-5	9	22	11	822,763 ²	189,235	633,528	23	1.4
REPCHINA		12	19	25	21	16,040 ²	10,105	5,935	63	
COLOMBIA	5	18	18	18	18	24,720	15,821	8,899	64	3.2
COMOROS	NA	NA	NA	NA	NA	310	16	294	5	2.5
CONGO	3	21	22	19	21	1,350	500	850	37	2.5
COSTA RC	1	14	17	17	16	1,970	808	1,162	41	2.6

	# of Sta- tions	AVERAGE TEMPERATURE (°C)				POPULATION (10 ³)				70-75 Growth Rate
		Jan.	Apr.	July	Oct.	TOTAL	Urban	Rural	% Urban	
CUBA	1	18	21	24	23	9,270 ¹	5,562	3,708	60	2.1
CYPRUS	1	6	10	21	14	640	275	365	43	0.8
CZCHSLVK	2	-4	4	14	6	14,800	8,288	6,512	56	0.6
DENMARK	2	-2	3	13	6	5,060	4,048	1,012	80	0.5
DOMIN.RP	1	19	21	22	22	4,700	1,880	2,820	40	3.0
ECUADOR	3 ⁸	13	13	12	12	6,730	2,625	4,105	39	3.4
EGYPT	3	9	16	23	20	37,230	16,009	21,221	43	2.2
EL SALVD	1	16	18	18	18	4,010	1,564	2,446	39	3.8
EQ. GUIN	NA	NA	NA	NA	NA	310	28	282	9	1.7
ETHIOPIA	4	11	16	16	20	27,950	3,075	24,875	11	2.6
FIJI	1	23	23	20	21	580	191	389	33	2.1
FINLAND	3	-11	-3	12	1	4,710	2,732	1,978	58	0.4
FRANCE	9 ⁹	2	6	14	9	52,910	37,037	15,873	70	0.8
GABON	2	23	23	20	22	530	90	440	17	1.0
GAMBIA	1	15	18	23	22	520	73	447	14	2.5
GRMN.DR	7	-3	3	13	6	16,850	12,638	4,212	75	-0.2
GRMNY.FR						61,830	54,410	7,420	88	0.4
GHANA	2	21	23	22	22	9,870	2,862	7,008	29	2.7
GREECE	4	7	12	22	17	9,050	4,797	4,253	53	0.7
GRENADA	NA	NA	NA	NA	NA	100	8	92	8	0.4
GUATMALA	1	12	14	16	16	6,000 ¹	2,040	3,960	34	2.9
GUINEA	2	19	23	22	22	4,420	707	3,713	16	2.4
GNA.BISS	NA	NA	NA	NA	NA	530	106	424	20	1.5
GUYANA	2	23	24	23	24	790	316	474	40	2.2
HAITI	1	20	22	23	22	4,580	916	3,664	20	1.6
HONDURAS	1	19	22	23	22	3,040	851	2,189	28	3.9
HONG KNG	NA	NA	NA	NA	NA	4,370	3,933	437	90	2.0
HUNGARY	2	-4	6	15	6	10,540	5,165	5,375	49	0.4
ICELAND	2	-3	0	9	2	220	189	31	86	0.3
INDIA	12 ¹⁰	13	22	24	21	598,100	119,620	478,480	20	2.1
INDONSIA	7	23	23	23	23	130,600	23,508	107,092	18	NA
IRAN	5	-3	9	20	10	33,020	14,199	18,821	43	2.9
IRAQ	3	4	13	24	15	11,120	6,783	4,337	61	3.3
IRELAND	3	2	4	11	7	3,130	1,628	1,502	52	1.2
ISRAEL	3	8	13	21	18	3,370	2,898	472	86	3.1

	# of Stations	AVERAGE TEMPERATURE (°C)				POPULATION (10 ³)				
		Jan.	Apr.	July	Oct.	TOTAL	Urban	Rural	% Urban	70-75 Growth Rate
ITALY	6 ¹²	4	10	20	13	55,810	29,579	26,231	53	0.8
IVORY CT	2	22	23	22	22	4,890	1,369	3,521	28	2.5
JAMAICA	1	19	21	23	23	2,030	751	1,279	37	1.7
JAPAN	4 ¹³	-1	7	21	12	110,950	79,884	31,066	72	1.2
JORDAN	1	4	9	18	14	2,690	1,157	1,533	43	3.3
KENYA	2	18	19	16	18	13,400	1,340	12,060	10	3.6
KORE DPR	1	-13	3	21	6	15,850	6,023	9,827	38	2.7
KOREA RP	2	-6	7	22	10	33,950	13,920	20,030	41	1.6
KUWAIT	1	9	20	30	23	1,000	220	780	22	6.0
LAOS	1	14	23	24	22	3,300	495	2,805	15	2.2
LEBANON	1	11	14	23	21	2,870	1,751	1,119	61	3.0
LESOTHO	NA	NA	NA	NA	NA	1,040	52	988	5	2.2
LIBERIA	1	22	22	22	22	1,710	479	1,231	28	2.3
LIBYA	2 ¹⁴	9	14	22	19	2,440	708	1,732	29	4.2
LICHTN	NA	NA	NA	NA	NA	20	6	14	28	2.6
LUXMBORG	1	-2	4	13	6	360	245	115	68	1.0
MADAGSCR	3 ¹⁵	21	19	14	18	8,020 ¹	1,123	6,897	14	2.3
MALAWI	2	20	19	13	18	5,040	202	4,838	4	2.6
MALAYSIA	3	22	23	22	22	12,090	3,264	8,826	27	3.1
MALDIVES	1	22	27	24	24	120	13	107	11	2.0
MALI	2 ¹⁶	16	25	24	24	5,700	684	5,016	12	2.5
MALTA	1	11	13	22	19	330	310	20	94	-1.7
MAURTNIA	3	14	21	26	23	1,320	132	1,188	10	2.6
MAURTIUS	1	23	21	17	18	900	396	504	44	1.5
MEXICO	14 ¹⁷	13	17	22	19	60,150	36,692	23,458	61	3.5
MONACO	1	8	12	21	16	30	30	0	100	1.7
MONGOLIA	1	-33	-8	10	-8	1,440	662	778	46	3.0
MOROCCO	4	7	11	18	14	17,310	6,405	10,905	37	3.0
MOZMBQUE	3	21	19	14	20	9,240	924	8,316	10	2.3
NAURU	NA	NA	NA	NA	NA	10 ³	NA	NA	NA	NA
NEPAL	1	2	12	21	13	12,570	503	12,067	4	2.3
NETHLNDS	1	1	6	15	9	13,650	10,511	3,139	77	0.9
NETH.ANT						240	77	163	32	1.8
NEW CALD						130	57	73	44	3.4
NEW ZLND	4	13	9	4	8	3,090	2,503	587	81	1.9

	# of Stations	AVERAGE TEMPERATURE (°C)				POPULATION (10 ³)				70-75 Growth Rate
		Jan.	Apr.	July	Oct.	TOTAL	Urban	Rural	% Urban	
NICARAGUA	NA	NA	NA	NA	NA	2,160	1,058	1,102	49	3.3
NIGER	3	11	21	24	20	4,600	368	4,232	8	2.7
NIGERIA	4	18	23	22	21	62,930	10,069	52,861	16	2.7
NORWAY	6	-5	-1	11	2	4,010	1,805	2,205	45	0.7
OMAN	1	19	26	31	27	770	NA	NA	NA	3.1
PAKISTAN	3	7	19	27	18	70,260	18,268	51,992	26	3.0
PANAMA	2 ¹⁸	23	24	24	23	1,670	818	852	49	3.1
PAP.N.GN	3	24	23	23	23	2,760	304	2,456	11	2.0
PARAGUAY	2	23	19	14	19	2,650	1,007	1,643	38	2.1
PERU	5 ¹⁹	13	11	8	11	15,870	9,522	6,348	60	3.1
PHILIPP	2	22	23	23	23	42,510	13,603	28,907	32	2.9
POLAND	4	-5	-2	14	6	34,020	18,711	15,309	55	0.9
PORTUGAL	3	5	9	16	11	8,760	2,278	6,482	26	0.2
PUERTO R	NA	NA	NA	NA	NA	3,090	1,792	1,298	58	2.6
QATAR	NA	NA	NA	NA	NA	90	NA	NA	NA	3.1
RHODESIA	2	16	13	7	15	6,420	1,220	5,200	19	3.9
ROMANIA	3	-6	4	16	7	21,180	8,896	13,284	42	0.9
RWANDA	NA	NA	NA	NA	NA	4,200	126	4,074	3	2.7
SAN MRNO	NA	NA	NA	NA	NA	20	18	2	92	1.0
S.TM.PRN	1	23	23	21	22	80	18	62	23	1.7
SAUD.ARB	3	13	20	27	21	8,970	1,615	7,355	18	3.0
SENEGAL	2	17	19	24	24	4,140	1,242	2,898	30	2.4
SEYCHLLS	1	24	25	24	24	60	16	44	26	2.2
SIER LNE	1	23	24	23	22	2,790 ¹	363	2,427	13	NA
SINGAPOR	1	23	24	24	23	2,250	2,250	0	100	1.6
SOMALIA	2	22	26	27	24	3,170	824	2,346	26	2.6
S.AFRICA	6 ²⁰	16	12	6	12	26,360	12,653	13,707	48	2.5
SPAIN	6	4	9	18	12	35,470	21,637	13,833	61	1.0
SR.LANKA	1	22	24	25	24	13,990	3,078	10,912	22	2.2
SUDAN	5	14	20	24	21	17,760	2,309	15,451	13	2.5
SURINAM	1	22	23	23	23	420	206	214	49	3.3
SWAZLND	NA	NA	NA	NA	NA	490	39	451	8	3.2
SWEDEN	6 ²¹	-8	-1	12	2	8,200	6,642	1,558	81	0.4
SWITZRLD	3	-2	4	13	6	6,400	3,520	2,880	55	0.7
SYRIA	3	2	10	21	13	7,350	3,234	4,116	44	3.3

	# of Sta- tions	AVERAGE TEMPERATURE (°C)				POPULATION (10 ³)				70-75 Growth Rate
		Jan.	Apr.	July	Oct.	TOTAL	Urban	Rural	% Urban	
TANZANIA	3	20	19	16	18	15,150	1,061	14,089	7	2.7
THAILAND	1	19	26	24	24	42,280	5,496	36,784	13	3.1
TOGO	1	22	23	22	22	2,220	333	1,887	15	2.5
TONGA	NA	NA	NA	NA	NA	100	20	80	20	3.0
TRIN.TOB	1	21	21	22	22	1,090 ¹	131	959	12	NA
TUNISIA	2	6	11	21	16	5,770	2,308	3,462	40	2.4
TURKEY	5 ²²	-1	6	17	10	39,180	15,280	23,900	39	2.4
UGANDA	2	17	18	17	17	11,550	924	10,626	8	3.3
USSR	NA ²³	NA	NA	NA	NA	254,380	152,628	101,752	60	0.9
U.AR.EMR	1	12	18	28	22	220	143	77	65	3.2
UNTD.KGD	10	2	4	12	7	55,960	42,530	13,430	76	0.2
US	NA	NA	NA	NA	NA	213,630	158,086	55,544	74	0.8
U.S.V.IS	NA	NA	NA	NA	NA	90	22	68	24	5.6
UPPRVLT	2	15	24	22	22	6,030	422	5,608	7	2.3
URUGUAY	2	18	12	7	11	3,060	2,448	612	80	1.2
VTCN.CTY	NA	NA	NA	NA	NA	1 ⁴	1	0	100	NA
VENZUELA	5	18	19	19	19	11,990	8,993	2,997	75	2.9
VIETNAM	2	18	23	25	23	43,900	6,585	37,315	15	2.4
WN.SAMOA	NA	NA	NA	NA	NA	160	32	128	20	2.2
AR YEMEN	NA	NA	NA	NA	NA	6,670	467	6,203	7	2.9
DM YEMEN	NA	NA	NA	NA	NA	1,690	439	1,251	26	2.7
YUGOSLAV	3	-3	8	17	9	21,350	8,327	13,023	39	0.9
ZAIRE	4	20	21	17	20	24,900	6,225	18,675	25	2.8
ZAMBIA	3	17	16	9	17	4,900	1,666	3,234	34	3.2
TOTALS										
TOTAL						3,938,874	1,494,075	2,241,899	40	
DEVELOPED						1,118,800	741,153	377,647	66	
DEVELOPING						2,820,074	752,922	1,864,252	29	
DD - US						905,170	583,067	322,103	64	
DG - PRC						1,997,324	563,700	1,230,724	31	

POPULATION

URBAN AGGLOMERATIONS OF 100,000 OR MORE IN YEAR 2000*

	# of Cities	Pop. 10 ³	% of Total Pop.		# of Cities	Pop. 10 ³	% of Total Pop.
AFGHNSTN	5	3,723	10	CUBA	5	6,329	41
ALBANIA	1	534	13	CYPRUS	1	236	28
ALGERIA	8	6,730	18	CZCHSLVK	6	3,154	19
ANDORRA	NA	NA	NA	DENMARK	4	2,105	39
ANGOLA	1	2,219	18	DOMIN.RP	2	3,885	72
ARGNTINA	16	21,707	66	ECUADOR	2	4,950	34
AUSTRAL.	9	14,302	71	EGYPT	15	30,436	47
AUSTRIA	5	3,592	44	EL SALVD	1	1,148	13
BAHAMAS	1	253	77	EQ.GUIN	1	337	68
BAHRAIN	NA	NA	NA	ETHIOPIA	2	5,410	10
BANGLDSH	3	10,204	7.1	FIJI	1	291	34
BARBADOS	NA	NA	NA	FINLAND	3	1,270	27
BELGIUM	5	3,177	29	FRANCE	50	31,931	51
BENIN	NA	NA	NA	GABON	NA	NA	NA
BHUTAN	NA	NA	NA	GAMBIA	NA	NA	NA
BOLIVIA	3	2,299	22	GRMN.DR	11	4,597	26
BOTSWANA	NA	NA	NA	GRMNY.FR	55	39,882	60
BRAZIL	45	95,495	45	GHANA	3	5,540	26
BRUNEI	NA	NA	NA	GREECE	3	4,971	52
BULGARIA	6	3,091	31	GRENADA	NA	NA	NA
BURMA	5	10,377	19	GUATMALA	1	2,422	20
BURUNDI	NA	NA	NA	GUINEA	1	1,944	24
CAMBODIA	1	1,372	8.7	GNA.BISS	NA	NA	NA
CAMEROON	2	1,564	14	GUYANA	1	542	43
CANADA	21	20,297	64	HAITI	1	1,620	23
CAPE VRD	NA	NA	NA	HONDURAS	2	1,793	26
C.AF.EMP	1	664	20	HONG KNG	1	5,515	98
CHAD	1	838	12	HUNGARY	6	3,732	34
CHILE	8	7,231	47	ICELAND	NA	NA	NA
PR CHINA ¹	1			INDIA	138	187,821	18
REPCHINA	105	194,806	17	INDONSIA	27	44,865	19
COLOMBIA	21	29,899	58	IRAN	15	26,421	40
COMOROS	NA	NA	NA	IRAQ	8	15,896	65
CONGO	2	1,360	50	IRELAND	2	1,665	42
COSTA RC	1	1,143	31	ISRAEL	4	2,939	53

¹Includes only agglomerations of 200,000 or more.

	# of Cities	Pop. 10 ³	% of Total Pop.
ITALY	42	34,482	57
IVORY CT	2	3,037	32
JAMAICA	1	1,037	38
JAPAN	78	69,250	52
JORDAN	2	2,765	47
KENYA	2	4,667	15
KORE DPR	8	7,043	26
KOREA RP	19	33,739	64
KUWAIT	1	3,047	96
LAOS	1	448	7.8
LEBANON	2	4,146	68
LESOTHO	NA	NA	NA
LIBERIA	NA	NA	NA
LIBYA	2	1,977	42
LICHTSTN	NA	NA	NA
LUXMBORG	NA	NA	NA
MADAGSCR	1	1,249	7.0
MALAWI	1	664	6.8
MALAYSIA	5	3,992	18
MALDIVES	NA	NA	NA
MALI	1	791	7.0
MALTA	NA	NA	NA
MAURTNIA	NA	NA	NA
MAURTIUS	1	296	24
MEXICO	31	62,960	48
MONACO	NA	NA	NA
MONGOLIA	1	778	29
MOROCCO	10	15,704	44
MOZMBQUE	1	1,899	11
NAURU	NA	NA	NA
NEPAL	1	418	1.8
NETHLNDS	17	8,228	51
NETH.ANT	1	263	68
NEW CALD	NA	NA	NA
NEW ZLND	5	2,121	45

	# of Cities	Pop. 10 ³	% of Total Pop.
NICARAGUA	1	1,682	33
NIGER	1	1,193	12
NIGERIA	30	36,837	27
NORWAY	3	1,346	30
OMAN	NA	NA	NA
PAKISTAN	17	45,492	31
PANAMA	1	1,272	39
PAP.N.GN	NA	NA	NA
PARAGUAY	1	1,637	31
PERU	9	16,592	54
PHILIPP	17	21,801	24
POLAND	17	16,209	41
PORTUGAL	2	3,836	39
PUERTO R	2	1,668	45
QATAR	NA	NA	NA
RHODESIA	2	3,157	21
ROMANIA	17	8,399	33
RWANDA	NA	NA	NA
SAN MRNO	NA	NA	NA
S.TM.MRN	NA	NA	NA
SAUD.ARB	4	4,198	23
SENEGAL	2	2,809	34
SEYCHLLS	NA	NA	NA
SIER LNE	1	765	13
SINGAPOR	1	3,029	97
SOMALIA	1	1,128	17
S.AFRICA	13	20,929	42
SPAIN	38	21,393	48
SR.LANKA	3	1,910	9.0
SUDAN	2	3,523	9.0
SURINAM	1	390	43
SWAZLND	NA	NA	NA
SWEDEN	10	3,963	42
SWITZRLD	7	3,214	44
SYRIA	5	6,700	42

	# of Cities	Pop. 10 ³	% of Total Pop.
TANZANIA	1	2,142	6.3
THAILAND	1	11,030	13
TOGO	1	1,025	22
TONGA	NA	NA	NA
TRIN.TOB	NA	NA	NA
TUNISIA	2	3,033	28
TURKEY	21	27,945	38
UGANDA	1	2,777	11
USSR	221	137,069	43
U. AR. EMR	NA	NA	NA
UNTD. KGD	58	47,519	76
US	170	177,778	67
U. S. V. IS	NA	NA	NA
UPPRVLT	NA	NA	NA
URUGUAY	1	2,223	20
VTCN, CTY	NA	NA	NA
VENZUELA	11	12,178	52
VIETNAM	12	19,539	26
WN. SAMOA	NA	NA	NA
AR YEMEN	1	836	6.1
DM YEMEN	1	934	27
YUGOSLAV	9	5,443	21
ZAIRE	10	21,170	43
ZAMBIA	6	6,094	53
TOTALS			
TOTAL	1,592	1,859,332	30
DVELOPED	859	701,884	52
DVELOPNG	733	1,157,448	24
DD - US	689	524,106	48
DG - PRC	628	962,642	27

SOURCE: Population Division, Department of Economic and Social Affairs of the United Nations Secretariat, "Trends and Prospects in the Populations of Urban Agglomerations, 1950-2000, as Assessed in 1973-1975," United Nations, New York, November 21, 1975.

* An agglomeration is defined as "the population contained within the contours of contiguous territory inhabited at urban levels of residential density." The percentage totals for urban areas divide totals for agglomerations of 100,000 or more by country totals for the United Nation's medium estimates for the year 2000.

	POPULATION (10 ³)			IND. PR'N (10 ³ Metric Tons)				1975 ECONOMY (US\$)			
	Est. Yr. 2000 High	Est. Yr. 2000 Medium	Est. Yr. 2000 Low	Alum Primry	Alum Sec'd	Crude Steel	Plas- tics ^a	GNP 10 ⁶	Per Cap GNP	% Growth 60-75	% Growth 70-75
AFGHNSTN	38,260	36,654	34,773	--	--	--	--	2,060	150	-0.2	2.1
ALBANIA	4,527	4,263	4,037	--	--	--	--	1,220	510	4.5	3.8
ALGERIA	38,354	36,663	34,222	--	--	181 ⁶	--	13,680	870	1.8	4.3
ANDORRA	76	37	30	--	--	--	--	NA	NA	NA	NA
ANGOLA	12,942	12,462	11,699	--	--	--	--	2,030	370	3.6	3.2
ARGNTINA	33,658	32,861	31,853	--	--	1465	130	39,330	1,550	3.1	2.9
AUSTRAL.	21,172	20,245	18,355	223	26.4 ²	8063	399	77,010	5,700	3.1	2.4
AUSTRIA	8,194	8,118	8,016	88.8	118	4066	291	36,650	4,870	4.3	4.0
BAHAMAS	394	330	308	--	--	--	--	630	3,110	1.1	-5.0
BAHRAIN	481	536	501	116	--	--	--	580	2,210	20.0	20.3
BANGLDSH	153,669	144,347	133,033	--	--	76 ^{2,3}	--	7,280	90	-0.6	-2.3
BARBADOS	297	285	278	--	--	--	--	350	1,410	5.3	1.3
BELGIUM	11,181	10,781	10,331	--	2.7 ³	11,584	605	61,470	6,270	4.4	3.9
BENIN	6,560	5,921	4,855	--	--	--	--	390	130	-0.3	-1.1
BHUTAN	2,262	2,145	2,040	--	--	--	--	80	70	-0.3	-0.1
BOLIVIA	10,687	10,267	9,709	--	--	--	--	2,040	360	2.5	3.4
BOTSWANA	1,497	1,429	1,316	--	--	--	--	230	350	6.0	8.4
BRAZIL	232,385	212,507	190,528	118	--	8306 ⁴	228 ¹	110,130	1,030	4.3	6.2
BRUNEI	233	216	191	--	--	--	--	950	6,100	9.9	17.9
BULGARIA	10,378	10,036	9,701	--	3.9 ¹	2265	113	18,420	2,110	4.6	3.9
BURMA	58,698	54,902	51,746	--	--	--	--	3,320	110	0.7	0.9
BURUNDI	7,728	7,280	6,328	--	--	--	--	410	110	2.7	-1.1
CAMBODIA	16,889	15,819	14,683	--	--	--	--	570	70	NA	NA
CAMEROON	12,202	11,583	10,965	52	--	--	--	2,050	280	3.0	0.5
CANADA	33,894	31,613	28,584	878	--	13,025	429 ¹	158,100	6,930	3.6	3.3
CAPE VRD	474	432	391	--	--	--	--	80	260	1.7	-4.0
C.AF.EMP	3,539	3,360	3,173	--	--	--	--	390	220	0.4	-0.7
CHAD	7,100	6,912	6,735	--	--	--	--	460	120	-1.1	-2.0
CHILE	16,346	15,355	14,843	--	--	457 ²	0.5 ¹	10,130	990	1.3	-2.7
PR CHINA				160	--	29,000 ²	--	315,250	380	5.2	5.3
REPCHINA	1,208,519	1,147,987	1,072,819	520	--	28	301	14,890	930	6.3	5.7
COLOMBIA	55,745	51,464	47,198	--	--	264	0.5 ¹	13,630	580	2.7	3.9
COMORAS	586	475	437	--	--	--	--	70	200	2.1	-1.0
CONGO	2,816	2,720	2,566	--	--	--	--	670	510	2.9	4.3
COSTA RC	4,117	3,695	3,581	--	--	--	--	1,890	960	3.4	3.7

	POPULATION (10 ³)			IND. PR'N (10 ³ Metric Tons)				1975 ECONOMY (US\$)			
	Est. Yr. 2000	Est. Yr. 2000	Est. Yr. 2000	Alum Prmry	Alum Sec'd	Crude Steel	Plas- tics ^a	GNP 10 ⁶	Per Cap GNP	% Growth 60-75	% Growth 70-75
CUBA	16,001	15,267	14,543	--	--	298 ³	--	7,460	800	-0.6	1.0
CYPRUS	872	846	826	--	--	--	--	780	1,240	4.7	-2.4
CZCHSLVK	18,231	16,796	16,099	43.3	--	14,323	251	53,450	3,610	2.7	3.0
DENMARK	5,581	5,361	5,237	--	8.5 ³	559	45.9 ¹	34,450	6,810	3.5	1.7
DOMIN. RP	12,756	11,762	10,301	--	--	--	--	3,390	720	3.4	6.6
ECUADOR	16,265	14,773	13,346	--	--	--	--	4,180	590	3.4	6.1
EGYPT	67,367	64,588	59,875	--	--	348	--	9,540	260	1.5	1.3
EL SALVD	10,115	8,803	7,945	--	--	--	--	1,830	460	1.8	1.9
EQ. GUIN	523	497	447	--	--	--	--	100	320	-0.9 ¹	-6.0
ETHIOPIA	56,613	53,665	48,620	--	--	--	--	2,730	100	2.0	0.4
FIJI	909	847	816	--	--	--	--	620	1,090	3.4	5.5
FINLAND	5,131	4,747	4,673	--	6.4 ⁵	1618	29.7	25,520	5,420	4.5	4.1
FRANCE	64,359	62,131	60,867	383	107 ³	21,528	1560	314,080	5,950	4.2	3.4
GABON	680	660	620	--	--	--	--	1,360	2,540	5.0	7.8
GAMBIA	893	852	739	--	--	--	--	90	180	3.9	7.3
GRMN. DR	18,177	17,932	17,765	60	--	6480	518	65,830	3,910	3.2	3.7
GRMNY. FR	67,673	66,242	61,522	678	35.2	40,414	2708	412,480	6,670	3.5	1.9
GHANA	22,524	21,164	18,094	143	--	--	--	5,860	590	-0.2	-0.3
GREECE	9,660	9,621	9,549	136	--	612	27.6 ¹	21,320	2,340	6.6	4.2
GRENADA	117	106	102	--	--	--	--	40	390	1.6	-7.3
GUATMALA	14,122	12,374	11,191	--	--	--	--	3,590	570	2.4	2.8
GUINEA	8,964	8,455	7,413	--	--	--	--	750	130	0.2	1.3
GNA. BISS	894	842	736	--	--	--	--	70	120	NA	7.1 ¹
GUYANA	1,317	1,256	1,202	--	--	--	--	400	510	1.5	-0.1
HAITI	8,003	7,045	6,162	--	--	--	--	850	190	0.0	1.5
HONDURAS	7,772	6,881	6,271	--	--	--	--	1,050	360	1.5	0.8
HONG KNG	5,731	5,625	5,513	--	--	--	--	7,700	1,760	6.5	4.2
HUNGARY	11,227	11,069	10,737	70.2	--	3673	107	22,690	2,150	3.1	3.2
ICELAND	284	278	275	59	--	--	--	1,320	5,920	3.3	3.2
INDIA	1,124,294	1,059,429	969,289	167	--	7884	56.7	85,960	140	1.3	0.5
INDONSIA	262,092	237,507	224,565	--	--	--	--	29,120	220	2.4	3.5
IRAN	70,050	66,593	63,530	50	--	--	18	55,510	1,660	8.1	13.3
IRAQ	25,626	24,445	22,920	--	--	--	--	13,880	1,250	3.3	6.7
IRELAND	4,143	4,002	3,813	--	--	82	--	7,470	2,390	3.2	1.3
ISRAEL	5,967	5,566	4,974	--	--	130 ²	26.8 ¹	13,160 ¹	3,790	5.2	4.0

	POPULATION (10 ³)			IND. PR'N (10 ³ Metric Tons)				1975 ECONOMY (US\$)			
	Est. Yr. 2000	Est. Yr. 2000	Est. Yr. 2000	Alum Pr'mry	Alum Sec'd	Crude Steel	Plas- tics ^a	GNP 10 ⁶	Per Cap GNP	% Growth 60-75	% Growth 70-75
ITALY	62,114	60,876	59,244	190	151	21,568	1452	156,590	2,810	3.9	1.7
IVORY CT	10,195	9,617	8,439	--	--	--	--	3,630	540	3.5	1.9
JAMAICA	3,049	2,726	2,552	--	--	--	--	2,270	1,110	3.6	4.0
JAPAN	134,214	132,929	131,159	1016	423 ³	102,313	4691	496,260	4,450	7.7	4.0
JORDAN	6,167	5,889	5,561	--	--	--	--	1,240	460	1.3	1.9
KENYA	32,540	31,020	28,125	--	--	--	--	2,970	220	3.2	2.4
KORE DPR	29,132	27,457	25,091	--	--	2800	--	7,100	450	3.8	0.9
KOREA RP	55,613	52,991	49,479	20	--	2010 ²	69	19,850	560	7.1	8.2
KUWAIT	3,573	3,183	2,819	--	--	--	--	15,270	15,190	-2.9	-3.3 ²
LAOS	6,072	5,725	5,347	--	--	--	--	300	90 ¹	NA	-15.9 ²
LEBANON	6,320	6,118	5,774	--	--	--	--	3,290	1,070 ¹	NA	NA
LESOTHO	2,137	2,027	1,777	--	--	--	--	190	160	4.6	7.3
LIBERIA	3,398	3,219	2,852	--	--	--	--	640	410	1.8	0.9
LIBYA	4,978	4,737	4,432	--	--	--	--	13,510	5,530	10.5	3.9
LICHTSTN	30	28	26	--	--	--	--	NA	NA	NA	NA
LUXMBORG	359	353	350	--	--	4625	--	2,150	6,020	2.6	1.5
MADAGSCR	18,427	17,782	16,706	--	--	--	--	1,720	200	0.1	-2.2
MALAWI	10,069	9,540	8,322	--	--	--	--	660	130	4.1	7.0
MALAYSIA	24,418	22,054	20,135	--	--	--	--	9,340	760	4.0	5.3
MALDIVES	205	205	205	--	--	--	--	10	110	0.7	0.0
MALI	11,521	11,257	10,108	--	--	--	--	530	90	0.9	-0.1
MALTA	348	336	326	--	--	--	--	460	1,390	6.8	9.4
MAURTNIA	2,374	2,281	2,063	--	--	--	--	420	320	3.8	2.6
MAURTIUS	1,383	1,257	1,166	--	--	--	--	540	610	0.8	5.8
MEXICO	140,958	132,244	123,122	40	--	5196	182 ¹	63,200	1,050	3.2	2.3
MONACO	30	28	27	--	--	--	--	NA	NA	NA	NA
MONGOLIA	2,880	2,701	2,486	--	--	--	--	1,250	860	1.0	2.3
MOROCCO	38,425	35,904	33,898	--	--	1 ³	4 ¹	7,860	470	1.9	3.0
MOZMBQUE	18,617	17,649	16,708	--	--	--	--	1,640	180	2.0	-2.6
NAURU	10	10	10	--	--	--	--	NA	NA	NA	NA
NEPAL	24,457	23,196	22,051	--	--	--	--	1,340	110	0.3	0.7
NETHLND	16,518	16,010	15,393	261	--	4822	52.5	78,550	5,750	3.8	2.2
NETH.ANT	412	389	363	--	--	--	--	410	1,680	-0.2	0.5
NEW CALD	259	247	230	--	--	--	--	600	4,460	3.5	-6.6
NEW ZLND	4,754	4,267	3,848	110	--	--	--	13,130	4,280	2.0	1.5

	POPULATION (10 ³)			IND. PR'N (10 ³ Metric Tons)				1975 ECONOMY (US\$)			
	Est. Yr. 2000	Est. Yr. 2000	Est. Yr. 2000	Alum Prm'ry	Alum Sec'd	Crude Steel	Plas- tics ^a	GNP 10 ⁶	Per Cap GNP	% Growth 60-75	% Growth 70-75
NICARAGUA	5,661	5,154	4,680	--	--	--	11	1,580	700	2.4	2.5
NIGER	9,932	9,568	8,505	--	--	--	--	590	130	-1.3	-2.8
NIGERIA	140,026	134,924	126,722	--	--	--	--	25,600	340	3.4	5.3
NORWAY	4,716	4,483	4,300	591 ⁴	13.1 ⁵	919	155	27,110	6,760	3.6	3.3
OMAN	1,716	1,639	1,530	--	--	--	--	1,790	2,320	10.1	-1.0
PAKISTAN	156,461	146,924	136,569	--	--	--	--	11,270	160	3.3	0.8
PANAMA	3,500	3,230	2,890	--	--	--	--	2,150	1,290	4.1	2.2
PAP. N. GN	5,320	5,039	4,658	--	--	--	--	1,290	470	3.8	2.3
PARAGUAY	5,786	5,274	4,740	--	--	--	--	1,470	580	2.0	3.3
PERU	33,860	30,561	27,539	--	--	443	--	11,670	760	2.7	3.4
PHILIPP	98,691	89,707	84,454	--	--	--	10.8	15,930	380	2.5	3.7
POLAND	41,193	39,846	38,520	103	--	14,574	241	88,320	2,600	4.0	5.8
PORTUGAL	10,198	9,918	9,388	--	1.6 ³	386	51	15,060	1,570	6.9	4.5
PUERTO R	3,857	3,723	3,624	--	--	--	--	7,120	2,300	4.2	0.8
QATAR	207	197	184	--	--	--	--	2,200	10,970	4.1	-0.4
RHODESIA	15,891	15,147	13,777	--	--	350	--	3,460	550	2.4	2.8
ROMANIA	27,872	25,758	24,183	204 ⁴	--	9549	152	26,450	1,240	8.3	10.2
RWANDA	9,318	8,707	7,396	--	--	--	--	430	100	0.5	0.2
SAN MRNO	29	25	23	--	--	--	--	NA	NA	NA	NA
S. TM. MRN	99	88	79	--	--	--	--	40	460	0.7	-0.5
SAUD. ARB	19,471	18,600	17,493	--	--	--	--	33,240	4,010	6.6	4.1
SENEGAL	8,556	8,171	6,988	--	--	--	--	1,800	360	-0.7	-1.1
SEYCHLLS	116	102	87	--	--	--	--	30	580	2.6	2.6
SIER LNE	6,038	5,716	5,074	--	--	--	--	610	200	1.5 ²	-0.5
SINGAPOR	3,194	3,126	3,076	--	--	--	--	5,510	2,450	7.6	7.3
SOMALIA	6,791	6,544	6,148	--	--	--	--	340	110	-0.3	-0.2
S. AFRICA	52,964	49,951	46,227	78	--	6580 ¹	--	33,130	1,260	2.3	1.7
SPAIN	46,150	44,924	42,441	212	43.8 ⁵	11,115	568	97,140	2,750	5.7	5.1
SR. LANKA	22,757	21,339	20,571	--	--	--	--	3,540	190	2.0	1.1
SUDAN	41,769	38,977	35,808	--	--	--	--	4,140	270	0.1	3.8
SURINAM	986	904	876	35	--	--	--	500	1,370	3.5	2.3
SWAZLND	1,037	941	774	--	--	--	--	220	440	6.8	7.9
SWEDEN	9,390	9,390	9,230	77.4	23	5613	565	66,830	8,150	3.1	2.3
SWITZRLD	7,533	7,366	7,093	79	--	420	60	53,840	8,410	2.6	0.7
SYRIA	16,591	15,824	14,938	--	--	--	--	5,330	720	2.2	1.8

	POPULATION (10 ³)			IND. PR'N (10 ³ Metric Tons)				1975 ECONOMY (US\$)			
	Est. Yr. 2000	Est. Yr. 2000	Est. Yr. 2000	Alum Prim'y	Alum Sec'd	Crude Steel	Plas- tics ^a	GNP 10 ⁶	Per Cap GNP	% Growth 60-75	% Growth 70-75
TANZANIA	35,748	34,045	30,756	--	--	--	--	2,440	170	3.0	2.9
THAILAND	92,742	85,618	81,888	--	--	40	--	14,600	350	4.6	3.6
TOGO	4,937	4,640	3,968	--	--	--	--	560	250	4.4	2.0
TONGA	224	212	200	--	--	--	--	40	410	0.2	1.8
TRIN.TOB	1,295	1,280	1,258	--	--	--	--	2,170	2,000	2.5 ³	2.5
TUNISIA	11,508	10,853	10,140	--	--	1293	--	4,090	730	4.1	6.9
TURKEY	76,564	72,588	66,884	--	--	1457	--	36,030	900	4.0	4.9
UGANDA	25,576	24,160	21,278	--	--	8	--	2,680	230	1.0	-4.5
USSR	323,941	315,027	305,490	1500	--	141,328	2493	649,470	2,550	3.8	3.1
U. AR.EMR	496	474	443	--	--	--	--	8,880	13,600	13.7	1.6
UNTD.KGD	68,591	62,794	60,678	308 ⁴	176	20,198	1417	211,700	3,780	2.2	2.0
US	300,406	264,430	250,687	3519	854 ³	105,817 ⁵	9260	1,519,890	7,120	2.5	1.6
U.S.V.IS	80	76	70	--	--	--	--	480	5,050	6.6	-3.6
UPPRVLT	11,834	10,969	9,221	--	--	--	--	640	110	0.7	1.1
URUGUAY	4,021	3,861	3,799	--	--	16	--	3,600	1,300	0.5	-0.3
VTCN.CTY	NA	NA	NA	--	--	--	--	NA	NA	NA	NA
VENZUELA	35,438	23,552	22,134	58.5	--	1075	3.8	27,320	2,280	2.2	1.5
VIETNAM	80,405	75,802	71,443	--	--	--	--	NA	NA	NA	NA
WN.SAMOA	364	345	326	--	--	--	--	50	320	1.2	2.6 ³
AR YEMEN	14,395	13,753	12,826	--	--	--	--	1,210	200	NA ⁴	5.8
DM YEMEN	3,585	3,425	3,194	--	--	--	--	410	250	-6.3	-5.8
YUGOSLAV	26,766	25,653	24,822	168	--	2916	74.5	33,080	1,550	5.5	5.9
ZAIRE	52,148	49,450	46,748	--	--	--	--	3,450	140	1.6	1.5
ZAMBIA	11,974	11,566	10,826	--	--	--	--	2,090	420	2.0	0.9
TOTALS											
TOTAL	6,637,418	6,205,335	5,830,287	12,515	1994	642,997	29,359	6,086,650	1,565		
DVELOPED	1,433,339	1,358,627	1,282,302	11,036	1994	571,165	28,303	4,892,580	4,366		
DVELOPNG	5,204,079	4,846,708	4,547,985	1,479	0	71,832	1,056	1,194,070	428		
DD - US				7,517	1140	465,348	19,043	3,372,690	3,724		
DG - PRC	3,995,560	3,698,721	3,475,166			42,832		878,820	446		
DG - OPEC								950,320	385		

LAND AND AGRICULTURE (in 1000 hectares unless otherwise indicated)

	TOTAL Area	Land Area	Forest and Woodland Area		Round- wood Pr'n 10 ³ m ³	Crop Land	% of All Land	Irri- gated Land	% of Crop Land	
			Total	% of Land						HA Per Cap*
AFGHNSTN	64,750	64,750	1900	3	0.10	6905	8500	13.1	2440	28.7
ALBANIA	2875	2740	1195	44	0.48	2330	648	23.6	240	37.0
ALGERIA	238,174	238,174	2424	1	0.15	1490	7050	3.0	320	4.5
ANDORRA	45	45	10	22	0.33	--	1	2.2	--	--
ANGOLA	124,670	124,670	72,660	55	12.1	7840	1830	1.5	--	--
ARGNTINA	277,689	274,669	60,700	22	2.39	11,400	34,550	12.6	1800	5.2
AUSTRAL.	768,685	761,793	137,700	18	10.2	13,400	45,874	6.0	1470	3.2
AUSTRIA	8385	8271	3250	39	0.43	11,300	1609	19.5	4	0.2
BAHAMAS	1394	1007	324	32	1.62	400	16	1.6	--	--
BAHRAIN	62	62	--	--	--	--	2	3.2	1	50.0
BANGLDSH	14,400	13,391	2212	17	0.03	14,800	9512	71.0	1500	15.8
BARBADOS	43	43	--	--	--	--	33	76.7	--	--
BELGIUM	3057 ¹	3057 ¹	702	23	0.07	2640 ¹	878 ¹	26.8 ¹	19	0.1
BENIN	11,262	11,062	2144	19	0.69	2320	2950	26.7	5	0.2
BHUTAN	4700	4700	3000	64	2.56	--	252	5.4	--	--
BOLIVIA	109,858	108,547	57,000	53	10.1	3850	3284	3.0	120	3.7
BOTSWANA	60,037	58,537	962	2	1.39	739	512	0.9	1	0.2
BRAZIL	851,197	845,651	510,000	60	4.76	164,000	36,600	4.3	950	2.6
BRUNEI	577	527	425	81	2.83	196	18	3.4	--	--
BULGARIA	11,091	11,055	3797	34	0.44	4709	4339	39.2	1130 ⁷	26.0
BURMA	67,655	65,888	45,274	69	1.45	21,700	10,400	15.8	976	9.4
BURUNDI	2783	2565	80	3	0.02	912	1255	48.9	5	0.4
CAMBODIA	18,104	17,652	13,372	74	1.65	4570	3046	17.3	89	2.9
CAMEROON	47,544	46,944	30,000	64	4.69	8250	7345	15.6	8	0.1
CANADA	997,614	922,107	322,271	35	14.1	121,000	43,767	4.7	480	1.1
CAPE VRD	403	403	1	negl	negl	--	40	9.9	2	5.0
C.AF.EMP	62,298	62,298	7400	12	2.84	2220	5910	9.5	--	--
CHAD	128,400	125,920	16,500	13	4.09	3620	7000	5.6	1	0.0
CHILE	75,695	74,880	20,686	28	2.02	8180	5792	7.7	1260	21.8
PR CHINA	959,696	956,000 ²	151,800	16	0.18	195,000	129,000	13.9	84,700	65.7
REPCHINA		3595 ²								
COLOMBIA	113,891	103,870	77,190	74	3.12	24,900	5130	4.9	280	5.5
COMORAS	217	217	35	16	0.11	--	90	41.5	--	--
CONGO	34,200	34,150	15,500	45	11.5	2470	652	1.9	--	--
COSTA RC	5070	5066	2518	50	1.28	3380	507	10.0	26	5.1

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LAND AND AGRICULTURE (in 1000 hectares unless otherwise indicated)

	TOTAL Area	Land Area	Forest and Woodland Area			Round- wood Pr.'n 10 ³ m ³	Crop Land	% of All Land	Irri- gated Land	% of Crop Land
			Total	% of Land	HA Per Cap*					
CUBA	11,452	11,452	1240	11	0.13	1890	3110	27.2	535	17.2
CYPRUS	925	924	171	19	0.27	75	432	46.8	94	21.8
CZCHSLVK	12,788	12,558	4506	36	0.30	16,200	5256	41.9	92	1.8
DENMARK	4307	4237	484	11	0.09	1550	2670	63.0	1	negl
DOMIN. RP	4873	4838	1104	23	0.24	1800	995	20.6	135	13.6
ECUADOR	28,356	27,684	17,700	64	2.55	3470	4325	15.6	500	11.6
EGYPT	100,145	99,545	2	negl	negl	188	2862	2.9	2860	99.8
EL SALVD	2139	2107	250	12	0.06	3930	651	30.9	33	5.1
EQ. GUIN	2805	2805	1700	61	5.67	934	230	8.2	--	--
ETHIOPIA	122,190	110,100	8860	8	0.32	24,200	13,730	12.5	55	0.4
FIJI	1827	1827	1185	65	2.10	162	230	12.6	--	--
FINLAND	33,071	30,545	22,630	74	4.80	30,860	2641	8.6	40 ²	1.5
FRANCE	54,703	54,592	14,610	27	0.28	28,700	18,810	34.5	560 ³	3.0
GABON	26,767	25,767	20,000	78	41.01	2600	155	0.6	--	--
GAMBIA	1130	1000	65	7	0.13	250	260	26.0	25	9.6
GRMN. DR	10,818	10,603	2952	28	0.17	8450	4936	46.6	160	3.2
GRMNY. FR	24,858	24,403	7162	29	0.11	25,500	8059	33.0	310	3.8
GHANA	23,854	23,002	2447	11	0.26	12,000	2700	11.7	20	0.7
GREECE	13,194	13,080	2615	20	0.29	2640	3890	29.7	855	22.0
GRENADA	34	34	4	12	0.04	--	16	47.1	--	--
GUATMALA	10,889	10,789	5800	54	1.02	5670	1735	16.1	60	3.5
GUINEA	24,586	24,586	1100	4	0.25	3140	4170	17.0	45	1.1
GNA. BISS	3612	2800	1070	38	2.23	530	285	10.2	--	--
GUYANA	21,497	19,685	18,190	92	23.55	266	379	1.9	120	31.7
HAITI	2775	2756	235	9	0.01	3990	860	31.2	70	8.1
HONDURAS	11,209	11,189	7100	63	2.47	3870	885	7.9	80	9.0
HONG KNG	104	103	11	11	negl	--	11	10.7	6 ⁴	5.8
HUNGARY	9303	9238	1545	17	0.15	5380	5495	59.5	156 ⁴	2.8
ICELAND	10,300	10,025	120	1	0.55	--	1	negl	--	--
INDIA	328,048	296,608	67,400	23	0.11	127,000	167,200	56.4	32,300	19.3
INDONSIA	190,435	181,135	121,400	67	0.95	129,000	18,600	10.3	4380	23.5
IRAN	164,800	163,600	18,000	11	0.57	6240	16,490	10.1	5350	32.4
IRAQ	43,492	43,397	1500	3	0.14	65	5290	12.2	1150	21.7
IRELAND	7028	6889	216	3	0.07	301	1044	15.2	--	--
ISRAEL	2070	2026	116	6	0.03	108	431	21.3	182	42.2

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LAND AND AGRICULTURE (in 1000 hectares unless otherwise indicated)

	TOTAL Area	Land Area	Forest and Woodland Area		Round- wood Pr ¹ / _{10³} m ³	Crop Land	% of All Land	Irri- gated Land	% of Crop Land	
			Total	% of Land						HA Per Cap*
ITALY	30,123	29,405	6306	2	0.11	6620	12,313	41.9	3600	29.2
IVORY CT	32,246	31,800	9000	28	1.89	9350	9120	28.7	25	0.3
JAMAICA	1096	1080	492	45	0.24	6	260	24.1	32 ⁸	12.3
JAPAN	37,231	37,103	25,043	67	0.23	36,500	5573	15.0	2680 ⁸	48.0
JORDAN	9774	9718	125	1	0.05	9	1360	14.0	60	4.4
KENYA	58,264	56,925	1935	3	0.15	11,800	1765	3.1	40	2.3
KOREA DPR	12,054	12,041	8970	74	0.58	5240	2150	17.9	500 ⁸	23.3
KOREA RP	9848	9819	6628	67	0.20	9420	2418	24.6	915 ⁸	37.8
KUWAIT	1782	1782	2	0.1	negl	--	1	0.1	1	100.0
LAOS	23,680	23,080	15,000	63	4.61	3150	960	4.2	11	1.1
LEBANON	1040	1023	80	8	0.03	80 ²	348	34.0	85 ¹	24.4
LESOTHO	3035	3035	--	--	0.00	-- ²	355	11.7	-- ¹	--
LIBERIA	11,137	9632	2500	26	1.46	1970	380	3.9	3	0.8
LIBYA	175,954	175,954	534	0.3	0.24	462	2544	1.4	135	5.3
LICHTSTN	16	16	4	25	0.18	-- ¹	2 ¹	12.5 ¹	-- ⁹	--
LUXMBORG	259 ¹	259 ¹	70	27	0.20	-- ¹	-- ¹	-- ¹	-- ⁹	--
MADAGSCR	58,704	58,154	12,472	21	1.56	6370	2860	4.9	426	14.9
MALAWI	11,848	9408	2314	25	0.47	4710	2278	24.2	5	0.2
MALAYSIA	32,975	32,855	22,383	68	2.05	27,000	5983	18.2	317	5.3
MALDIVES	30	30	1	3	0.01	--	3	10.0	--	--
MALI	124,000	122,000	4457	4	0.82	3040	11,720	9.6	75	0.6
MALTA	32	32	--	--	--	--	14	43.8	1	7.1
MAURTNIA	103,070	103,040	15,134	15	11.73	565	1005	1.0	3	0.3
MAURTIUS	186	185	58	31	0.07	49	106	57.3	15	14.2
MEXICO	202,206	197,255 ¹	71,600	36	1.28	14,800	28,000	14.2	4480	16.0
MONACO	0.15 ¹	0.15 ¹	--	--	--	--	--	--	--	--
MONGOLIA	156,500	156,500	15,218	10	10.87	2390	810	0.1	--	--
MOROCCO	44,655	44,630	5190	12	0.31	3150	7630	17.1	440	5.8
MOZMBQUE	78,303	76,553	19,400	25	2.15	9075	3080	4.0	65	2.1
NAURU	2	2	--	--	--	--	--	--	--	--
NEPAL	14,080	13,800	4475	32	0.38	9260	2000	14.5	180	9.0
NETHLNDS	3695	3381	308	9	0.02	958	841	24.9	74	8.8
NETH.ANT	96	96	--	--	--	--	8	8.3	--	--
NEW CALD	1906	1876	960	51	negl	18	33	1.8	--	--
NEW ZLND	26,868	26,867	6800	25	2.27	8570	844	3.1	140	16.6

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LAND AND AGRICULTURE (in 1000 hectares unless otherwise indicated)

	TOTAL Area	Land Area	Forest and Woodland Area			Round- wood Pr'n 10 ³ m ³	Crop Land	% of All Land	Irri- gated Land	% of Crop Land
			Total	% of Land	HA Per Cap *					
NICARAGUA	13,000	12,100	6150	51	3.02	3015	965	8.0	32	3.3
NIGER	126,700	126,670	11,560	9	2.68	2490	15,000	11.8	6 ₅	0.0
NIGERIA	92,377	91,077	31,069	34	0.38	65,500	23,750	26.1	15 ₇	0.1
NORWAY	32,422	30,810	8330	27	2.10	9760	792	2.6	25 ₇	3.2
OMAN	21,246	21,246	--	--	--	--	36	0.2	--	--
PAKISTAN	80,394	77,872	2800	4	0.04	8960	19,450	25.0	14,300	73.5
PANAMA	7565	7505	4100	55	2.54	1520	560	7.5	23	4.1
PAP. N. GN	46,169	45,171	36,424	81	13.27	5490	351	1.0	--	--
PARAGUAY	40,675	39,730	20,450	51	7.41	4300	1000	2.5	55	5.5
PERU	128,522	128,000	73,800	58	4.80	6560	3230	2.5	1130	35.0
PHILIPP	30,000	29,817	12,300	41	0.30	30,440	7899	26.5	1391	17.6
POLAND	31,268	30,459	8608	28	0.25	21,800	15,084	49.5	231	1.5
PORTUGAL	9208	9164	3641	40	0.42	7590	3620	39.5	625	17.3
PUERTO R	890	886	175	20	negl	--	145	16.4	39	--
QATAR	1100	1100	--	--	0.00	--	2	0.2	--	--
RHODESIA	39,058	38,767	23,810	61	3.90	5902	2480	6.4	55 ₇	2.2
ROMANIA	23,750	23,034	6316	27	0.30	20,560	10,500	45.6	1470 ₇	14.0
RWANDA	2634	2506	300	12	0.08	3930	920	36.7	1	0.1
SAN MRNO	6	6	--	--	--	--	1	16.7	--	--
S. TM. PRN.	96	96	--	--	--	5	36	37.5	--	--
SAUD. ARB	214,969	214,969	1601	0.7	0.19	--	805	0.4	190	23.6
SENEGAL	19,619	19,200	5318	28	1.22	2750	2400	12.5	125	5.2
SEYCHLLS	28	27	5	19	0.08	--	5	18.5	--	--
SIER LNE	7174	7162	290	4	0.10	2640	4094	57.2	3	0.1
SINGAPOR	58	57	3	5	negl	--	8	14.0	--	--
SOMALIA	63,766	62,734	8800	14	2.94	3230 ₂	1055	1.7	165 ₁	15.6
S. AFRICA	122,104	122,104	4600	4	0.19	10,460 ₂	14,500	11.9	1017 ₁	7.0
SPAIN	50,478	49,963	14,944	30	0.42	12,800	20,833	41.7	2820 ₈	13.5
SR. LNKA	6561	6474	2899	45	0.22	5026	1979	30.6	440 ₈	22.2
SUDAN	250,581	237,600	91,500	39	5.28	22,300	7495	3.2	1500 ₇	20.0
SURINAM	16,327	16,147	14,400	89	34.38	298	45	0.3	30 ₇	66.7
SWAZLND	1736	1720	102	6	0.21	1850	168	9.8	26	15.5
SWEDEN	44,996	41,148	26,424	64	2.78	52,400	3015	7.3	53	1.8
SWITZRLD	4129	3977	1052	26	0.16	4450	386	9.7	30	7.8
SYRIA	18,518	18,420	445	2	0.06	91	5476	29.7	516	9.4

* This column is in hectares per capita, not 1,000 hectares per capita.

LAND AND AGRICULTURE (in 1000 hectares unless otherwise indicated)

	TOTAL Area	Land Area	Forest and Woodland Area		Round- wood Pr'n 10 ³ m ³	Crop Land	% of All Land	Irri- gated Land	% of Crop Land	
			Total	% of Land	HA Per Cap*					
TANZANIA	94,509	88,604	31,074	35	2.11	33,900	6070	6.9	55	0.9
THAILAND	51,400	51,177	20,500	40	0.55	20,720	16,580	32.4	3150	19.0
TOGO	5600	5360	350	7	0.18	1360	2285	42.6	3	0.1
TONGA	70	67	8	12	0.08	--	54	80.6	--	--
TRIN.TOB	513	513	226	44	0.21	104	157	30.6	18	11.5
TUNISIA	16,361	15,536	550	4	0.10	1820	4360	28.1	125	2.9
TURKEY	78,058	77,076	20,170	26	0.52	18,600	28,286	37.6	1980	7.0
UGANDA	23,604	19,971	2759	14	0.25	14,700	5251	26.3	8	0.2
USSR	2,240,220	2,227,200	920,000	41	3.65	388,000	232,207	10.4	14,500	6.2
U.AR.EMR	8360	8360	2	--	0.01	--	13	0.2	5 ⁶	38.5
UNTD.KGD	24,482	24,177	2020	8	0.04	3320	6981	28.9	86	1.2
US	936,312	912,689	304,400	33	1.44	296,000	209,236	22.9	16,500	7.9
U.S.V.IS	34	34	2	6	--	--	6	17.6	--	--
UPPRVLT	27,420	27,380	3675	13	0.70	4370	5613	20.5	2	neg1
URUGUAY	17,751	17,491	614	6	0.20	1077	1870	10.7	57	3.0
VTCN.CTY	0.044	0.044 ¹	--	--	--	--	--	--	--	--
VENZUELA	91,205	88,205	47,970	54	4.05	7960	5317	6.0	314	5.9
VIETNAM	33,256	32,386	11,420	35	0.27	18,400	5570	17.0	980	17.6
WN.SAMOA	284	277	167	57	1.08	117	64	23.1	--	--
AR YEMEN	19,500	19,000	400	2	0.06	--	1570	8.3	230	14.6
DM YEMEN	28,768	28,768	2500	9	1.56	--	170	0.6	5	2.9
YUGOSLAV	25,580	25,540	9040	35	0.42	14,030	8034	31.5	133	1.7
ZAIRE	234,541	226,760	121,350	54	5.02	13,700	7820	3.4	--	--
ZAMBIA	75,261	74,072	37,330	50	7.80	4720	5000	6.8	3	0.1
TOTALS										
TOTAL	13,200,000	12,900,000	4,130,000	32	1.04	2,430,000	1,505,000	12	227,000	15
DVELOPED	5,610,000	5,480,000	1,870,000	34	1.67	1,170,000	694,000	13	49,400	7.1
DVELOPNG	7,590,000	7,420,000	2,260,000	30	0.80	1,260,000	811,000	11	177,600	22
DD - US	4,680,000	4,570,000	1,570,000	34	1.73	871,000	485,000	11	32,900	6.8
DG - PRC	6,650,000	6,500,000	2,110,000	32	1.06	1,070,000	681,000	10	92,600	14
DG - OPEC										

* This column is in hectares per capita, not 1,000 hectares per capita.

INDICATOR OF SOLAR ENERGY DEVELOPMENT POTENTIAL

1975 Gross National Product
1975 Commercial Energy Consumption
 (\$10³ per MTCE)

NEPAL	10.388	TONGA	2.500	NICARAGUA	1.534	INDONESIA	1.203	RHODESIA	0.718
BURUNDI	8.542	GUATMALA	2.476	BRAZIL	1.534	BOLIVIA	1.200	UNTD.KGD	0.718
RWANDA	7.544	BENIN	2.407	SYRIA	1.523	PHILIPP	1.146	CANADA	0.703
OMAN	6.911	CONGO	2.384	FRANCE	1.503	SINGAPOR	1.136	CUBA	0.684
C.AF.EMP	6.393	TANZANIA	2.324	PANAMA	1.493	FINLAND	1.134	QATAR	0.677
HAITI	6.250	MALAWI	2.316	HONDURAS	1.487	JORDAN	1.127	BRUNEI	0.669
UPPRVLT	5.424	SWITZRLD	2.301	MALTA	1.484	BELGIUM	1.126	ALBANIA	0.663
S.TM.MRN.	5.000	MAURTIUS	2.259	NORWAY	1.465	GREECE	1.122	INDIA	0.651
NIGERIA	4.523	SENEGAL	2.230	TURKEY	1.459	PERU	1.091	US	0.647
COMOROS	4.375	BURMA	2.075	LAOS	1.442	LUXMBORG	1.087	TRIN.TOB	0.642
CAMBODIA	4.351	IVORY CT	2.039	SR.LANKA	1.435	ALGERIA	1.077	EGYPT	0.630
UGANDA	4.254	WN.SAMOA	2.000	ECUADOR	1.403	SEYCHLLS	1.071	REPCHINA	0.610
LIBYA	4.248	SIER LNE	1.918	MALAYSIA	1.400	NETHLNDS	0.994	HUNGARY	0.594
TOGO	3.862	AFGHNSTN	1.856	ISRAEL	1.391	CYPRUS	0.955	SURINAM	0.575
MALI	3.759	FIJI	1.856	NEW.ZLND	1.366	MOZMBQUE	0.053	GRMN.DR	0.572
AR.YEMEN	3.689	GUINEA	1.852	BARBADOS	1.326	ITALY	0.932	PR CHINA	0.552
PARAGUAY	3.621	EL SALVD	1.843	SWEDEN	1.321	LIBERIA	0.929	KOREA RP	0.551
NIGER	3.620	ANGOLA	1.829	AUSTRIA	1.314	ARGNTINA	0.884	POLAND	0.520
ETHIOPIA	3.413	ZAIRE	1.769	DENMARK	1.295	PAKISTAN	0.880	CZCHSLVK	0.504
BANGLDSH	3.339	COSTA RC	1.766	CHILE	1.290	AUSTRAL.	0.879	BAHAMAS	0.492
GHANA	3.273	KUWAIT	1.759	GRENADA	1.290	VENEZUELA	0.865	NEW CALD	0.484
EQ.GUIN	3.226	IRAQ	1.753	ICELAND	1.282	COLOMBIA	0.863	USSR	0.460
CAMEROON	3.069	PORTUGAL	1.749	SPAIN	1.276	MEXICO	0.860	GUYANA	0.454
SOMALIA	3.009	PAP.N.GN.	1.686	KENYA	1.275	ZAMBIA	0.840	BULGARIA	0.442
MAURTNIA	2.937	SUDAN	1.669	GRMNY.FR	1.250	YUGOSLAV	0.803	S.AFRICA	0.383
U.AR.EMR	2.921	MOROCCO	1.655	URUGUAY	1.246	MONGOLIA	0.796	MADAGSCR	0.371
CHAD	2.911	GNA.BISS	1.628	IRAN	1.245	JAMAICA	0.783	ROMANJA	0.327
SAUD.ARB	2.659	TUNESIA	1.585	LEBANON	1.237	IRELAND	0.771	BAHRAIN	0.184
GAMBIA	2.647	HONG KNG	1.578	JAPAN	1.234	DM YEMEN	0.739	KORE DPR	0.160
GABON	2.519	DOMIN.RP	1.569	THAILAND	1.227	PUERTO R	0.720	U.S.V.IS	0.145
								NETH.ANT	0.139

Total Monthly Solar Radiation in a Cloudless Sky* w/m^2

Latitude	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ave.
90°N	0	0	1.56	161	342	419	371	201	38.7	0	0	0	128
80°	0	0	37.5	174	334	406	359	209	69.3	7.80	0	0	133
70°	0	27.4	93.6	211	320	381	331	228	121	42.1	8.06	0	147
60°	28.1	73.6	155	258	325	369	334	261	182	95.2	41.9	17.2	178
50°	74.9	140	208	298	346	382	353	298	232	151	93.5	60.9	220
40°	137	209	256	327	359	387	365	326	274	206	156	120	260
30°	195	265	290	345	359	384	365	340	308	251	211	179	291
20°	242	307	315	348	351	368	353	337	329	289	260	229	311
10°	282	339	329	342	331	339	329	321	342	314	298	273	320
0°	315	358	336	329	301	303	298	301	342	331	329	300	320
10°S	343	373	329	310	276	263	254	270	329	334	351	343	315
20°	362	377	312	277	229	216	215	233	305	328	364	368	299
30°	373	373	290	240	186	171	173	189	274	314	371	384	278
40°	375	353	256	197	136	118	126	140	231	292	368	393	249
50°	368	323	215	148	84.3	61.3	71.8	85.8	194	259	352	390	213
60°	353	284	169	90.3	37.5	16.1	25.0	35.9	137	220	339	381	174
70°	353	243	114	35.5	1.56	0	0	0	80.6	178	339	389	144
80°	375	219	67.1	0	0	0	0	0	0	151	353	406	131
90°	389	210	26.5	0	0	0	0	0	0	140	364	421	129

* Adapted from Handbook of Chemistry and Physics 1976-77, 57th Edition, pp. F-201, 202. Conversion factor used: $\frac{\# \text{ in table} \times 4180 \times 10^4}{\# \text{ days in month} \times 24 \times 3600} = w/m^2$

HIGHEST AND LOWEST TOTAL INSOLATION RATES (Global Insolation)* w/m²

Latitude Band	Actual Latitude	Location	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual Ave.
4°59'N	00°35'N	Marigat, Kenya	328	332	341	307	305	296	251	309	338	338	291	301	312
4°59'S	01°19'N	Singapore	177	182	182	179	168	177	153	149	221	222	169	191	181
5°00'S	12°03'S	Huancayo, Peru	324	251	278	262	241	238	251	275	289	307	304	288	276
14°59'S	6°11'S	Djakarta, Indonesia	175	185	194	192	181	175	188	206	218	204	192	179	191
15°00'S	22°34'S	Windhoek, S. Africa	310	280	254	238	217	197	213	246	280	303	323	327	266
24°59'S	19°00'S	Corumba, Brazil	194	189	174	155	135	121	131	150	164	184	198	198	166
25°00'S	26°34'S	Keetmanshoop, S. Afr.	355	324	271	239	197	177	189	225	276	318	354	361	274
34°59'S	31°15'S	Rataele, Argentina	213	199	151	103	85.6	54.7	92.9	97.2	131	166	204	217	134
35°00'S	35°21'S	Mount Stromlo, Austrl.	304	268	218	169	130	101	112	149	209	248	292	313	209
44°59'S	41°17'S	Wellington, N. Z.	272	219	175	120	73.1	62.9	65.3	101	160	200	235	252	161
45°00'S	46°51'S	Marion Is., S. Afr.	345	212	156	97.2	62.9	46.0	65.6	92.4	141	203	243	253	150
54°59'S	46°25'S	Invercargill, N. Z.	255	215	151	93.4	60.5	41.6	55.6	87.6	139	188	225	252	147
55°00'S		No reporting stations.													
64°59'S															
65°00'S	66°33'S	Mirny, Antarctica	342	264	135	48.4	9.19	1.94	3.87	25.2	93.9	209	338	358	152
74°59'S	67°37'S	Mawson, Antarctica	301	198	103	45.5	8.71	0	0.968	45.0	95.3	184	280	326	133
75°00'S	79°59'S	Byrd Station, Antarct.	NA	NA	NA	2.90	0	0	0	0.968	21.3	107	292	355	110
84°59'S	78°12'S	Little America, Ant.	267	146	66.8	5.32	0	0	0	0.968	36.8	130	283	308	104

* Source: "World Distribution of Solar Radiation," George O. G. Löf, John A. Duffie, Clayton O. Smith, July 1966.

Conversion Factor: $\text{cal/cm}^2/\text{day} \times \frac{4.18 \times 10^4}{24 \times 3600} = \text{w/m}^2$.

Latitude Band	Actual Latitude	Location	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual Ave.
5°00'N	10°31'N	Moron, Venezuela	262	274	292	274	255	263	313	301	298	267	256	247	275
14°59'N	6°33'N	Benin City, Nigeria	152	181	194	190	180	169	139	139	157	180	183	173	170
15°00'N	19°32'N	Mauna Loa Obs., Haw.	251	260	314	312	314	356	341	305	291	242	233	229	287
24°59'N	22°39'N	Calcutta, India	167	206	236	250	262	221	205	209	189	182	195	175	208
25°00'N	27°52'N	Adrar, Algeria	184	218	271	300	319	339	334	314	271	223	184	160	260
34°59'N	32°37'N	Tomie, Japan	60.5	88.1	125	119	112	106	107	137	110	144	110	79.8	110
35°00'N	35°39'N	Inyokern, California	151	203	280	339	382	404	379	357	314	234	178	143	280
44°59'N	43°57'N	Rumoi, Japan	51.8	70.6	118	153	150	173	164	121	114	86.6	54.2	41.6	108
45°00'N	46°10'N	Prosser 4NE, Wash.	56.6	108	169	252	298	336	343	288	225	133	70.0	50.3	194
54°59'N	51°29'N	Bochum, Germany	18.9	40.0	78.9	133	155	173	157	140	99.2	56.1	25.2	14.5	91.0
55°00'N	58°45'N	Churchill, Canada	31.4	72.6	148	215	247	256	244	184	109	55.6	29.0	16.9	134
64°59'N	60°08'N	Lerwick Obs., U. K.	13.1	35.8	73.5	126	173	204	155	119	94.3	43.1	17.4	7.26	88.5
65°00'N	68°14'N	Aklarik, Canada	2.42	24.2	97.7	188	249	255	216	144	75.5	30.0	5.32	0.484	107
74°59'N	69°39'N	Tromso, Norway	0.484	13.1	53.2	129	165	184	175	120	65.3	21.3	2.42	0	77.4
75°00'N	80°00'N	Ice Island	0	0	48.4	156	255	319	243	149	58.1	0	0	0	103
84°59'N	77°00'N	Hornsund, Norway	0	0	0.484	35.8	110	157	156	119	84.2	5.81	0	0	55.6

TOTAL INSOLATION/MAXIMUM POSSIBLE INSOLATION %

Latitude Band	Actual Latitude	Location	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual Ave.
4°59'N	00°35'N	Marigat, Kenya	105	93	101	93	101	97	82	102	99	102	98	94	98
4°59'S	01°19'N	Singapore	57	51	54	54	55	57	50	49	65	67	52	65	57
5°00'S	12°02'S	Huancayo, Peru	93	67	85	86	91	94	102	105	89	92	86	83	88
14°59'S	6°11'S	Djarkarta, Indonesia	53	50	58	60	64	63	71	73	65	61	55	55	60
15°00'S	22°34'S	Windhoek, S. Africa	85	74	83	88	100	97	104	111	94	94	88	88	90
24°59'S	19°00'S	Corumba, Brazil	54	50	55	55	58	55	60	63	53	60	55	54	55
25°00'S	26°34'S	Keetmanshoop, S. Afr.	96	87	91	94	98	95	101	108	97	100	96	95	96
34°59'S	31°15'S	Rataele, Argentina	57	54	53	44	48	33	56	53	49	53	55	56	49
35°00'S	35°21'S	Mount Stromlo, Austrl.	81	74	80	78	82	71	76	91	83	82	79	80	80
44°59'S	41°17'S	Wellington, N. Z.	73	63	70	63	57	57	55	76	71	69	64	64	66
45°00'S	46°51'S	Marion Is., S. Afr.	63	64	68	60	62	58	64	90	68	75	68	65	67
54°59'S	46°25'S	Invercargill, N. Z.	69	64	66	56	59	51	61	83	67	69	83	64	65
55°00'S		No reporting stations.													
64°59'S															
65°00'S	66°33'S	Mirny, Antarctica	97	102	102	89	66	35	45	203	94	108	100	93	99
74°59'S	67°37'S	Mawson, Antarctica	85	78	81	94	86	0	16	529	101	98	83	84	88
75°00'S	79°59'S	Byrd Station, Antarc.	NA	NA	NA	290	100	100	100	--	10650	71	83	87	84
84°59'S	78°12'S	Little Amer. V, Ant.	72	65	88	83	100	100	100	--	254	83	81	76	78

Note: For latitude bands centered on 80°, 100 percent is used whenever total and maximum possible insolation for the same periode are zero. A "--" indicates that the total insolation is greater than zero, while the maximum possible radiation is zero.

Latitude Band	Actual Latitude	Location	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual Ave.
5°00'N	10°31'N	Moron, Venezuela	94	81	89	80	77	77	95	93	87	85	86	91	86
14°59'N	6°33'N	Benin City, Nigeria	52	52	59	56	56	52	44	44	46	56	59	61	53
15°00'N	19°32'N	Mauna Loa Obs., Haw.	103	84	99	90	90	97	97	91	88	83	89	99	92
24°59'N	22°39'N	Calcutta, India	73	70	77	72	74	59	58	62	59	65	79	81	68
25°00'N	27°52'N	Adrar, Algeria	90	80	89	87	89	89	92	93	87	86	83	85	88
34°59'N	32°37'N	Tomie, Japan	34	35	44	35	32	28	29	41	37	60	56	48	38
35°00'N	35°39'N	Inyokern, California	93	87	103	101	106	105	104	108	109	104	99	98	103
44°59'N	43°57'N	Rumoi, Japan	46	39	50	48	42	45	46	38	44	47	41	43	44
45°00'N	46°10'N	Prosser 4NE, Wash.	57	65	75	82	85	88	96	93	91	77	60	61	83
54°59'N	51°29'N	Bochum, Germany	28	31	39	46	45	46	45	48	44	39	29	27	43
55°00'N	58°45'N	Chruchill, Canada	93	89	91	82	75	69	73	69	58	55	60	74	73
64°59'N	60°08'N	Lerwick Obs., U. K.	47	49	48	49	53	55	46	46	52	46	42	43	50
65°00'N	68°14'N	Aklavik, Canada	48	68	94	86	78	67	65	62	54	58	38	16	70
74°59'N	69°39'N	Tromso, Norway	48	45	55	61	52	48	53	52	53	48	26	0	52
75°00'N	80°00'N	Ice Island	100	100	129	90	76	79	68	71	84	0	100	100	77
84°59'N	77°00'N	Hornsund, Norway	100	0	1	19	33	39	44	55	99	32	0	100	58

ESTIMATED FOCUSABLE RADIATION* w/m²

Latitude Band	Actual Latitude	Location	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual Ave.
4° 59' N	00° 35' N	Marigat, Kenya	279	262	290	243	259	244	175	263	284	287	242	240	258
4° 59' S	01° 19' N	Singapore	85.7	78.8	83.5	82.2	78.5	85.7	65.0	62.0	122	126	74.7	105	87.4
5° 00' S	12° 02' S	Huancayo, Peru	256	143	201	192	186	190	213	234	218	240	222	203	210
14° 59' S	6° 11' S	Djarkarta, Indonesia	78.8	78.6	95.6	97.9	98.5	93.6	113	128	120	106	89.7	80.0	98.3
15° 00' S	22° 34' S	Windhoek, S. Africa	224	176	179	178	184	162	181	209	224	242	242	245	206
24° 59' S	19° 00' S	Corumba, Brazil	89.0	80.3	81.3	72.4	66.6	56.5	66.8	80.3	73.8	93.8	92.5	90.9	78.7
25° 00' S	26° 34' S	Keetmanshoop, S. Afr.	290	239	209	191	164	143	161	191	227	270	289	291	224
34° 59' S	31° 15' S	Rataele, Argentina	103	91.3	68.0	38.5	34.9	15.3	44.2	43.7	54.5	74.7	95.3	103	63.9
35° 00' S	35° 21' S	Mt. Stromlo, Austrl.	209	169	148	112	90.6	60.9	72.4	115	147	172	196	213	142
44° 59' S	41° 25' S	Wellington, N. Z.	169	117	104	64.2	35.4	30.4	30.5	65.2	96.5	117	128	137	91.2
45° 00' S	46° 51' S	Marion Is., S. Afr.	126	115	90.2	49.6	33.1	22.7	30.8	70.7	81.5	129	140	140	85.7
54° 59' S	40° 25' S	Invercargill, N. Z.	149	117	84.7	44.5	30.3	18.0	28.8	61.8	79.1	110	159	137	84.9
55° 00' S	No reporting stations.														
64° 59' S															
65° 00' S	66° 33' S	Mirny, Antarctica	282	229	117	36.6	5.16	0.576	1.48	25.2	75.0	192	287	283	127.8
74° 59' S	67° 37' S	Mawson, Antarctica	217	131	70.9	36.4	6.37	0	0.132	45.0	81.8	153	197	233	97.6
75° 00' S	79° 59' S	Byrd Station, Antarc.	NA	NA	NA	NA	0	0	0	NA	NA	64.5	206	262	78.5
84° 59' S	78° 12' S	Little Amer., Antarc.	163	80.6	50.0	NA	0	0	0	NA	NA	91.7	195	199	69.0

*Calculations are based upon the formula given in figure III-1. Whenever total radiation slightly exceeds maximum possible insolation, focusable radiation is calculated to be 85 percent of the total insolation. At the 80° latitude band NA is reported when the total insolation exceeds the maximum possible radiation.

Latitude Band	Actual Latitude	Location	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual Ave.
5°00'N	10°31'N	Moron, Venezuela	209	189	221	186	167	172	253	238	220	193	187	191	202
14°59'N	6°33'N	Benin City, Nigeria	67.2	81.1	97.2	90.4	85.7	74.7	52.0	52.0	61.4	85.7	91.7	89.6	77.3
15°00'N	19°32'N	Mauna Loa Obs., Haw.	213	186	264	239	240	293	281	236	218	171	176	193	226
24°59'N	22°39'N	Calcutta, India	104	123	154	153	165	111	101	110	94.7	100	131	120	122
25°00'N	27°52'N	Adrar, Algeria	141	148	205	222	241	256	261	248	200	163	130	116	194
34°59'N	32°37'N	Tomie, Japan	17.5	26.2	46.8	35.3	30.5	25.2	26.3	47.7	34.5	73.4	52.4	32.6	37.4
35°00'N	35°39'N	Inyokern, Ca.	119	150	238	288	325	343	322	303	267	199	150	119	245
44°59'N	43°57'N	Rumoi, Japan	20.3	23.4	50.2	62.4	53.6	66.1	64.1	39.1	42.6	34.6	18.9	15.2	40.9
45°00'N	46°10'N	Prosei 4NE, Wash.	27.4	59.6	108	176	215	251	280	228	174	87.0	35.7	26.1	139
54°59'N	51°29'N	Bochum, Germany	4.50	10.5	26.1	52.0	59.2	67.6	60.0	57.1	37.1	18.6	6.20	3.32	33.5
55°00'N	58°45'N	Churchill, Canada	24.8	54.9	114	150	157	150	151	108	53.7	26.0	14.8	10.6	84.6
64°59'N	60°08'N	Lerwick Obs., U. K.	5.23	14.9	30.0	51.4	77.9	95.3	60.6	46.5	41.7	16.9	6.21	2.65	37.6
65°00'N	68°14'N	Aklavik, Canada	0.987	14.0	78.1	137	165	145	119	75.9	34.7	14.8	1.72	0.066	65.5
74°59'N	69°39'N	Tromso, Norway	0.197	5.00	24.8	65.8	72.9	75.1	78.8	53.0	29.4	8.69	0.535	0	34.5
75°00'N	80°00'N	Ice Island	0	0	48.4	119	165	214	141	89.8	41.5	0	0	0	68.2
84°59'N	77°00'N	Hornsund, Norway	0	0	0.411	5.76	30.8	52.0	58.3	55.6	70.8	1.58	0	0	22.9

PRIMARY COMMERCIAL ENERGY PRODUCTION

Sources:

World Energy Supplies 1971-1976, (United Nations, N.Y., 1977), pp. 10-29.
International Coal 1976, published by the National Coal Association
in 1977. (pp. J2-3).

Definitions:

Crude petroleum comprises the liquid products obtained from oil wells, shale oil, and field or lease condensate.

Natural gas liquids consist of natural gasoline, liquified petroleum gases from special plants, and plant condensate and other finished products.

Natural gas includes gas obtained from gas fields, petroleum fields or coal mines actually collected and utilized as a fuel or raw material, measured at 15° C and 760 mm/hg. Data thus excludes gas used for repressuring and reinjection, as well as gas flared, vented or otherwise wasted, and shrinkage accruing to processing for the extraction of natural gas liquids.

Note:

Where individual figures appear for bituminous coal and lignite the source is International Coal 1976. The numbers may be found on pages I2-3. Conversion factors used are from World Energy Supplies 1971-1975, pp. xx-xxi. Where information regarding bituminous coal and lignite was unavailable, total coal production figures are from World Energy Supplies 1971-1975. In countries where the UN total for coal production differs by 20 percent or more from the International Coal 1976 data, the UN data is footnoted.

Footnotes for Coal:

- 1 UN total is 219×10^{15} joules.
- 2 UN total is 0.440×10^{15} joules.
- 3 1974 total.
- 4 UN total is 51.9×10^{15} joules.
- 5 UN total is 363×10^{15} joules.

DIRECT SOLAR ENERGY POTENTIAL

Source:

Duffie, John A. and Beckman, William A., Solar Energy Thermal Processes (John Wiley & Sons, New York), pp. 34-37. The graphs are reprinted from "World Distribution of Solar Radiation," by Lof, G. O. G., Duffie, J. A., and Smith, C. O., Engineering Station Report 21, University of Wisconsin-Madison, 1966.

Note:

Visual examinations of insolation rates for March, June, September, and December were used to calculate a yearly average.

PRIMARY COMMERCIAL ENERGY CONSUMPTION

Source:

World Energy Supplies 1971-75, pp. 10-29. For the charts containing percent growth rates for 1965 and 1970, the data are from World Energy Supplies 1950-1974.

Notes:

Consumption equals production plus imports minus exports minus bunkers plus or minus changes in stocks.

ELECTRICITY

Source:

World Energy Supplies 1971-1975, pp. 166-177, 190-201.

Notes:

Installed capacity of electricity facilities (including hydroelectric facilities) represents the sum of the rated capacities of the main and auxiliary generators in all groups, including standby groups.

Electric production (and hydroelectric production) comprises the total gross production of electricity generated by public utilities and by industrial establishments generating for their own use or for sale.

Capacity factor is: $\frac{\text{total electric production}}{\text{installed capacity} \times 365 \times 24}$.

Kilowatt Years/Per Capita/Per Year is: $\frac{\text{total electric production}/(365 \times 24)}{\text{total population}}$

Total population data can be found elsewhere in the charts.

GASOLINE CONSUMPTION

Source:

World Energy Supplies 1971-1975, pp. 113-123.

Note:

Gasoline consists of aviation gasoline, motor gasoline, and gasoline from plants. Jet fuel and kerosene are not included.

BIOMASS ENERGY

Actual Noncommercial Production

Footnotes:

1 CEPAL, Los Nuevos del Petróleo y la Industria Eléctrica en América Latina, (ST/CEPAL, Santiago, Conf. 50/L.3 1974). Reprinted in Wilkie, James W., editor, Statistical Abstract of Latin America, Volume 17, UCLA Latin American Center Publications, 1976, p. 212. The data comes from surveys of population and sugar industry use of organic fuels in 1972.

2 Oil and Australia: 1976, (Australian Institute of Petroleum, Ltd.). Totals are estimates for fuelwood and bagasse useage in 1974-75 based upon data collected by the Australian Department of Natural Resources, Petroleum Branch in 1973-74. Bagasse accounts for 50.2×10^{15} joules. Fuelwood total is 34.6×10^{15} joules.

3 Bangladesh Energy Study, Appendix 1, Volume 2, Administered by Asian Development Bank under United Nations Development Programme, prepared by Montreal Engineering Company, Limited, and Meta Systems Inc., November 1976, p. 5-43. Estimates for 1973-74 noncommercial production are: crop wastes, 101×10^{15} joules; cow dung, 52.8×10^{15} joules; wood, 30.6×10^{15} joules.

4 Source is Nathaniel B. Guyol. Mr. Guyol has been collecting noncommercial energy data for approximately thirty years. He presently generates and assembles energy statistics, including noncommercial energy data, for the Department of Energy. All figures are for total use of noncommercial energy. These numbers are often estimates, many of which are based on government or other surveys.

<u>Country</u>	<u>Year of Estimate</u>
Belgium	1966
Germny. FR	1968
Greece	1967
Hungary	1972
Indonesia	1968
Italy	1968
Korea RP	1968
Mexico	1972
Phillipp	1969
Poland	1969
Portugal	1972 (projection based on 1965 data)
S. Africa	1968
Spain	1967
Switzrld	1966
Yugoslav	late 1960's total

5 Federative Republic of Brazil, Ministry of Mines and Energy, "National Energy Balance," (Brazil, 1976), p. 16. Data is for 1976.

<u>Product</u>	<u>10^{15} Joules</u>
Firewood	960
Bagasse	166
Charcoal	117

BIOMASS ENERGY (cont.)

6 This figure is for 1978. See Taylor, Robert P., Rural Energy Development in China (Johns Hopkins University Press for Resources for the Future, Washington, D.C., 1981), p. 45.

7 Openshaw, Keith, "Woodfuel--A Time for Reassessment," East African Journal, January 1977. Surveys of 1972 production in Gambia and Thailand, and 1970 production in Tanzania. Breakdowns are as follows:

<u>Country</u>	<u>Fuelwood</u> (10^{15} joules)	<u>Charcoal</u> (10^{15} joules)
Gambia	6.18	2.08
Tanzania	292	8.47
Thailand	308	246

8 Henderson, P. D., India: The Energy Sector, (Oxford University Press, Delhi, India, 1976), pp. 27, 181. Henderson extrapolates from data collected from an Indian government survey taken during the years 1958 and 1962. See Appendix II (pages 183-5) for Henderson's methodology. His estimate is for the year 1970-71. Breakdowns are as follows: Fuelwood and charcoal, $3,545 \times 10^{15}$ joules; Dung, 791×10^{15} joules; Crop residues, $1,084 \times 10^{15}$ joules.

9 Figure has been calculated on assumption that noncommercial energy use accounted for 2.5 percent of all energy consumer. Iran Almanac and Book of Facts: 1977 claims noncommercial consumption is less than three percent of total energy consumption. After choosing (arbitrarily) 2.5 percent figure, total noncommercial energy useage was calculated based upon 1975 total commercial energy consumption as taken from World Energy Supplies 1971-1975.

10 Statistisk Meddelanden: Energi-Energiförsörjningen 1973-1975, (Sveriges Officiella Statistik, 1976), pp. 26-27. Total for wood wastes only.

11 Aybers, Mejat, and Uner, Selami, "Survey of Fuel and Energy of Turkey," VII World Power Conference, (Moscow, August 1968), p. 2. Subtotals are: firewood, 211×10^{15} joules; cow dung, 172×10^{15} joules.

12 Ministry of Petroleum and Natural Resources, "Energy Resources Cell," Obtained through provate communications. The total is based on a survey and is for 1974/75. Individual breakdowns are as follows:

dung	48.3×10^{15} joules
charcoal	0.809×10^{15} joules
bagasse	51.3×10^{15} joules
firewood	190×10^{15} joules
crop residue	20.8×10^{15} joules

13 United States Central Intelligence Agency, Research Aid: Soviet Long Range Energy Forecasts, (C.I.A., Washington, D.C., September 1975), p. 7. Total is a 1973 estimate of domestic fuelwood use.

BIOMASS ENERGY (cont.)

Potential Energy from Manure

Note:

The chart is designed to provide rough estimates of the total potential availability of energy derived from the burning of manure. We have not attempted to determine what percentage of manure could be collected for use as energy. Makhijani and Poole in Energy and Agriculture in the Third World, suggest that in the Thrid World the maximum collectability factor for each animal is:

<u>Animal</u>	<u>Collectable % of manure</u>
cattle and horses	70
pigs	80
sheep, goats, and chickens	30

Sources:

For all animal population data:

1975 Production Yearbook, (U.N.F.A.O., Rome, 1976), pp. 227-238.

Coefficients for Developing Countries

	<u>Pr'n of dry dung kg/yr/head¹</u>	<u>BTU/lb²</u>	<u>j/kg</u>	<u>j/yr/head 10⁹</u>
cattle, buffalo	1,080	6,425	14,944,550	16.14
horses, mules, donkeys, camels	540	6,425	14,944,550	8.07
pigs	300	7,308	16,998,408	5.10
sheep, goats	150	7,666	17,831,116	2.67
poultry	5.2	5,822	13,541,972	0.07

Coefficients for Developed Countries

	<u>Pr'n of dry dung kg/yr/head²</u>	<u>BTU/lb²</u>	<u>j/kg</u>	<u>j/yr/head 10⁹</u>
cattle	1,221	6,562	15,263,212	18.64
horses, mules, donkeys, camels	540	5,425	14,944,550	8.07
pigs	165	7,308	16,998,408	2.80
sheep, goats	224	7,666	17,831,116	3.99
chicken, ducks	9.7	5,822	13,541,972	0.13
turkeys	29.7	5,803	13,497,778	0.40

For the developed countries, Brazil, Argentina, Madagascar, and Turkey, manure energy from turkeys has been calculated separately, and then included under the poultry listing in the chart.

1 Makhijani, Arjun, and Poole, Alan, Energy and Agriculture in the Third World, (Ballinger Publishing Co., Cambridge, 1975), p. 108.

2 An Evaluation of the Use of Agricultural Residues as an Energy Feedstock, Vol. 1, (Stanford Research Institute, Menlo Park, CA, July 1976), p. 49.

BIOMASS ENERGY (cont.)

Potential Crop Residue Energy

This chart provides a rough estimate of the total potential energy that may be derived from burning crop residues. Because some residues are left on the land or fed to animals, only some fraction of the total residue may be collected. Makhijani and Poole, in Energy and Agriculture in the Third World, suggest that in the Third World 80 percent of the crop residues not fed to animals can be collected.

Because of time constraints only the world's major crops were considered. The seven crops listed were chosen because together they account for over 75 percent of the world's crop products by weight. Regarding cereal crops, only those crops harvested for grain have been included. Regarding rice, crop production refers to rice paddy, but the potential residue energy includes both hulls and straw.

The following coefficients were applied for all countries:

	<u>tons dry weight residue</u> short tons crop yield	<u>BTU</u> short ton yield 10 ⁶	<u>joules from residue</u> metric tons of crop yield 10 ⁹
wheat	1.82	15	31.7
rice	hulls 0.145, straw 0.974	hull 15, straw 13.1	17.4
maize	0.58	15	10.2
barley	2.28	15	39.8
roots and tubers*	0.12	15	2.09
sugar cane	field residue 0.13	field residue 15	5.94
	bagasse 0.19	bagasse 16.6	
sugar beet	0.17	15	2.96

* Roots and tubers include potatoes, sweet potatoes, cassava, yams and various other crops such as arrowroot.

Sources:

For crop yield:

1975 F.A.O. Production Yearbook, (U.N.F.A.O., Rome, 1976), pp. 60-67, 77-79, 90, 191-92.

For coefficient data:

An Evaluation of the Use of Agricultural Residues as an Energy Feedstock, (Stanford Research Institute, Menlo Park, CA, July 1976), p. 24.

AVERAGE TEMPERATURE

Sources: for weather data: Rulfner, J.A.; Blair, F.E., eds., The Weather Almanac, Gale Research Co., Book Tower, Detroit, Michigan, 1974.

for population density:

The Times Atlas of the World, New York Times Book Co., N.Y., 1975.

Note: The average minimum daily temperatures for the months of January, April, October, and July recorded at stations in areas of population densities of over one person per square mile were averaged for each country's compound figure. When large temperature differences existed between stations within one country an explanatory footnote was added.

Footnotes:

¹The stations Adrar, El Golea, Fort Flatters, and Tamanrasset were omitted due to low population density.

²The stations Puerto Madryn, Santa Cruz, Ushuaia, and La Quiaca were omitted due to low population density.

³The stations Alice Springs, Broome, Burketown, Carnaroon, Cloncurry, Esperante, Laverton, Mundinindi, William Creek, Windorah, and Thursday Island were omitted due to low population density.

⁴These figures may be too high if one weights areas of high population density. The included station of Conception, located in the less populated lowlands, had temperature figures of 66°-62°-54°-62°.

⁵The stations of Aklavik, Alert Churchill, Fort Nelson, Fort Simpson, Frobisher Bay, Knob Lake, Prince George, Prince Rupert, Resolute, Saskatoon, the Pas, and Whitehorse were omitted due to low population density.

⁶The stations of Los Evangelistas, Puerto Aisen, and Punta Arenas were omitted due to low population density.

⁷If only the stations from China's most populated areas - the North China Plain, Szchuan, the Yangtze River Valley, and the South China Coast - are included (Canton, Chansha, Chung King, Hankow, Shanghai, Tientsin) the temperature figures read: 35°- 55°- 76°- 59°.

⁸The station Guayaquil on the coast reports much higher temperatures than Cuenca and Quito, which are in the Andes. With only Cuenca and Quito considered, the figures would read: 48°- 49°- 46°- 48°.

⁹Corsica is excluded.

10The figures exclude Kashmir (Srinagar = 24°- 45°- 64°- 41°). Figures from the Gangetic Plain stations of Jalpaiguri, Lucknow, New Dehli, and Calcutta (periphery stations included) would read: 49°- 71°- 79°- 69°. Lucknow, located near the center of the Gangetic Plain records, 47°-71°-80°- 67°.

11In the province of Rio Grande do Sul the stations of Porto Alegre and Uruguaiana average 49° for the month of July as the minimum.

12Excluding Sardinia and Sicily (Palermo, Sicily = 47°- 53°- 71°- 62°)..

13Excluding Hokkaido, (Kushiro = 8°- 31°- 55°- 40°).

14The stations of Cujra and Sabhah are omitted due to low population density.

15Average minimum daily temperatures may drop below 50° in the mountainous sections of the interior where fairly high population densities can be seen (100-250L/m²). Witness Tananurive with a figure of 61°- 58°- 48°- 54°.

16The station of Araouane has been omitted due to low population density.

17In the mountainous sections of the interior temperatures are lower. Chihuahua, Guadalajara, Herdo, and Mexico City together record, 42°- 53°- 62°- 54°.

18The only available figures are from two stations in the Canal Zone.

19Excluding Iquitos due to low population density the mountainous sections of the interior record considerably lower temperatures than coastal sections. Arequipa, Cajamarca, and Cusco together record 47°- 45° 40°- 46°.

20Walvis Bay has been excluded, due to its location in Namibia.

21The station of Abrisko has been omitted due to low population density.

22If the station of Erzurum (elev. 6402 ft.) is excluded because of its location in a less populated part of eastern Turkey, the figure would read 35°- 46°- 40°- 46°.

23Because of its size, any meaningful figure is difficult to compute for the USSR. For the population belt of Estonia, Latvia, Lithuania, Belo-Russia, the Ukraine, Georgia, and Great Russia west of the Urals and South of 60° latitude, the stations of Dnepropetrovsk, Kaunas, Kirov, Kursk, Leningrad, Luov, Minsk, Moscow, Odessa, Riga, Saratov, Sevastopol, Volgograd, Stavropol, Tallinn, Tbilisi, and Ufa have been considered for a figure of 14°- 35°- 59°- 40°. However, temperature differences between stations are as follows: Jan. -3° to 30°, Apr. -27° to 44°, July 53° to 65°, and Oct. 29° to 50°. For the population belt along the Trans-Siberian Railroad, between 50° and 60° latitude, and 60° and 95° longitude, the stations of Krasnoyarsk, Naryn, Omsk, Semipalatinsk, and Sverdlovsk have been included for a figure of -11°, 23°, 56°, 27°.

POPULATION

Total Population

Source:

1975 Demographic Yearbook, (United Nations, N.Y., 1976), pp. 160-164.

Footnotes:

- 1 Source: Information Please Almanac, (Simon & Schuster, N.Y., 1977).
- 2 Source: World Population Growth and Response, (Population Reference Bureau, Inc., Washington, DC, April 1976), pp. 266-270.
- 3 Source: "Background Notes: Nauru," April 1976. Total is from a 1969 census.
- 4 Source: "Background Notes: Vatican City," March 1977.

Urban and Rural Population

Source:

World Population Growth and Response

Note:

The percent of the population classified as urban by World Population Growth and Response was used in conjunction with total population figures from the preceding chart to derive urban and rural populations.

1970-1975 Annual Rate of Population Increase

Sources:

For 1975 data source is 1975 Demographic Yearbook.

For 1970 data source is 1970 Demographic Yearbook, (United Nations, N.Y., 1971).

Estimated Population in Year 2000

Source:

World Population as Assessed in 1973, (United Nations, N.Y., 1977).

Note:

The medium estimates are intended to represent the most plausible future population trend in view of what is known from past experience and current circumstances in each country. The high and low variants represent the upper and lower boundaries of a zone of greatest plausibility. In the high variant projections, a high fertility assumption was combined with a low mortality assumption so as to maximize the projections. In the low variant projections, a low fertility assumption was combined with a high mortality assumption in order to minimize the projections. A migration assumption was included in the projections only for "the countries for which international migration was assumed."

INDUSTRIAL PRODUCTION

Source: UN Statistical Yearbooks 1975 and 1976, United Nations, New York, 1976 and 1977.

Note: Aluminum refers to primary aluminum recovered by the electrolytic reduction of alumina from domestic and imported ores. Secondary aluminum is aluminum derived from scrap.

Footnotes:

¹1970 total.

²1969 total.

³Including alloys.

⁴Including the pure content of virgin alloys.

⁵1974 total.

Note: Crude steel refers to the total production of crude steel, both ingots and steel for castings, whether obtained from pig-iron or scrap. Unless otherwise stated wrought (puddled) iron is excluded.

Footnotes:

¹Including concast steel billets.

²Ingots only.

³Crude steel for casting only.

⁴Excluding alloy steels.

⁵Data do not include steel for castings made in foundries operated by companies not producing ingots.

⁶1974 total from U.N. Statistical Yearbook 1975.

Note: The data refer to the production of thermoplastic and thermosetting resins and plastic materials in any form, obtained by chemical transformation of natural organic substances or by chemical synthesis. The table excludes stamping foils, varnishes and paints, waxes, synthetic rubber, man-made fibers and plastic materials with specially shaped edges designed to form part of slide fasteners.

Footnotes:

¹Data not available on some type(s) of plastic(s).

1975 Economy

Source:

World Bank Atlas, (World Bank, Washington, DC, 1977).

Footnotes:

GNP

1 GNP total does not reflect significant devaluation of Israeli pound in November 1977.

Per Capita GNP

1 Lebanon total is for 1974.

Percent Growth 1960-75

1 Equatorial Guinea growth rate for 1962-75.

2 Sierra Leone growth rate for 1964-75.

3 Tunisia growth rate for 1961-75.

4 Democratic Yemen growth rate for 1964-75.

Percent Growth 1970-75

1 Guinea Bissau growth rate for 1974-75.

2 Laos growth rate for 1973-75.

3 Arab Yemen growth rate for 1972-75.

LAND AND AGRICULTURE

Source for total area, land area, and forest area:
1976 FAO Production Yearbook, UN FAO, Rome, 1976.

Footnotes:

Total Area

1 Source is "Background Notes," US Department of State, GPO, Washington, DC. Dates of publication are:
Belgium September 1976
Luxembourg August 1975
Monaco June 1975
Vatican City March 1975

Land Area

1 Figure is for total area. For source see footnote one for total area.

2 Source is Asia Yearbook 1977, Far East Economic Review, Hong Kong, 1977.

Note for Forest and Woodland Area:

'--' indicate that no forest and woodland area was reported by FAO.

Source for Roundwood Production:

1975 Yearbook of Forestry Products, UN FAO, Rome, 1977.

Footnotes for Roundwood Production:

1 Belgium total production data includes data for Luxembourg.
2 South Africa total production data includes data for Lesotho.
'--' indicate no figure reported by FAO.

Source for Crop Land and Percent of All Land:

1976 FAO Production Yearbook

Note: Crop land is composed of arable land and land under permanent crops. Arable land refers to land under temporary crops, temporary meadows for mowing or pasture, land under market and kitchen gardens and land temporarily fallow or idle. Land under permanent crops refers to land cultivated with crops occupying the land for long periods (i.e., crops not needing annual replanting after each harvest). Included are crops such as cocoa, coffee, rubber, fruit trees, vines. However, trees grown for wood or timber are excluded.

Footnotes for Crop Land and Percent of All Land:

1 Luxembourg totals included in figures for Belgium.
'--' indicates no figure reported by FAO.

Source for Irrigated Land and Percent of Crop Land:
1976 FAO Production Yearbook

Footnotes for Irrigated Land:

- 1 South Africa figure includes total for Lesotho.
 - 2 Data refers to land irrigated with sprinklers.
 - 3 Data excludes market and kitchen gardens.
 - 4 Data excludes complementary farm plots and individual farms.
 - 5 Data refers to holdings of four or more hectares situated outside of boroughs.
 - 6 Data excludes Scotland and Northern Ireland.
 - 7 Data refers to land provided with irrigation facilities.
 - 8 Data refers to irrigated rice only.
 - 9 Luxembourg total figured in with total for Belgium.
- '--' indicate no figure reported by FAO.

WORLDWIDE SOLAR INSOLATION DATA

Data on direct or diffuse components of insolation are much less extensive than total insolation data, and data that show how the direct and diffuse components change in relation to the angle of tilt of collectors are even more sparse. Most available data of these two types are based on calculations, rather than measurements. Lack of these data on a global basis represents one of the major gaps that we have found in available information.

We have attempted to fill this gap, in a preliminary and only approximate way, by developing an empirical rule for estimating the direct and diffuse insolation from measurements of the total horizontal insolation and reported calculations of the horizontal insolation on a clear day. The basis for this rule is the argument that the fraction of the insolation that is direct should tend to increase as the ratio of the measured total insolation to the clear day insolation increases. To examine this correlation in a preliminary way we have plotted the observed or calculated ratios of diffuse to total measured radiation against the ratios of total radiation to the maximum possible (clear day) insolation, from several sources of data at several locations. These points cluster along a straight line. The straight line is one that connects the correct values at the two extremes of zero and one for the ratio of the observed total insolation to the maximum possible. As the observed insolation approaches zero, the direct radiation must also approach zero (dense clouds at all times). At the other extreme, however, the diffuse radiation approaches approximately 15% of the total radiation. Realizing that the implied correlation is only very roughly justified, we have simply used this approximation for estimates of direct and diffuse radiation for places for which we could find no other

data. We would expect these estimates to be more questionable for places with relatively high cloudiness, containing errors perhaps as high as a factor of two in the direct insolation when it is estimated to be less than about 40% of the total. Judging from the data we have analyzed so far, we expect the estimates of direct radiation to be more likely to be too high than too low when it is a relatively small fraction of the total.