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Preface

For more than twenty years, ESRI has been a pioneer in the development of geoprocessing tools in support of Geographic Information Systems (GISs). ESRI's ARC/INFO® software was the first database-oriented GIS ever developed. Its introduction started a revolution in the way scientists, planners, and managers solve problems. Thousands of organizations have chosen ESRI® software products because these products incorporate leading technology in geographic information management.

The ArcWorld™ database is one of the first products made available by ESRI through the ArcData℠ program. ESRI is implementing the ArcData program to facilitate the accessibility of high-quality data to ESRI software users. Data distributed through the program have been developed by ESRI and leading data vendors in the United States and abroad.

General-purpose databases like the ArcWorld and ArcUSA™ databases have been designed to be robust yet easy to use, appropriate for both the novice and the technically advanced user. Data for specific applications in product marketing, business planning, vehicle routing, environmental assessment, and many other disciplines are also being made available in a ready-to-use format for use with all of our GIS software.

Getting started with ArcWorld

Welcome

The ArcWorld database contains the data needed to generate thematic maps of the world at the country level. It contains cartographic, tabular, and index information and is designed for a wide range of business, educational, and scientific GIS applications. The ArcWorld database is formatted for UNIX®, MS-DOS®, and Macintosh® systems.

Use ArcWorld data to . . .

- Create country-level thematic maps
- Generate simple outline maps for use as insets or locators
- Identify worldwide demographic and socioeconomic patterns
- Create basemaps for use with raster data
- Serve as a cartographic base for your own tabular data
- Find out which Landsat satellite scenes cover your study area
- Observe how selected geographic features and patterns are related
- Experiment with a variety of mapping techniques

What is in your ArcWorld package

- Compact discs (CD) that contain the ArcWorld database and some preconstructed ArcView™ views
- *ArcWorld 1:3M User's Guide and Data Reference*
- *ArcWorld Installation Instructions*
- ArcWorld license agreement

To get started, you'll need . . .

Your system configuration requirements consist of the following:

- Software suitable for your hardware platform (see Table 1)
- CD player (for CD-ROM) or drive appropriate for the distribution medium you received
- Disk space appropriate to your version of ArcWorld (Table 2), if you wish to copy the entire database onto your hard drive

Table 1: Software requirements for the ArcWorld database

System	Software
UNIX	ArcView or ARC/INFO® 6.0 or higher
MS-DOS	ArcView for Windows™ or PC ARC/INFO® 3.4D or higher or ArcCAD™ Rev. 11 or higher
Macintosh	ArcView for Macintosh

Table 2: Disk space requirements for the ArcWorld database

Database	Size (MB)	
	dBASE	UNIX
ArcWorld 1:3M	330	500
ArcWorld 1:25M	18	22
Browse Map	4	4
Sample data (views)	5	5

The database size for ArcWorld 1:25M shown in Table 2 applies to only one projection or coordinate system; the second set of data requires approximately the same amount of disk space. The *ArcWorld Installation Instructions* give instructions about copying individual coverages to another storage space.

How to access the database

Depending upon the amount of disk space you have available and the applications you plan for the ArcWorld data, you may read data directly from the CD-ROM or decide to copy all or some of the data to your hard drive. Copying the data onto your hard drive will significantly improve performance, but requires extra storage space. Data copying and storage options for your particular hardware platforms are discussed in the *ArcWorld Installation Instructions*.

How to use this guide

If you're new to geographic information systems

If you've never worked with a geographic information system, you may want to get an introduction to basic GIS concepts before you read this guide in detail. You should also be familiar with the basic tools of the software you'll be using (ArcView, ARC/INFO, or ArcCAD).

- To understand some basic concepts of GIS, see "What's GIS?" (Chapter 5 of the *ArcView User's Guide*).

- The book *Understanding GIS: The ARC/INFO Method* is an excellent, more extensive resource for novice ARC/INFO users.

- The ARC/INFO 6.0 handbook, *ARC/INFO Data Model, Concepts, & Key Terms* will also be helpful.

- You can get excellent detailed information from the numerous published materials on geographic information systems. See the bibliography for references to other materials that might prove useful.

Using ArcWorld data with ArcView

This user's guide assumes that you are familiar with the basic tools and functionality of your ArcView software. Although this manual concentrates on using the database with ArcView, all of the applications discussed, and more, are possible using ARC/INFO.

- If you're new to ArcView and the ArcWorld database is the first database you'll be exploring, begin by taking the ArcView guided tour (see Chapter 2 of the *ArcView User's Guide*).

- Once you've become familiar with ArcView, explore the ArcWorld database by following the guided tour in Chapter 2 of this manual. This hands-on tutorial will help you learn the basic techniques for creating displays and querying the data.

- We have included several preconstructed ArcWorld views. ArcView users can immediately call these up to display and begin working with the data. These displays are not accessible with ARC/INFO or ArcCAD software, however.

What is in this manual

Each chapter in this manual addresses a particular aspect of the database or its use. The order in which you read the chapters is up to you, and you may wish to defer reading a chapter until the information it contains is relevant to what you are doing. The chapters are as follows:

Chapter 1   *What is ArcWorld ?*
Presents the geographic extent of the database and an overview of its contents.

Chapter 2   *Exploring the ArcWorld database*
Provides an ArcView tutorial that introduces you to the basic database organization and illustrates fundamental techniques for selecting, displaying, querying, and analyzing the data. Explores cartographic, index, and statistical attribute data by leading you through sample applications.

Chapter 3   ***Database concepts and organization***
Discusses such data elements as coverages and attributes and explains how they have been organized in the ArcWorld database. Presents basic database concepts like projection and scale. Lists data sources.

Chapter 4   ***In greater detail: The ArcWorld 1:3M layers***
Examines in detail the geographic features represented by each data layer. Presents definitions and codes for all of the feature attributes. This is the chapter you'll use most often during a work session.

Chapter 5   ***The ArcWorld 1:25M and Browse Map layers***
Describes the features and attribute definitions for the ArcWorld 1:25M and Browse Map data.

Chapter 6   ***Using the database***
Suggests strategies for using the database to display and query, and gives information about advanced applications like data export. Strategies apply to both ArcView and ARC/INFO users.

Appendixes   Describe enhancements made during database development. Present attribute
A to F   field definitions for both INFO™ and dBASE® formats for use with advanced applications that use ARC/INFO and ArcCAD. List country, region, and continent codes, assignment of data to disputed areas, incomplete coverage areas, and sources of additional information.

Chapter 1

What is ArcWorld?

A flexible world database

The ArcWorld database contains data for the land areas of the world at two scales. The ArcWorld 1:3M data set is larger both in scale and content. It was developed at a nominal scale of 1:3,000,000 (the "M" in "1:3M" stands for "million"), and it contains representations of more than 235,000 features, including 240 countries, and more than 900 attributes. The ArcWorld 1:25M data set represents a smaller-scale map. It contains all of the countries, but only a sample of the features and thematic attributes from the 1:3M database. It complements the larger data set by allowing an overview of the ArcWorld database contents. A Browse Map is also included which links the full set of ArcWorld 1:3M statistical attributes with a highly generalized world map that represents approximately 141 countries. The Browse Map allows users to review global thematic maps with on-line displays that draw very quickly.

The ArcWorld database contains a broad range of data, including cartographic features (country boundaries, roads, railroads, rivers, lakes, major cities); indexes (latitude/longitude grids, Landsat scenes, Defense Mapping Agency Operational Navigation Charts); and statistical attributes for countries (population, government expenditure, deforestation rate, energy production, food supply, women in the labor force, etc.). ArcWorld can also be used as a supplement to existing global databases, or in support of more specialized geographic databases.

World regions
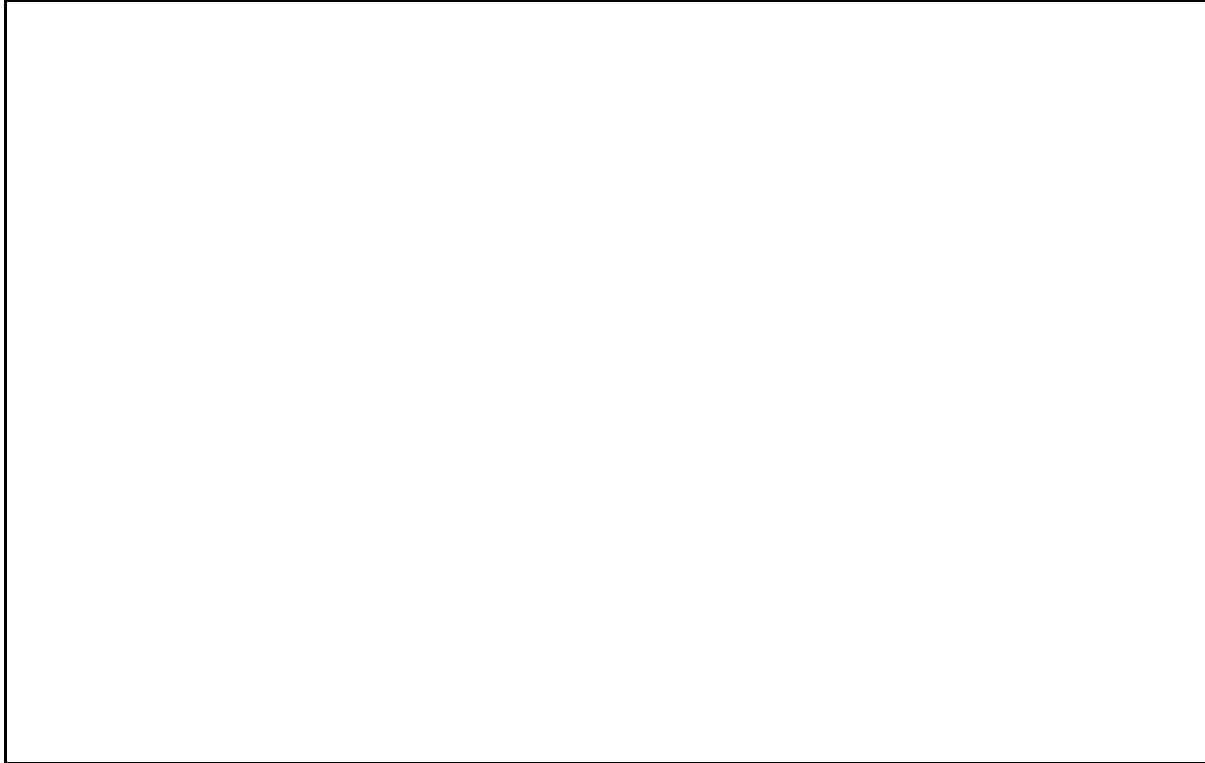
ArcWorld data are delivered in both UNIX ARC/INFO and PC ARC/INFO coverages and can be used with the following software products:

- ArcView (for UNIX, Windows, and Macintosh)
- PC ARC/INFO Rev. 3.4D and higher
- ARC/INFO Rev. 6.0 and higher on UNIX workstations
- ArcCAD Rev. 11 and higher

PC ARC/INFO coverages store attributes in dBASE format. Thus, other MS-DOS application software tools can be used with the ArcWorld database.

World regions

ArcWorld 1:3M and 1:25M data are classified by world region so you have an easy means of selecting a small multicountry area for display or study. The twenty-four ArcWorld regions are shown on the map on the opposite page. ArcWorld features are also assigned to a country and a continent. A complete list of countries, regions, and continents, together with their codes, can be found in Appendix C.

ArcWorld database layer summary tables

The four tables that begins on the next page summarize the ArcWorld database. Tables 1 through 3 describe the 1:3 million cartographic, index, and statistical attribute layers. (Some large data layers are divided into two coverages; coverage names end in "_E" for east and "_W" for west.) Table 4 describes the 1:25 million layers, which include both the 1:25 million-scale coverages and the Browse Map coverages.

Both the ArcWorld 1:3M and ArcWorld 1:25M data are delivered in geographic coordinates (latitude/longitude) in decimal degrees. The 1:25 million data are also delivered in the Robinson projection. The Browse Map is in the Robinson projection.

The coverage sizes in the table are approximate. In UNIX format, some information is stored in a separate directory, so the overall database sizes listed in Table 2 of "Getting Started" are larger than the sum of the component coverages. Also, the size listed for the 1:25 million data accounts for only one projection. Data in the other projection are approximately the same size.

Table 1: ArcWorld 1:3M cartographic layers

Layer	Features	Attributes	Source, Currency	Coverage Names	Size (MB)	
					dBASE	UNIX
Country Boundaries	Polygons: ca. 12,900 Lines: 18,040 country boundaries, shorelines, and more Annotation: 180 country names	Polygon attribs.: 19 country names and codes, regions, continents, organization memberships Line attributes: 9 country name, boundary type, and status	U.S. Government—World Data Bank II, 1988	CTRY3M	18.07	16.53
Country Internal Divisions	Lines: ca. 14,675 subnational boundaries for some countries	Line attributes: 6 boundary level and coincidence, geographic reference	U.S. Government—World Data Bank II, 1988	ADMIN3M	8.23	7.34
Major Cities	Points: 450 capitals, other major cities Annotation: 450 city names	Point attributes: 9 name, capital, major city, local name, geogr. reference	Defense Mapping Agency—Operational Navigation Charts, various years	CITY3M	0.19	0.21
Railroads	Lines: ca. 26,925 railroad lines	Line attributes: 7 type, display scale, geogr. reference	U.S. Government—World Data Bank II, 1988	RR3M	11.63	10.08
Rivers and Water Bodies	Polygons: ca. 10,825 lakes, reservoirs, rivers, lagoons Lines: ca. 35,600 perennial and intermittent rivers, canals	Polygon attributes: 7 type, significance, geogr. reference Line attributes: 9 type, rank, coincidence, geogr. reference	U.S. Government—World Data Bank II, 1988	RIV3M RIV3M_E RIV3M_W	26.73 17.83 9.14	24.13 16.06 8.31
Roads	Lines: ca. 55,500 high speed, hard surfaced, and unsurfaced roads, and tracks	Line attributes: 7 type, display scale, geogr. reference	U.S. Government—World Data Bank II, 1988	RDS3M RDS3M_E RDS3M_W	121.94 9.36 12.40	18.73 7.92 10.67

Table 2: ArcWorld 1:3M index layers

Layer	Features	Attributes	Source, Currency	Coverage Names	Size (MB)	
					dBASE	UNIX
Landsat Nominal Scene Index	Points: ca. 23,325 scene center points	Point attributes.: 15 path, row, states covered, lat./long. of point	EOSAT— algorithm generated, 1992	SAT_PT	9.77	8.76
	Lines: ca. 26,325 scene footprints	Line attributes: 15 path, row, states covered, lat./long. of footprint	EOSAT— algorithm generated, 1992	SAT_BND	11.85	10.33
Latitude/ Longitude Grid	Lines: ca. 1,450 20 by 20 degree grid	Line attributes: 3 latitude, longitude, land/water code	ESRI— generated, 1992	LTLG20	0.30	0.23
	Lines: ca. 758	Line attributes: 3		LTLG_BR	0.18	0.16
Operational Navigation Chart (ONC) Index	Polygons: ca. 300 1:1 million-scale map areas	Polygon attributes: 1 map identification number	ESRI—digitized from analog ONC index map,1988	ONC_IDX	0.95	0.97

Table 3: ArcWorld 1:3M country statistical attribute layers

Layer	Features	Attributes	Source, Currency	Coverage Names	Size (MB)	
					dBASE	UNIX
Economic and Industrial Indicators	Polygons: ca. 12,600 countries Lines: ca. 16,395 country, region, continent boundaries	Polygon attribs.: 102 Gross National Product (GNP) expenditure of Gross Domestic Product (GDP) on food, housing, transportation and communication Line attributes: 9 geogr. reference, type	U.S. Govern-ment—World Data Bank II, 1988 World Bank—Social Indicators of Development (SID) 1990 database	ECONIND	22.61	21.75
Education and Literacy	Polygons: ca. 12,600 countries Lines: ca. 16,395 country, region, continent boundaries	Polygon attribs.: 91 educational expenditure, school enrollment, literacy Line attributes: 9 geographic reference, type	U.S. Govern-ment—World Data Bank II, 1988 World Bank—Social Indicators of Development (SID) 1990 database	EDU_LIT	22.17	20.64
Food Production and Nutrition	Polygons: ca. 12,600 countries Lines: ca. 16,395 country, region, continent boundaries	Polygon attribs.: 79 agricultural and forest land; food imports; quantity of food produced; daily calorie supply Line attributes: 9 geographic reference, type	U.S. Govern-ment—World Data Bank II, 1988 World Bank—Social Indicators of Development (SID) 1990 database	AGRICUL	22.88	21.33
Health and Vital Statistics	Polygons: ca. 12,600 countries Lines: ca. 16,395 country, region, continent boundaries	Polygon attribs.: 110 access to safe water; malnutrition; population per physician; birth and death rates; life expectancy Line attributes: 9 geographic reference, type	U.S. Govern-ment—World Data Bank II, 1988 World Bank—Social Indicators of Development (SID) 1990 database	HEALTH	25.50	23.89

Table 3: ArcWorld 1:3M country statistical attribute layers, continued

Layer	Features	Attributes	Source, Currency	Coverage Names	Size (MB)	
					dBASE	UNIX
Labor Force Characteristics	Polygons: ca. 12,600 countries Lines: ca. 16,395 country, region, continent boundaries	Polygon attribs.: 68 total labor force, proportion of females, percentage in farming and manufacturing Line attributes: 9 geographic reference, type	U.S. Government—World Data Bank II, 1988 World Bank—Social Indicators of Development (SID) 1990 database	LABOR	21.99	19.16
Natural Resources and the Environment	Polygons: ca. 12,600 countries Lines: ca. 16,395 country, region, continent boundaries	Polygon attribs.: 120 GDP, government expenditures, sanitization, immunization, deforestation, endangered species, energy production and consumption, atmospheric emissions Line attributes: 9 geographic reference, type	U.S. Government—World Data Bank II, 1988 World Bank—Social Indicators of Development (SID) 1990 database	WRI_3M	29.90	27.91
Population Characteristics	Polygons: ca. 12,600 countries Lines: ca. 16,395 country, region, continent boundaries	Polygon attribs.: 106 population by age, urban and rural females, growth rate, and year 2000 projection Line attributes: 9 geographic reference, type	U.S. Government—World Data Bank II, 1988 World Bank—Social Indicators of Development (SID) 1990 database	POP_GEO	25.08	23.47

Table 4: ArcWorld 1:25M and Browse Map layers

Layer	Features	Attributes	Source, Currency	Coverage Names	Size (MB)	
					dBASE	UNIX
Country Boundaries	Polygons: ca. 2,070 Lines: 3,940 countries, continents, and coastlines Annotation: 185 country names	Polygon attribs.: 19 country names and codes, regions, continents, organization memberships Line attributes: 4 country name, boundary type, and status	U.S. Government— World Data Bank II, 1988	CTRY25M	10.26	6.90
Latitude/ Longitude Grid	Lines: ca. 1,450 20 by 20 degree grid Lines: ca. 758	Line attributes: 3 latitude, longitude, land/water code Line attributes: 3	ESRI— generated, 1992	LTLG20 LTLG_BR	0.30 0.18	0.23 0.16
Major Cities	Points: 186 major cities, state capitals Annotation: 186 city names Points: 129	Point attributes: 9 name, capital, major city, local name, geogr. reference Point attributes: 3	Defense Mapping Agency— Operational Navigation Charts, various years	CITY25M CITY_BR	0.01 0.01	0.92 0.07
Map Elements	Polygons: 8 scale bar Lines: 19 scale bar Annotation: 6 scale bar, title	Polygon attributes: 1 area fill codes Line attributes: 0	ESRI—1992	SC_25M (Coverage for UNIX Robinson projection only)	—	0.02
Rivers and Water Bodies	Polygons: ca. 70 lakes, reservoirs Lines: ca. 3,350 perennial and intermittent rivers, lakes, reservoirs, ice fields	Polygon attributes: 6 type, geographic reference Line attributes: 7 types, geogr. reference	U.S. Government— World Data Bank II, 1988	RIV25M	1.38	1.20

Table 4: ArcWorld 1:25M and Browse Map layers, continued

Layer	Features	Attributes	Source, Currency	Coverage Names	Size (MB) dBASE	Size (MB) UNIX
Selected Statistical Attributes	Polygons: ca. 2,025 Lines: ca. 3,880 countries, continents, and coastlines	Polygon attribs.: 90 population, vital statistics, health, agricultural land, food production, economic development, housing, natural resources Line attributes: 8 boundary type, geogr. reference	U.S. Govern-ment—World Data Bank II, 1988 World Bank—Social Indicators of Development (SID) 1990 database World Resources Institute—World Resources 1992–93 Data Base	STAT25M	8.33	8.03
	Polygons: ca. 235 Lines: ca. 536	Polygon attribs.: 74 Line attributes: 0		STAT_BR	0.49	0.49
Browse Map statistical attribute layers	Polygons: ca. 235 ca. 150 countries Lines: ca. 536 country boundaries and shorelines	Polygon attribs.: 86 Line attributes (all layers): 0	U.S. Govern-ment—World Data Bank II, 1988	ECONIND	0.47	0.48
		Polygon attribs.: 75	World Bank—Social Indicators of Development (SID) 1990 database	EDU_LIT	0.45	0.45
		Polygon attribs.: 63		AGRICUL	0.46	0.47
		Polygon attribs.: 104		HEALTH	0.51	0.51
		Polygon attribs.: 52	World Resources Institute—World Resources 1992–93 Data Base	LABOR	0.44	0.41
		Polygon attribs.: 52		POP_GEO	0.50	0.51
		Polygon attribs.: 90		WRI_BR	0.59	0.59

Chapter 2

Exploring the ArcWorld database

This guided tour introduces ArcView users to the ArcWorld database by exploring a series of preconstructed views included with the data. The tour does not cover all aspects of the database, but it does illustrate some of the ways in which the data at both the 1:3,000,000 and 1:25,000,000 scales can be used. By following the exercises in this chapter, you will be better able to explore the data on your own.

You will gain the most from these exercises if you are familiar with ArcView functions. The emphasis of this tutorial is on exploring the database and not on how to use the software tools, so it is recommended that you first do the exercises in Chapter 2, "A guided tour of ArcView," of the *ArcView User's Guide*.
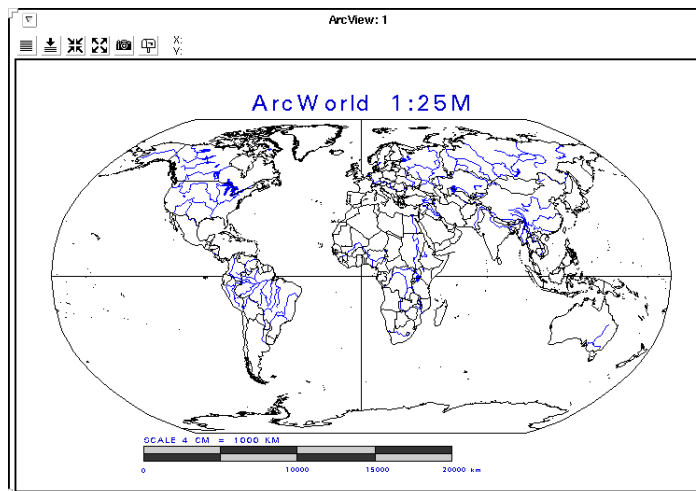
This chapter will help you become familiar with the ArcWorld data, such as the 1:25M Rivers and Water Bodies coverage shown in this ArcView display.

In the first exercise, you will examine total population and life expectancy on a global level using one of the ArcWorld statistical Browse Map coverages. In the second exercise, 1989 Gross National Product (GNP) per capita in South American countries is examined using ArcWorld 1:25M, and potential relationships between GNP per capita and other socioeconomic variables are explored. The third exercise involves exploring the deforestation of South and Central America and teaches you how to create and analyze bivariate maps. The last exercise explores the data documentation views provided with the database.

Getting started

Begin by loading ArcView; if you haven't already loaded and started ArcView, please see the ArcView installation instructions.

Next, load your ArcWorld data set (see the *ArcWorld Installation Instructions*). The "views" directory includes a series of preconstructed ArcView views to guide you through the tour.

Exploring statistical attributes at a global level

During this exercise, you will explore some of the statistical attributes included in the ArcWorld Browse Map. Begin by opening the view "stat.av", which displays country boundaries for the world.

1. **Click on the check box to the left of "Total Population, 1989".**

    You will see a thematic map representing 1989 total population. Total population, "totpop89", is one of the variables in the ArcWorld Browse Map coverage "stat_br".

2. **Select "Properties..." from the theme-specific menu for the theme "Total Population, 1989".**
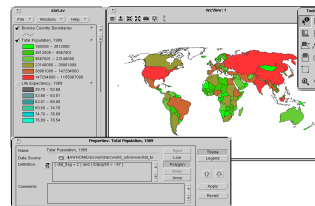
    The Theme Property Sheet will appear below the Table of Contents. Notice that the attribute "stat_flag" has been preset to equal "2". In addition, the attribute "totpop89" has been preset to be greater than "-97" to prevent the display of countries that may have incomplete or missing data. Quit from the property sheet to continue.

3. In the Table of Contents, choose the Table option from the theme-specific menu "Total Population, 1989".
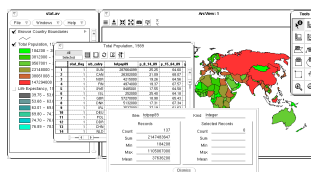
This allows you to access information contained in the Browse Map coverage "stat_br". Use the scroll bar to move to the attribute "totpop89".

4. Click on the attribute name "totpop89" and select Statistics.

A window pops up that displays the count, sum, minimum, maximum, and mean value for the specified attribute. Notice that the lowest total population in the world is 184,208.

5. Click "Dismiss".

6. Click on the Query Builder icon within the table for "Total Population, 1989".

You will now build a logical expression to locate the country with the minimum population.

7. Click on the attribute "totpop89", near the top of the scrolling list of attributes.

8. Choose "<" from the operators; then enter "200000" on the line below the "Values/Attributes" box.*

The logical expression now reads
(totpop89 < 200000).

9. Click "Select".

One country (within the graphic display and the table) will highlight as having a total population in 1989 of less than 200,000 people. Within the table, the country can be identified as Belize. Belize is a Central American country bordered by Mexico and Guatemala.

10. Click "Selected" within the table.

This action limits the records displayed in the theme's table to the current selected set. Use the scroll bar to examine other attributes, such as "grw_rate89", "pop2000_89", and "landarea85", which concern the country's growth rate, projected population, and total land area, respectively. Quit from the table prior to continuing.
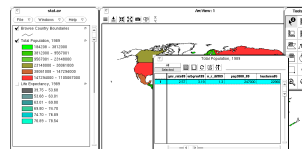
* PC and Macintosh users will enter "200000" on the line *above* the "Values/Attributes" box.

11. Click off the check box to the left of "Total Population, 1989".

12. Click on the check box to the left of "Life Expectancy, 1989".

A thematic map representing life expectancy statistics draws in the graphic display window.

13. Click once on the theme name "Life Expectancy, 1989" to activate the theme.

This action makes the theme a candidate for further query.

14. Using the Identify tool from the Palette, click once on the country of Australia.

A window appears that displays all of the attributes for the "stat_br" coverage for the selected country. Scroll down to the "life_exp89" attribute. The life expectancy for people in Australia is approximately 76 years. Keep this window up for further comparison.
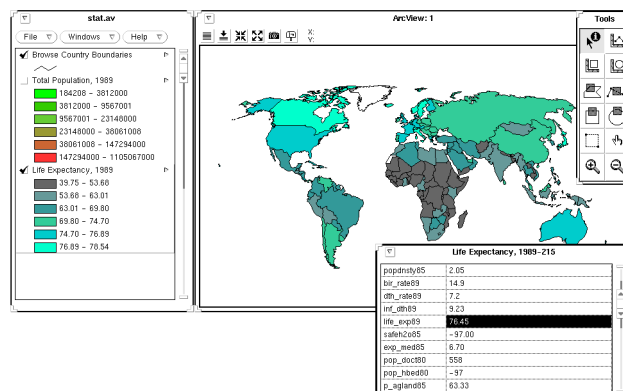
15. Using the Identify tool, click once on the African country of Zaire.

A second window appears that displays all "stat_br" attributes for Zaire. Position the two popup windows next to each other for easier comparison. Scroll down to the "life_exp89" attribute for Zaire. The life expectancy for people in this country is approximately 52 years, about 24 years less than an Australian's life expectancy.
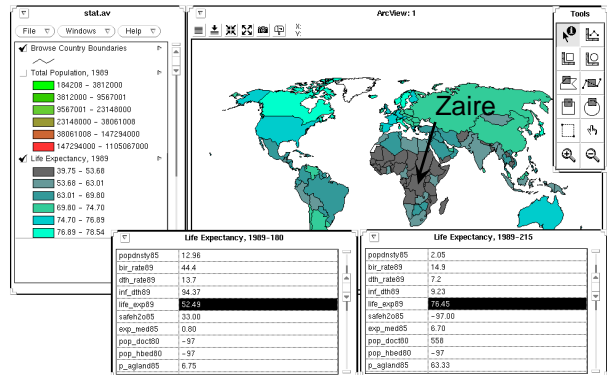
16. In both windows, scroll down to "exp_med85".

This attribute reflects the percentage of Gross Domestic Product (GDP) spent on medical care. Government and private spending are included in this figure. In the country of Australia, about 7% of the GDP is spent on medical care, as compared to the country of Zaire, in which less than 1% of the GDP goes toward medical care.

17. Scroll further down in both windows to the attributes "cal_cap85" and "prot_cap85".

The attribute "cal_cap85" represents the daily calorie supply from net food supplies in the country per capita, per day. The "prot_cap85" attribute represents the protein content of the net food supply per capita, measured in grams.

The difference in the attributes we have examined in steps 16 and 17 may relate to the difference in life expectancy in the two countries.
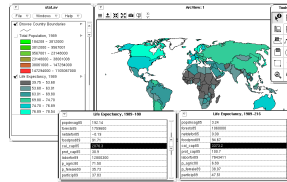
Exploring socioeconomic factors in South America

This exercise explores the socio-economic factors at work in countries in South America. Begin by opening the view "gnp.av", which displays ArcWorld 1:25M country boundaries for South America.

1. Click on the check box for the theme named "GNP Per Capita, 1989".

You will see a thematic map showing the 1989 Gross National Product (GNP) per capita for countries in South America. 1989 GNP per capita "gnp_cap89" is one of the variables in the ArcWorld 1:25M "stat25m" coverage. This coverage contains selected statistical attribute data at the national level.
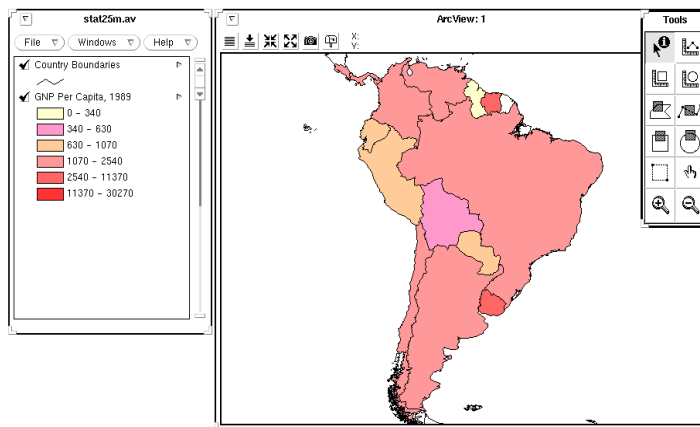
Certain portions of southern Chile and Argentina are not shaded because they are not the largest polygon for the country. See Chapter 6 for more information about using the "stat_flag" attribute.

2. Select "Properties..." from the theme-specific menu for the theme "GNP Per Capita, 1989".

The Theme Property Sheet will appear below the Table of Contents. Notice that the attribute "stat_flag" has been preset to equal "2". In addition, the attribute "gnp_cap89" has been preset to be greater than "-97", to prevent the display of countries that may have incomplete or missing data. Quit from the property sheet to continue.
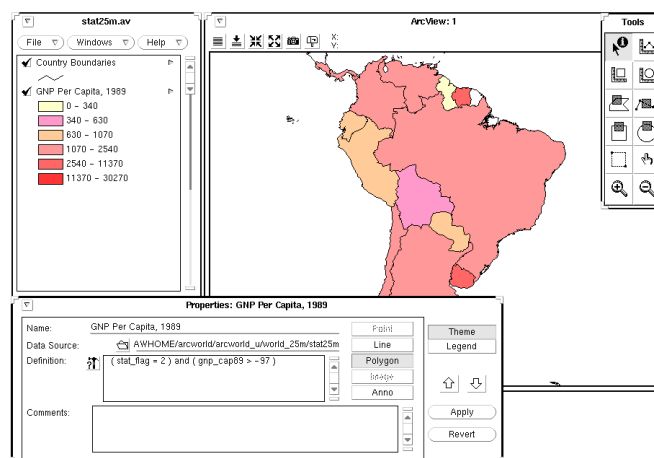
Setting the "stat_flag" attribute equal to "2" through the Theme's Property Sheet Query Builder provides accurate summary statistics for any selected country.

3. In the Table of Contents, select the Table option from the theme-specific menu for "GNP Per Capita, 1989".

This allows you to access information about estimated national income per capita, in 1989 U.S. dollars. Use the scroll bar to view the full extent of the attributes contained within the "stat25m" coverage.
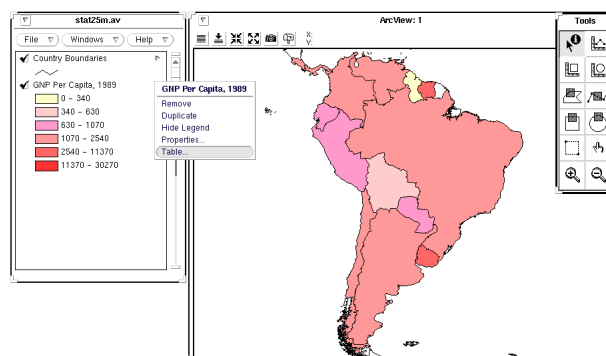
4. Click on the Query Builder icon in the table.

5. Click on the attribute "continent" within the scrolling list of attributes.

6. **Choose "=" from the operators, then enter "South America" on the line below the "Values/Attributes" box.**
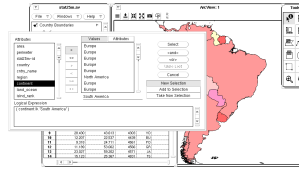
7. **Click "Select".**

   Each country within the continent of South America will highlight within the graphic display and the table.

8. **Scroll toward the center of the table to the attribute "gnp_cap89" within the table. Click on the attribute name and select "Statistics".**

   A window pops up that displays the count, sum, minimum, maximum, and mean values for the specified attribute, both for all records contained in the layer and for records specific to the selected set. Now you can compare the minimum and maximum GNP per capita of the countries of South America to the minimum and maximum GNP per capita of all the countries in the world. Note that the minimum GNP per capita for South American countries in 1989 was $340 and the maximum was $3,020.
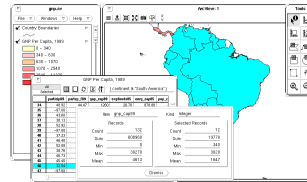
9. **Click "Dismiss".**

10. **Click on the Query Builder icon within the table.**

11. **Click on the attribute "gnp_cap89" in the scrolling list of attributes.**

12. **Choose ">" from the operators; then enter the number "3000" on the line below the "Values/Attributes" box.**

The logical expression now reads (gnp_cap89 > 3000).
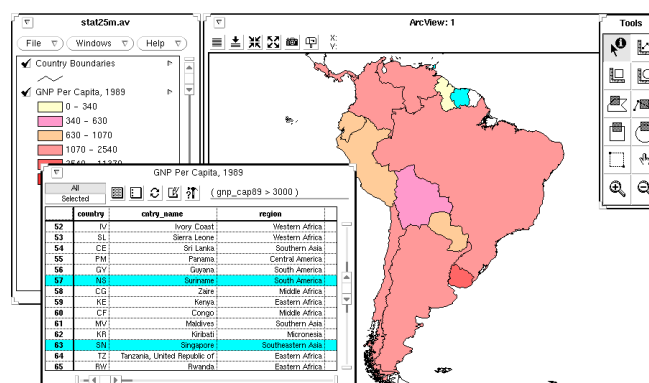
Use a logical expression to create a more focused selection set; in this case, to identify the country in South America with the highest gross national product per capita.

13. Click "Select."

Your map will now highlight (within the graphic display and the table) the country in South America with a 1989 GNP per capita greater than $3,000.

14. Click once on the theme name for "GNP Per Capita, 1989" within the Table of Contents to activate the theme.

15. Select the Identify tool from the Tool Palette.

16. Click once on the highlighted country with the Identify tool.

A window pops up that contains all attributes within the 1:25M "stat25m" coverage for the highlighted country, including its name. The highlighted country can now be identified as Suriname. Scroll down to "gnp_cap89". The country of Suriname had a GNP per capita of $3,020 in 1989. Keep this window up for further comparison.
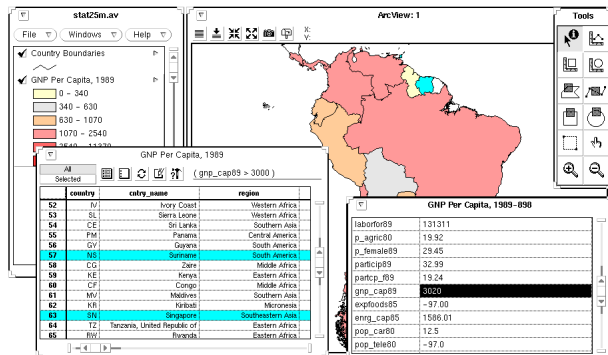
17. Click on the Query Builder icon within the table.

18. Click on the attribute "gnp_cap89" within the scrolling list of attributes.

19. Choose "<" from the operators and enter "350" on the line below the "Values/Attributes" box.

The expression now reads (gnp_cap89 < 350).

20. Click "Select."

One country will be selected as having a GNP per capita below $350 in 1989.

21. Click once on the highlighted country with the Identify tool from the palette.

A window pops up that contains all attributes within the "stat25m" coverage for the highlighted country, including its name. The country can now be identified as Guyana. Scroll down to the "gnp_cap89" attribute. Guyana had a GNP per capita of $340 in 1989 as compared to Suriname with a GNP per capita of $3,020 in 1989. Move the two popup windows side by side prior to continuing.
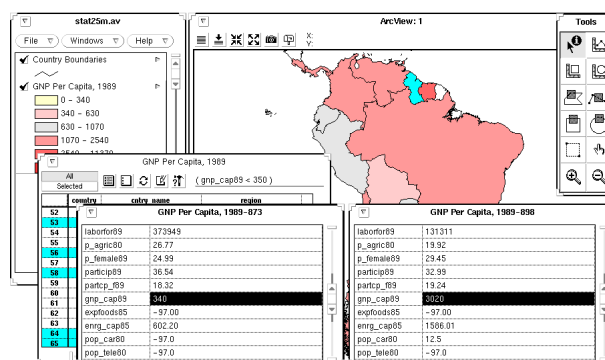
22. Scroll up to the attribute "foodprod89" within both popup windows.

This attribute represents each country's food production per capita in 1986–88, in relation

to that produced in 1979–81. Guyana's food production index of 69.59 indicates that food production per capita in that country fell by roughly 30 percent in 1986–88, compared with food production per capita in 1979–81. Suriname's food production fell approximately 9 percent. Keep this window up for later comparison.

23. **Scroll farther down in the popup windows to the attributes "p_aggdpr88", "p_indgdp88", and "p_sergdp88".**

    These attributes represent agriculture, industry, and services respectively, as a percentage of Gross Domestic Product (GDP), which is a component of GNP. Comparing the three attributes for Guyana and Suriname reveals that Guyana is more oriented toward agriculture and industry and Suriname is more service-oriented.

24. **You may continue to explore the differences in attributes between Suriname and Guyana.**

Deforestation in Central and South America

This exercise displays information that would be useful for comparing the rates of deforestation in Central and South American countries to related variables by analyzing specific attributes. Some of the themes in this view would also be appropriate for preparing a geographic reference basemap.

1. Begin by opening the view "forest.av".

A thematic map representing the 1985 annual rate of change of forest and woodland areas by country will draw on the screen. Positive numbers for this variable indicate an increase in forested area.
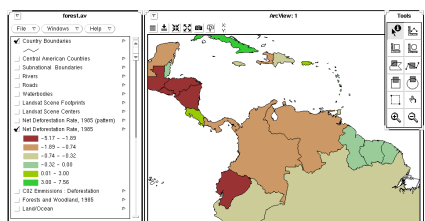
A thematic map representing net deforestation in 1985, by country.

2. Select the Table option from the theme-specific menu for "Net Deforestation Rate, 1985".

A window pops up that contains information for the "stat25m" coverage.

3. Click on the Query Builder icon within the table.

4. Click on the attribute "netdefor85" toward the center of the scrolling list of attributes.

5. Choose "<" from the operators and enter "−2.5" on the line below the "Values/Attributes" box.
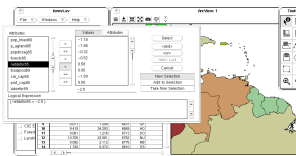
The expression now reads (netdefor85 < −2.5).

6. Click "Select".

Your map will now show two countries highlighted as having a net deforestation rate less than −2.5% in 1985.

7. Click "Selected" within the table.

This option displays only records
included in the selected set within
the theme's table.

**8. Click once on the theme
name "Net Deforestation
Rate, 1985" in the Table of
Contents to activate the
theme.**

This action activates the theme
area in the Table of Contents and
makes this theme a candidate for
further query.
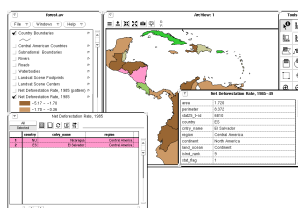
**9. Select the Identify tool from
the Palette and click once on
El Salvador, the westernmost
highlighted country.**

A window pops up that contains
all of the attributes in the
"stat25m" coverage for this
country. Keep this window up
for later comparison.

**10. Click once on Nicaragua, the
other highlighted country, with
the Identify tool.**

A second popup window appears
that contains all of the attributes
for the "stat25m" coverage for
Nicaragua. Position the two
popup windows beside each other
prior to continuing.

11. Scroll down to the attribute "netdefor85" in the popup windows.

El Salvador had a net deforest-ation rate of –5.17% compared to Nicaragua's net deforestation rate of –2.72%. The "forests85" attribute, which is a measure of total forest and woodland area in square kilometers, shows El Salvador as a country with 1,100 square kilometers of forests and woodland as compared to Nicaragua's 39,300 square kilometers. Scroll up to the attribute "popdnsty85". Compare this attribute for both countries. El Salvador has a higher population density, which might be a factor in the country's high deforestation rate.
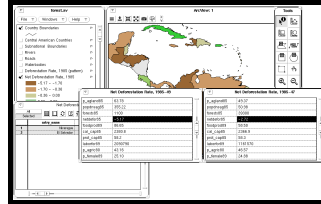
12. Quit from both popup windows and the theme's Table prior to continuing.

You will now utilize a bivariate mapping technique to compare net deforestation and two other related attributes.

Tip

To make room for new theme legends in the Table of Contents, use the "Hide Legend" option in the theme-specific menu (see page 2-9 in the *ArcView User's Guide* for more information on "Hide Legend" and "Show Legend"). Or, drag on the lower right-hand corner of the Table of Contents box to enlarge the available legend display space.

13. Click off the check box for "Net Deforestation Rate, 1985".

Choose the "Hide Legend" option from the theme-specific menu for

this theme.

14. **Click on the check box to the left of theme for "Net Deforestation Rate, 1985 (pattern)".**

A series of patterns will draw on the screen that represent the net deforestation variable we examined in the first steps of this exercise.
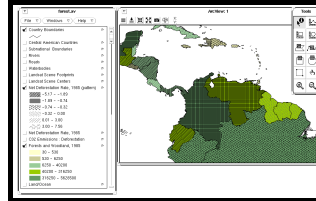
15. **Click on the check box to the left of "Forests and Woodland, 1985".**

This variable is represented with color and draws beneath the pattern for "Net Deforestation Rate, 1985". The combination of dark color and dense pattern represents countries with large forest and woodland area coupled with high net deforestation rate.

On your own...

You may use the Identify tool from the Palette to gain more information about a country or feature. Remember to activate the theme you would like to query by clicking on the theme name once within the Table of Contents.

16. **Click off the check box to the left of "Forests and Woodland, 1985".**

17. **Click on the check box to the left of "CO_2 Emissions: Deforestation".**

This variable represents carbon dioxide emissions from land use change. The measurement is expressed in thousands of metric tons. The dark color and dense pattern combination indicates countries with high net deforestation and high CO_2 emissions from land use change.
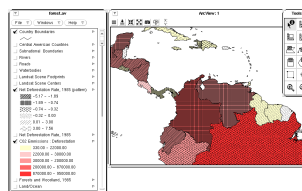
18. **Click off the check boxes to the left of "CO_2 Emissions: Deforestation" and "Net Deforestation Rate (pattern)".**

Choose the "Hide Legend" option from the theme-specific menu for these themes.

19. **Using the "Zoom to Box" tool from the Palette, zoom into an area that encompasses the country of El Salvador.**

You can now examine El Salvador, a country that had a net deforestation rate of –5.17% in 1985, more closely.

On your own . . .

You may change the symbolization of the country boundaries to a bolder line symbol for this portion of the exercise. Enter the legend portion of the theme property sheet and click twice on the line symbol. Choose a new line symbol from the Symbol palette and click "OK". To apply this change, click "apply" within the theme property sheet.

20. **Click on the check boxes to the left of "Central American Countries" and "Roads".**

    The "Roads" theme references the ArcWorld 1:3M roads coverage (rds3m). Hard surface roads are symbolized with a red line. El Salvador has a developed network of hard surface roads throughout the country, which is a possible factor in the high net deforestation rate.

21. **Click off the check box for "Roads".**

22. **Click on the check boxes for "Rivers", "Waterbodies", "Subnational Boundaries", and "Land/Ocean".**

    The features within these themes provide further geographic reference for El Salvador and the surrounding countries.

23. **Click off the check boxes for "Rivers", "Waterbodies", and "Subnational Boundaries".**

24. **Click on the check boxes for "Landsat Scene Footprints" and "Landsat Scene Centers".**

These themes reference the Landsat scene areas and the scene center points. Notice that there is overlap between each of the scenes.

25. **Double click on the "Landsat Scene Footprints" theme name to access the Theme Property Sheet.**

26. **Click on the Query Builder within the Property Sheet.**

Build the expression (cntry_nam1 lk 'El Salvador'), and click "select".
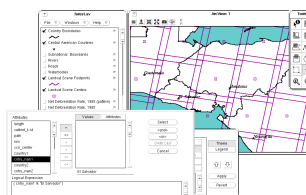
27. **Click "apply" within the Property Sheet.**

The representation of scene footprints is now limited to those covering El Salvador. These images would be useful for gaining more information about change in forestation patterns and development.

Data documentation views

Three views accompany the ArcWorld database ("browse.av", "world25m.av" and "world3m.av") that provide summary information about the data. Note that the view titled world3m.av references the entire ArcWorld 1:3M data set, and consequently requires more time to access and draw.

1. **Open the view titled "world25m.av".**

   This view references the ArcWorld 1:25M data set, which is in the Robinson projection.

2. **Click on the check box for any theme to display a sample of the indicated data.**

   Because of the high density of features for certain coverages in the ArcWorld database, the data documentation displays are restricted to a selected region.

3. Double click on any theme within world25m.av.

Within the comments box in the Theme Property Sheet, you can access basic information about the content of any of the ArcWorld coverages.
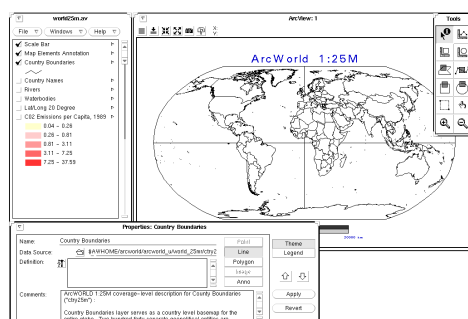
When you enter the Theme Property Sheet, the bottom portion of the comments text block will appear. Use the scroll bar at the right of the comments box to move to the top of the text block.

Ideas for other ways to use ArcWorld

The exercises in this guided tour provide only an introduction to the content and the potential applications of the ArcWorld database. The following table lists just a few of the many other issues you might want to explore by using the data. Next to each issue are some of the attributes in the ArcWorld 1:3M coverages that might be of interest.

Table 1: Other views

Issues	Attributes	Layer/Coverage
Planning educational assistance	Primary school enrollment ratio Teacher/student ratios Illiteracy rate	Education and Literacy (EDULIT)
Assessing nutritional adequacy of food supply	Daily protein supply per capita Daily calorie supply per capita	Food Production and Nutrition (AGRICUL)
Participation of women in society	Labor force participation rate Female labor force as % of total	Labor Force Characteristics (LABOR)
Planning health assistance	Infant mortality rate Mortality rate for children 0–5 yrs Population per hospital bed	Health and Vital Statistics (HEALTH)
Population studies	Population, age 0–14 as % of total Projected population, year 2000	Population Characteristics (POP_GEO)
Countries potentially most affected by increases in food prices	Expenditure on food as % of gross domestic product Food imports, cereals	Food Production and Nutrition (AGRICUL)
Countries potentially most affected by increases in energy prices	Expenditure on energy as % of gross domestic product Energy consumption per capita	Economic and Industrial Indicators (ECONIND)
Potential markets for news publications	Newspaper circulation per 1,000 population Illiteracy rate	Education and Literacy (EDU_LIT)
Assessing potential for technological development	Science and engineering students as % of total Secondary school enrollment ratio	Education and Literacy (EDU_LIT)

Chapter 3

Database concepts and organization

This chapter defines several basic database terms and explains how the ArcWorld database is organized. The standards and procedures employed during the development of the database are discussed, and the sources for the ArcWorld data are described. The information in this chapter applies to all components of the database, so it may be helpful to read this chapter before reading Chapters 4 and 5, which contain detailed descriptions of each data layer.

Concepts and terms

A map is a graphic display of spatially distributed elements called map features, which correspond to real-world geographic entities. These real-world entities are located spatially on maps by means of points, lines, and areas.

- *Points* define discrete locations on a map for geographic phenomena that are too small to be depicted as lines or areas, such as well locations, telephone poles, and buildings. Points can also represent locations that have no area, such as mountain peaks. In the ArcWorld database, points are used to represent cities and satellite scene centers.
- *Lines* represent the shapes of geographic objects that are too narrow to depict as areas (such as highways and streams).
- *Areas* are closed figures that represent the shapes and locations of homogeneous features such as countries, parcels, and water bodies.

The characteristics, or attributes, of map features may also be conveyed by using labels or graphic symbols. For example, streams and water bodies are

drawn in blue to indicate water; cities are labeled with their names; roads are drawn with various line widths, patterns, and colors to represent different road classes; and so on.

In addition to displaying feature locations and attributes, maps are typically characterized by the following:

- *Scale*—the relationship between distance on the map and distance on the Earth
- *Projection*—the system used to transform the curved surface of the Earth to a plane
- *Coordinate system—*the method used to relate feature locations by distance and direction from other features

Until recently, maps were only available in paper (or analog) form. The development of computerized geographic information systems has enabled analog map features, relationships, and characteristics to be translated into digital form for automated display, query, and analysis. The ArcWorld database is just such a digital geographic database, one that can be used by ArcView, ARC/INFO, or ArcCAD.

Coverages

The ArcWorld database is organized by coverage. Coverages represent the main method for vector data storage in ARC/INFO format. A *coverage* is a set of thematically associated data considered to be a unit. A coverage generally describes one type of map feature, such as roads, countries, or lines of latitude and longitude. A coverage contains both the locational data and thematic attributes associated with map features.

Coverage feature classes

In a coverage, map features are stored as points, lines (also known as arcs), or polygons (for areas). The three feature classes can be employed in a coverage either separately or in combination, depending on the requirements of the captured geographic data. For example, in the ArcWorld database, countries are stored in one coverage as both polygon features (areas) and line features (boundaries). A fourth special feature class, annotation, is used in ArcWorld to display country names and city names. When annotation is displayed the text is

Coverage feature classes and attribute tables
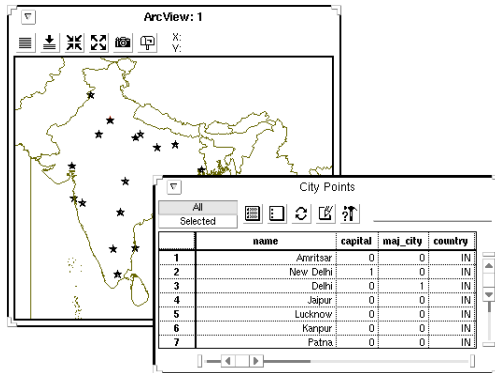
Points *represent features like named places. Points have no length or area. A point is defined as a single x,y coordinate pair.*
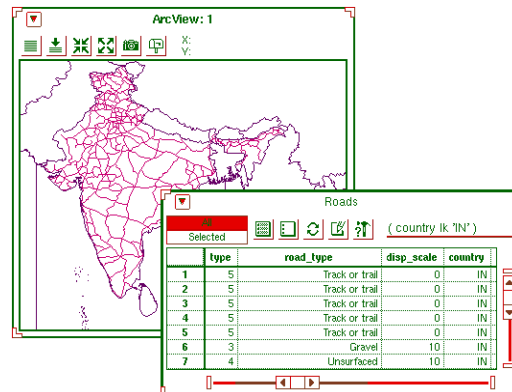
Lines *represent linear features like roads. Lines have length but no area. A line is defined as a string of x,y coordinate pairs with beginning and ending points.*
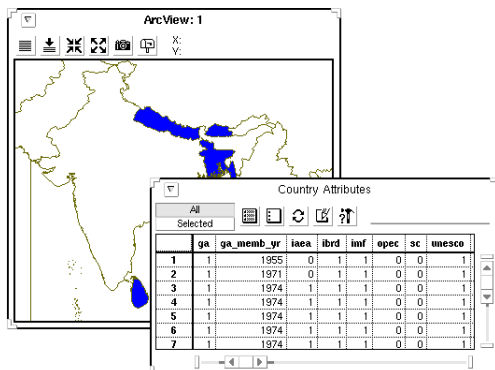
Polygons *represent area features like countries. Polygons have area and a perimeter. A polygon is defined as a string of x,y coordinate pairs with the same beginning and ending points.*

automatically scaled, projected, positioned, and proportioned based on the current map scale and projection.

In the ArcWorld database, the coverages have been given names that reflect content, such as CTRY3M (country boundaries at the 1:3,000,000 scale) and AGRICUL (agricultural production and nutrition data by country).

Two coverages, (1) Rivers and Water Bodies and (2) Roads, contain a very large number of features. For these layers two regional coverages are provided in addition to the coverage that contains the full extent of the database. The smaller coverages improve software performance for most operations. A description of the division between the eastern and western regional coverages is provided with the individual coverage's description in Chapter 4.

Feature attribute tables

The attributes of the polygons, lines, and points in a coverage are stored in *feature attribute tables.* Each feature class in a coverage has its own table; polygon attributes are stored in *Polygon Attribute Tables* (PATs); line attributes are stored in *Arc Attribute Tables* (AATs); and point attributes are stored in *Point Attribute Tables* (PATs).

The columns in a feature attribute table represent the attributes of geographic features. Each row, or record, in the table represents the attributes for a single feature.

ARC/INFO-generated attributes

ARC/INFO-generated attributes are automatically created by ARC/INFO and are different for each coverage type. The ARC/INFO-generated attributes are listed in Table 1. (Since the ArcWorld database was developed using ARC/INFO software, these attributes exist in the feature attribute tables even though they are not all apparent with ArcView software.)

Several of the ARC/INFO-generated attributes, such as length, area, and perimeter, provide useful information about coverage features. They are all calculated in the units used for the coverage coordinate system. The ArcWorld 1:3M database uses decimal degrees; the ArcWorld 1:25M database is presented in both decimal degrees and meters (Robinson projection).

Table 1: ARC/INFO-generated attributes

Attributes in Point Attribute Tables	Attributes in Arc Attribute Tables	Attributes in Polygon Attribute Tables
AREA (set to "0")	FNODE#	AREA*
PERIMETER (set to "0")	TNODE#	PERIMETER*
<coverage name>#	LPOLY# (set to "0" if no polygons)	<coverage name>#
<coverage name>-ID *	RPOLY# (set to "0" if no polygons)	<coverage name>-ID *
	LENGTH *	
	<coverage name>#	
	<coverage name>-ID *	

Note: Only the attributes marked with * appear in ArcView tables. The other ARC/INFO-generated attributes are physically present in the ArcWorld coverage tables but are not visible on the screen in ArcView.

Note that other ArcWorld attributes contain information similar to the ARC/INFO-generated data. In such cases, the two sets of values will be different from each other because they have been derived from a different source—not calculated from the coordinate representation of the feature. For example, in the POP_GEO coverage, both AREA and LANDAREA85 give a value for country land area. Yet the values are different because AREA is given in square decimal degrees (geographic coordinates) or square meters (Robinson projection) and is derived from a digitized map, while LANDAREA85 is given in square kilometers and is derived from the World Bank tabular database. (Note that the utility of decimal degrees are limited as units of measure for area, length, and perimeter because these values cannot be compared from one latitude to another.) Furthermore, in countries made up of more than one polygon, AREA contains the value for an individual polygon, while LANDAREA85 contains the value for the country as a whole.

Coverages in the user's guide

In this user's guide, a group of coverages like the three Rivers and Water Bodies coverages mentioned above is called a *layer*. To avoid repetition in Chapters 4 and 5, the layers are described rather than the individual coverages.

ArcWorld database organization

| Documentation Organization | Physical Organization |
| LAYERS | COVERAGES |
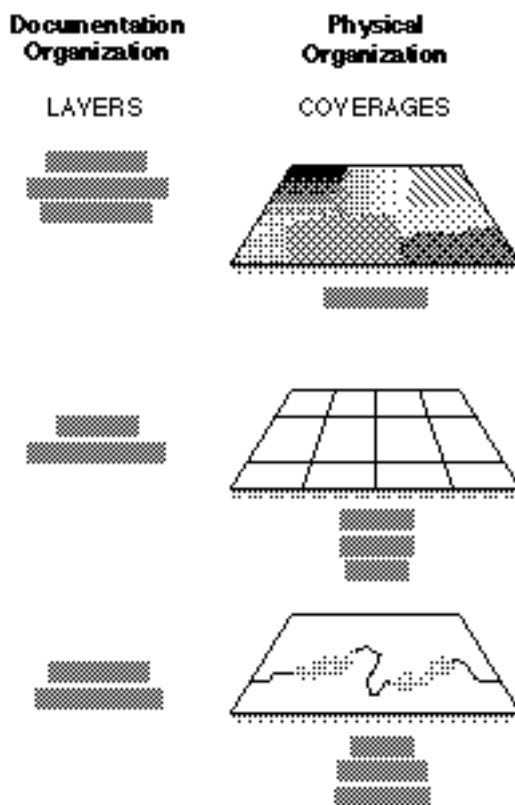
The ArcWorld database

The ArcWorld database includes three main groups of data, as follows:
- Data at a scale of 1:3,000,000 (presented in geographic coordinates, expressed in decimal degrees)
- Data at a scale of 1:25,000,000 (presented in geographic coordinates and in the Robinson projection. The two sets of 1:25M coverages have identical names, but they are delivered in different directories.)
- Browse Map coverages (data at a nominal scale of 1:40,000,000, in the Robinson projection).

Any one coverage contains data at only one scale and in one projection/ coordinate system.

Characteristics of ArcWorld 1:3M coverages

The ArcWorld 1:3M coverages contain more detail and a greater number of features and feature attributes than the 1:25M coverages. This user's guide groups the coverages containing the 1:3,000,000-scale data into cartographic, index, and statistical layers. An overview of these three 1:3M layer groups follows.

Cartographic layers. Coverages in the cartographic layers represent common basemap information made up of a variety of man-made and natural geographic features. The bulk of the data in these coverages is locational; attributes are few, and usually they identify the location, class, and cartographic significance of the features. The ArcWorld 1:3M database has six cartographic layers: Country Boundaries, Country Internal Divisions, Major Cities, Railroads, Rivers and Water Bodies, and Roads.

Index layers. Coverages in the three ArcWorld 1:3M index layers contain several geographic reference grids and data indexes. The index layers are: Landsat Nominal Scene Index (for Landsat 4 and 5 satellite data), Latitude/ Longitude Grids (5-, 10-, and 20-degree intervals), and Operational Navigation Chart (ONC) index.

Statistical attribute layers. Coverages in the ArcWorld 1:3M statistical layers contain both geographic features and a large number of attributes for country statistics. The country boundaries represented in the statistical attribute layers are slightly different than those in the Country Boundaries cartographic layer. The specific differences are explained in Chapter 4. The layers are as follows: Economic and Industrial Indicators, Education and Literacy, Food Production and Nutrition, Health and Vital Statistics, Labor Force Characteristics, Natural Resources and the Environment, and Population Characteristics.

Characteristics of ArcWorld 1:25M coverages

The ArcWorld 1:25M layers contain data that are generalized from the 1:3M coverages. Map features are less detailed, and there are fewer feature attributes. The 1:25M coverages complement the more detailed coverages by providing a quick overview of the ArcWorld data. Because versions of both scales are

stored in the same coordinate system, features from the 1:25M and 1:3M coverages can be displayed together. For example, you might display 1:25M Country Boundaries and Rivers and Water Bodies as a basic outline map, and simultaneously display the Landsat Scene Index from the 1:3M database.

ArcWorld 1:25M has four cartographic layers: Country Boundaries; Major Cities; Rivers and Water Bodies; and Map Elements (title and scale bar). There are one latitude/longitude grid layer (20-degree intervals) and one 1:25M statistical attribute layer.

Characteristics of Browse Map coverages

A highly generalized representation of the world's countries (with a nominal scale of 1:40,000,000) is linked to ArcWorld 1:3M statistical attributes so that thematic maps may be displayed very quickly. The Browse Map contains the major countries of the world. The smallest nations, especially island nations, are not shown in the Browse Map, and the continent of Antarctica has also been omitted. Ten coverages are included in the Browse Map: Major Cities, Latitude/Longitude Grid, Economic and Industrial Indicators, Education and Literacy, Food Production and Nutrition, Health and Vital Statistics, Labor Force Characteristics, Natural Resources and the Environment, Population Characteristics, and Selected Statistical Attributes.

Attributes

The attributes (or items) in the ArcWorld feature attribute tables contain different types of values—specifically, measurements, codes, flags, and names. The values contained in an attribute determine the kinds of statistical operations that can be performed on the data and influence the display of the data. The four kinds of attribute values are discussed below.

Measurement attributes

Measurement attributes have numeric values that indicate a measurement, such as number of people, calories, hectares, number of species, or dollars spent, and not a code or designation. For example, the values in the measurement attribute HHLDSIZR86 (persons per household, 1986) represent the average number of people per household. Measurement values are usually continuous (such as 3,145, 6.2, or –43.8) but may be ordinal (first, second, etc.). In the

Measurement
attribute

Missing
measurement
value

Flag attribute

	stat_flag	u_r_diff89	pop2000_89	landarea85	popdnsty85	bir_rate89	dth_rate89
1	1	1.7	4397000	323900	12.82	13.5	10.4
2	1	2.5	282000	103000	2.34	16.8	6.8
3	1	-98.0	-98	-98	-98.00	-98.0	-98.0
4	1	1.7	3646000	70280	50.37	15.8	8.9
5	1	-98.0	-98	-98	-98.00	-98.0	-98.0
6	1	3.7	9931001	-97	-97.00	11.9	11.0
7	1	2.8	16091000	127870	121.22	13.9	11.4
8	1	3.6	404000	-97	-97.00	12.2	10.5
9	1	-98.0	-98	-98	-98.00	-98.0	-98.0

Country Statistical Attributes

ArcWorld database, measurement attributes are most common in the statistical attribute layers.

Measurements can be expressed either as raw values or as percentages. Raw or nonstandardized attributes, such as the number of active physicians in a country, contain values indicating the original count or measurement. Such attributes cannot easily be compared across countries because no standard for comparison has been established. Raw values can be standardized to a unit of area or population size. For example, the number of physicians in a country could be divided by the total population, resulting in the value for the number of physicians per capita. This standardized value can then be meaningfully compared to the number of physicians per capita in other countries. Many raw values in the ArcWorld statistical attribute layers have also been standardized and are expressed as percentages, per units of measure, or per capita.

Missing measurement values

Sometimes the statistical measurement for a particular geographic area is not available in the database. The value may be missing for three reasons: the data is unavailable for an attribute; an entire country was not included in the source database; or the polygon represents an ocean area. In the statistical coverages, any of these conditions is represented by a negative code.

Data shown as missing in the World Bank or World Resources Institute (WRI) tabular databases are indicated by a "-97" in the ArcWorld database. The "-98" code indicates those ArcWorld countries which have no statistical data because

ARC/INFO-generated attribute

Code attribute

Name attribute

Code attribute

	riv3m_e-id	type	water_type	water_rank	country	cntry_name
1	7369	3	Lake	3	IN	India
2	7403	3	Lake	3	IN	India
3	7452	3	Lake	5	IN	India
4	7478	3	Lake	4	IN	India
5	7552	3	Lake	4	IN	India
6	7603	2	Reservoir	0	IN	India
7	8007	1	River	1	IN	India
8	8035	1	River	1	IN	India
9	8045	7	Island	4	IN	India

Rivers and Lakes

All / Selected

Classification attributes

that particular geo-political unit was not included in the source database. Ocean area is indicated by a code of "-99". Data are present only for land areas of the world.

Some minor adjustments to the correspondence between the ArcWorld Federal Information Processing System (FIPS) publication 10-3 country codes and the World Bank and World Resources Institute country codes were made by ESRI. These were generally restricted to polygons representing areas which are subject to political dispute (country codes beginning with an "X"). Adjustments were made in sixteen situations; in all of them, ESRI assigned the code of the country in actual control of the area to the disputed polygons in the items WB_CNTRY and WRI_CNTRY. (The specific cases are listed in Appendix C.)

To perform statistical analyses with attributes that contain missing measurement values, first select only those records that contain values greater than -97. True zeros (zero may represent zero or less than half of the unit of measure) and negative numbers can occur in those attributes which indicate net rates of change; so, selecting for positive values may yield an incomplete set of valid records.

Code attributes

Code attributes have either numeric or alphabetic codes. The codes are a short form for text descriptions of groups or categories. In the ArcWorld database, code attributes are most common in the cartographic and index layers.

Numeric codes generally begin with "1" and rise sequentially. The code order may be random, in which case the codes have no inherent numeric meaning. However, the order may also reflect frequency or relative significance. For example, in the Roads coverage, the quality of the surface material and speed of travel decrease with increasing code values. Features that are inadvertently created and are not the focus of the classification scheme, such as "background" polygons, are usually represented by extreme value codes, such as "9" or "99".

Alphabetic codes are used sometimes instead of numeric codes. For example, countries are assigned the Federal Information Processing Standards (FIPS) two-letter country code. The World Bank uses a three-letter country code.

Two special types of code attributes, repetitive and flag attributes, warrant discussion. Repetitive attributes share a common set of codes. Repetitive attributes are useful in situations in which two or more of the codes apply to the same feature. In the Landsat Scene Index layer, for example, the set of six repetitive attributes, COUNTRY1 through COUNTRY6, utilizes the country codes to indicate those countries that occur in a single Landsat scene. The country codes in these repetitive situations are not in any particular order.

Flag attributes

Flag attributes contain a code that identifies certain records, or features, in a coverage. Flags are needed in ArcWorld coverages that contain country polygons in order to generate accurate summary statistical data from measurement attributes. This is so because of two situations. First, some countries, such as those that include offshore islands, are represented by multiple polygons. Second, statistical attributes for a particular country may be applied to additional polygons such as disputed territories (areas with country codes beginning with "X"), or areas that were considered to be part of the country in the source database but are considered as different countries in ArcWorld.

For measurement attributes, each separate polygon is assigned the total value for the political unit, resulting in repeating values. For countries or political

units made up of multiple polygons, the sum of all the records would yield inflated results. The flag values (in the attribute STAT_FLAG) have been assigned to the largest polygon in each country or to a statistical calculation polygon. These flag values allow a single record per political or statistical unit to be selected for statistical analysis or for displaying text.

Name attributes

Name attributes may contain either alphabetic or alphanumeric names. They serve two functions in the ArcWorld database. First, they may contain the English-language equivalents of codes. If so, the user has the option of generating an on-line display of attribute classes either by name or by code. For example, in the Rivers and Water Bodies layer, TYPE contains the codes for the different classes of water features, and WATER_TYPE contains the names for these classes.

A second function of name attributes is to store place name information for the geographic features. For example, the attribute called "NAME" in the Major Cities layer contains city names.

ArcWorld attributes

In Chapters 4 and 5, the attributes within a coverage have been grouped by topic, or theme, regardless of the type of values they contain. These thematic attribute groups, which serve to organize the sometimes long lists of coverage attributes, are intended to help the user locate data of interest in the on-line feature attribute tables. The most common of the ArcWorld thematic attribute groups are described below.

Geographic reference attributes

Geographic reference attributes allow the user to create displays that contain features located in a geographic area of interest, such as country, region, or continent. Many ArcWorld layers include geographic reference attributes, although the specific attributes vary from one type of feature representation to another. The geographic reference attributes used in the ArcWorld database are presented in Table 2.

Table 2: Geographic reference attributes

Attribute Name	Description
COUNTRY CNTRY_NAME	The two-letter code of the country in which a feature is located, and the name of the country.[1]
REGION	The name of the world region in which a feature is located.[1,2]
CONTINENT	The name of the continent in which a feature is located.[1,2]
COUNTRY1 COUNTRY2	The two-letter codes of the countries on each side of a linear feature.[1]
CNTRY_NAME	Both of the country names for a linear feature coincident with a country boundary.[1]
REGION	Both of the world region names for a linear feature coincident with a world region boundary.[1,2]
CONTINENT	Both of the continent names for a linear feature coincident with a continent boundary.[1,2]

Notes: 1. A complete listing of country, region, and continent codes is provided in Appendix C.   2. Regions are shown on the map in Chapter 1.

Classification attributes

Classification attributes, which occur primarily in the cartographic layers, contain codes or names that are used to organize geographic features. For example, in the 1:3M Rivers and Water Bodies coverage, the attribute TYPE contains codes that specify whether a particular polygon represents a river, reservoir, lake, intermittent lake, or other type of water feature. Categories in the classification attributes are generally mutually exclusive, although some of them, like the repetitive country attributes, may be used together.

Cartographic significance attributes

Cartographic significance attributes, which occur in the cartographic layers, contain codes that indicate cartographic significance or rank. Both a qualitative and a quantitative scheme are present. The Country Boundaries and the Rivers and Water Bodies layers employ a qualitative scheme in which features are assigned one of six ranks ranging from "basic reference" to "minor". The Roads and Railroads layers use a quantitative scheme based on minimum

appropriate map scale. Features are assigned one of five scale ranks ranging from 1:80 million to 1:5 million.

Other attributes

The remaining attributes in the ArcWorld layers are grouped by topic to assist in locating the desired information. Most of them are measurement attributes. Some of the attribute groups in the Natural Resources and the Environment coverage are, for example, Economic, Health, Wilderness, Housing, Natural resources, Habitat, Energy, Food supply, and Air pollution attributes.

Individual attributes in the Health group include SAFH20UR88 (percentage of the urban population with access to safe water, in 1988), and IM_MEASL90 (percentage of one-year olds immunized against measles in 1990).

Naming conventions

To ensure consistency, naming conventions were adopted for ArcWorld coverages and attributes. The names were intended to reflect two aspects of the database—feature content and map scale—while complying with MS–DOS restrictions on file name length. Tables 3 and 4 present the conventions used for coverage and attribute names.

Attributes common to several different layers, such as country name, were assigned the same attribute name in all layers (CNTRY_NAME). Conversely, unique attributes were given names that are always unique within a layer and usually unique across different layers. As an exception, some attributes in the database have generic names even though they refer to different features. For example, both the water body and railroad classification code attributes are named TYPE. The attribute names for the World Bank and the World Resource Institute statistical data are unique.

Table 4: Attribute naming conventions

Convention	Examples	Applied to:
P_ = percentage	**P**_AGLAND85 (Percentage of land used for agriculture in 1965)	Statistical attribute coverages
K = thousand	PLTHR_**1K** (Number of threatened or endangered plant taxa per 1,000 taxa)	Statistical attribute coverages
_CAP = per capita	ENRG_**CAP**85 (Energy consumption per capita)	Statistical attribute coverages
POP_ = population	**POP**_DOCT80 (Population per physician in 1980)	Statistical attribute coverages
65 = 1965 70 = 1970 75 = 1975 80 = 1980 85 = 1985 89 = 1989	GRW_RATE**65** (Population growth rate for the year 1965)	Statistical attribute coverages with time series or year specific data
Abbreviation	**LABORFOR**85 (Number of economically active people in 1985) **P_0_14_85** (Percentage of the population between 0 and 14 years of age in 1985) **NETDEFOR85** (Net annual rate of change to forest land area in 1985)	All attributes

Table 3: Coverage naming conventions

Convention	Examples	Applied to:

Database scale
  3M = 1:3,000,000
  25M = 1:25,000,000
	RDS**3M**
	RDS**25M**
		Cartographic coverages in ArcWorld 1:3M and 1:25M

World region
  E = Eastern Region
  W = Western Region
	RIV3M_**E**
	RIV3M_**W**
		ArcWorld 1:3M Rivers and Water Bodies, and Roads coverages

Content or source	**RIV**25M (Rivers) **LTLG5** (Latitude/longitude grid, 5-degree intervals) **WRI**_3M (Natural Resources and the Environment from the World Resources Institute database)	All coverages

Note: The coverage feature attribute tables are assigned the coverage name plus an extension for the table type (.PAT for polygons and points, .AAT for arcs). For example, the file RDS3M.AAT contains the arc attribute table for the RDS3M coverage.

Data sources

This section reviews the sources for ArcWorld data, discusses their currency, and briefly indicates modifications or enhancements that were made to the source data for the ArcWorld database. (Appendix A describes the development of the ArcWorld database in detail, and the data sources and currency are summarized in Table 5.) The name of the reference document for each source is also noted where relevant (complete bibliographic references are listed in Appendix E). These documents should be consulted for a more comprehensive discussion of the attributes in this database than is possible here.

The primary source for the ArcWorld geographic data was the U.S. Government's World Data Bank II at a nominal scale of 1:3,000,000. Other geographic data were generated or compiled by ESRI, particularly the data for the index layers and the Browse Map cartographic data. The World Bank's Social Indicators of Development database for 1990, and the World Resources Institute's World Resources 1992–1993 Data Base were the sources for the statistical attributes.

Table 5: Sources and currency of ArcWorld 1:3M data

Layers	Graphic Data Source	Attribute Data Source
Cartographic Layers		
Country Boundaries	WDBII, 1988	WDBII, 1988
Country Internal Divisions	WDBII, 1988	WDBII, 1988
Major Cities	Defense Mapping Agency—Operational Navigation Charts, (1:1 million-scale paper maps), various years	The *World Fact Book*, 1989
Railroads	WDBII, 1988	WDBII, 1988
Rivers and Water Bodies	WDBII, 1988	WDBII, 1988
Roads	WDBII, 1988	WDBII, 1988
Index Layers		
Landsat Nominal Scene Index	EOSAT algorithm, 1992	EOSAT algorithm, 1992
Latitude/Longitude Grids	ESRI, 1992	ESRI, 1992
Operational Navigation Chart Index	ESRI, 1990	Defense Mapping Agency, ONC and JNC published indexes
Statistical Layers		
Economic and Industrial Indicators	WDBII, 1988	World Bank, Social Indicators of Development (SID) database, 1990
Education and Literacy	WDBII, 1988	World Bank, SID database, 1990
Food Production and Nutrition	WDBII, 1988	World Bank, SID database, 1990
Health and Vital Statistics	WDBII, 1988	World Bank, SID database, 1990
Labor Force Characteristics	WDBII, 1988	World Bank, SID database, 1990
Natural Resources and the Environment	WDBII, 1988	World Resources Institute, World Resources 1992–1993 Data Base
Population Characteristics	WDBII, 1988	World Bank, SID database, 1990

World Data Bank II (WDBII)

World Data Bank II is a digital representation of the coastlines, islands, rivers, lakes, international boundaries, roads, and railroads of the world for use in automated mapping systems. The data were originally stream digitized and have a nominal input scale of 1:3,000,000. The source, scale, and completeness of the data vary by country. The original data files were in Cartographic Automatic Mapping (CAM) format and comprised six line-

oriented files organized by world regions. The files are CIL (coastlines, islands, lakes), BDY (boundary), PBY (political boundaries), RIV (rivers), RRS (railroads), and RDS (roads). The original line orientation of much of the WDBII data was extensively restructured in order to provide a polygonally oriented database design for the ArcWorld database. For additional information about the WDBII data source, see Anderson, Angel, and Gorny (1977).

The WDBII data are the basis for features and attributes in the following ArcWorld 1:3M cartographic coverages: Country Boundaries, Country Internal Divisions, Railroads, Rivers and Water Bodies, and Roads. The WDBII data are also the basis for the country features in all the statistical coverages. The WDBII database employed in the ArcWorld database is continually being updated. ArcWorld is based on a 1988 version of WDBII.

Major cities

The locations of major cities in ArcWorld were derived from 1:1,000,000-scale Operational Navigation Charts published by the U.S. Defense Mapping Agency (DMA). In a few situations the 1:1,000,000-scale derived point locations were adjusted to match the 1:3,000,000-scale rendering of the coastline.

Landsat nominal scene indexes

The Landsat satellites are operated by the Earth Observation Satellite Company (EOSAT). EOSAT provided ESRI with an algorithm for generating two types of index information for Landsat 4 and 5 scenes: nominal scene center points and nominal scene footprints. ("Nominal" indicates that the center points and footprints represent an average, not an absolute, geographic location. The center points and footprints were averaged because the orientation of the satellite varied slightly from one orbit to the next.) Nominal scene center points were calculated first; then scene footprints were mathematically generated with the center points as the focus. The footprints are rectangular outlines whose exact dimensions vary with satellite orientation. In the ArcWorld database, these data are the basis for the Landsat Nominal Scene Index coverages.

World Bank, Social Indicators of Development database, 1990

The World Bank database called Social Indicators of Development 1990 is a compilation of statistical data for assessing human welfare approximately 170 countries worldwide. Up to ninety-four indicators describe human resources and natural endowments. Since the data are presented as time-series extending

from 1965 to 1989 in five-year intervals, each unique attribute may be repeated up to six times. The data are tabular and available in digital form. The attributes are included in the following ArcWorld 1:3M layers: Economic and Industrial Indicators, Education and Literacy, Food Production and Nutrition, Health and Vital Statistics, Labor Force Characteristics, and Population Characteristics. Forty of these attributes are included as part of the ArcWorld 1:25M Statistical Attributes layer. The reference document for this data source is *Social Indicators of Development 1990.*

World Resources Institute, World Resources 1992–1993 Data Base

The World Resources 1992–1993 Data Base is one of a series of five statistical databases developed by the World Resources Institute in collaboration with The U.N. Environment Programme and the United Nations Development Programme. The report provides country-level statistical information for the condition of and trends in the world's natural resources and global environment. The data are presented in more than fifty tables and are available in digital form. A subset of 100 attributes is included in the ArcWorld 1:3M layer called Natural Resources and the Environment. Thirty of these 100 attributes are included as part of the ArcWorld 1:25M Statistical Attributes layer. The reference document for this data source is *World Resources 1992–1993: A Guide to the Global Environment—Toward Sustainable Development.*

ESRI in-house development

Several ArcWorld coverages do not have a specific source, but were developed for the database by ESRI (e.g., the geographic and attribute data for the Latitude/Longitude Grids coverages). The Operational Navigation Chart (ONC) Index was digitized from the Defense Mapping Agency's ONC index map. The cartographic data for the Browse Map coverages were developed by a professional cartographer who manually generalized a small-scale version of WDBII. The redrafted map was then scanned and coded by ESRI.

Coordinate systems

The ArcWorld database is available in a coordinate system that promotes the use of the data set both alone and in conjunction with other data sets. ARC/INFO users will be able to convert the database to other projections. The ArcWorld 1:3M and 1:25M databases also feature a specified coordinate precision.

Projection systems

The ArcWorld 1:3M database is delivered in decimal degrees. Storage in geographic coordinates facilitates use with other data, which are commonly supplied in decimal degrees, and enables conversion into the projection of choice for update or analysis. The units of measure for the decimal degrees are spherical latitude/longitude coordinates. For example, the latitude/longitude coordinate of 37°30'15" is expressed as 37.50417.

The ArcWorld 1:25M database is delivered in the Robinson projection as well as in decimal degrees. The coordinate units employed in conjunction with the Robinson projection are meters. The central meridian is at zero degrees longitude. Robinson is a pseudocylindrical projection in which the world "looks right," with a good balance of size and shape for the land masses. It is not, however, conformal, equal area, equidistant, or perspective. It has true direction along all parallels and along the central meridian. Distances are constant along the equator and other parallels but the scale varies. The projection has true scale along 38 degrees north and south. There is constant scale along any given parallel, and the scale is the same along the parallels that are at equal distances from the equator.

Datum

No single statement can be made about the datum for the ArcWorld data because the data were originally automated from a variety of source maps whose scale and reference spheroid (datum) are unknown. The datum used during the process of inverting the projected map source to decimal degrees is also unknown. Any differences between datums would generally be insignificant, however, given the small input scale (nominally 1:3,000,000) of the data and their intended use (as a small-scale global basemap for thematic mapping and visual backdrop). As long as the data are expressed in decimal degrees (a spherical coordinate system), datum is generally not an issue. An appropriate worldwide or regional datum would need to be selected when any portion of the

decimal degree version of the database is projected into a specific projection. A sphere with a radius of 6,370,997 meters was the referenced datum for the projection of the ArcWorld 1:25M and Browse Map data into the Robinson projection.

Coordinate precision

Coordinate precision refers to the maximum number of digits allocated within a data file for the storage of an x, y, or z coordinate value. Single-precision maps store as many as seven significant digits for each coordinate. ArcWorld data are provided in single precision. This means that any x,y coordinate in the ArcWorld 1:3M database has a locational resolution at least to the nearest 100 meters at the equator. The 1:25M and Browse Map versions of ArcWorld in the Robinson projection also have a locational resolution to at least the nearest 100 meters at the equator.

Projection conversion capability

ARC/INFO users can employ the PROJECT command to convert the ArcWorld data into other projections. A coordinate system definition file (PRJ) is included for each ArcWorld coverage and can be used in ARC/INFO for map projection conversions. This option is not available to ArcView users.

Chapter 4

In greater detail:
The ArcWorld 1:3M layers

This chapter describes the individual coverages in the ArcWorld 1:3M database. To avoid repetition, coverages that belong to the same layer are described together, since coverages in the same layer have the same feature and attribute definitions, varying only in spatial extent. The layer descriptions are presented in three major groups (cartographic, index, and statistical attribute). Within each group, the layers are listed in alphabetical order.

The description of each layer begins with a discussion of the map features and attributes in that layer. The discussion continues with information about the particular use of the coverage(s) in that layer. Then a tabular summary of the layer is given. These tables list the individual coverage names, coverage feature classes, map feature counts, and the number of database attributes associated with each feature class. The last part of the layer description, usually the longest, defines the individual attributes that appear in the coverage feature attribute tables, and the coding schemes associated with the attributes.

The summary tables for ArcWorld 1:3M layers may list up to three coverage names for each layer. These coverage names correspond to the full world coverage and, if required, each of the sectional parts. The section parts are uniquely identified by directional suffixes: "_E" for east or "_W" for west.

Standard ARC/INFO-generated attributes discussed in Chapter 3 are not described here, nor are they included in the attribute count in the layer summary tables.

Detailed attribute field definitions for both dBASE and INFO formats are given for each layer in Appendix B.

ArcWorld 1:3M cartographic layers

The coverages in the cartographic layers contain basemap geographic features such as roads, rivers, political boundaries, and city names, which provide a locational context for the data in the statistical layers. The features in these coverages represent those that are often placed on maps to orient the user. These cartographic coverage attributes are confined to those used for classification, geographic reference, and cartographic significance. The Country Boundaries coverage described in this section reflects the recent changes in the former Soviet Union (i.e., independent republics) and Germany (i.e., one country). The country boundaries used as the cartographic foundation for the statistical attribute coverages described later do not reflect these recent political changes so that they match the World Bank and World Resources Institute tabular data from previous years.

The ArcWorld 1:3M cartographic layers and coverages are listed in the table below.

Layer	Coverage names
Country Boundaries*	CTRY3M
Country Internal Divisions	ADMIN3M
Major Cities*	CITY3M
Railroads	RR3M
Rivers and Water Bodies*	RIV3M, RIV3M_E, RIV3M_W
Roads	RDS3M, RDS3M_E, RDS3M_W

* Generalized versions of these layers are provided with ArcWorld 1:25M. If you do not need the detail of the 1:3M coverage, substituting a generalized coverage will minimize display time.

Country Boundaries
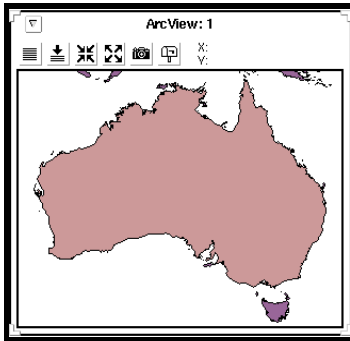
Polygons and Lines

Layer description

The Country Boundaries layer serves as a country level basemap for the entire globe. Two hundred forty separate geopolitical entities are represented and identified according to the Federal Information Processing Standards (FIPS) country codes (from FIPS publication 10-3). The fifteen former Soviet Union republics were upgraded to full international status. East and West Germany and North and South Yemen were combined into single countries. These changes make the layer current to world political conditions as of January 1, 1992.

Line attributes are present that identify coastlines and six types of international boundaries. Attributes that permit countries to be individually selected for display are contained in both the line and polygon attribute tables. Annotation containing country names accompanies this layer.

Using the Country Boundaries coverage

Countries with multiple geographic parts such as offshore islands or overseas territorial possessions are represented in the database by multiple polygons all having the same country code. A flag attribute (STAT_FLAG) is provided to identify the largest polygon for each country. This flag allows selection of a single data record per country, which is necessary for correct tabulation purposes. The countries represented by the most polygons are Canada (1,658), Philippines (1,286), Indonesia (939), Greenland (542), and Norway (361).

Country Boundaries

Summary of the Country Boundaries coverage

Coverage name: CTRY3M

Source and currency: U.S. Government—World Data Bank II, 1988

Thematic attribute   Geographic reference attributes (polygons and lines)
groups: World organization membership (polygons)
                       Land/ocean indicator (polygons)
                       Cartographic significance (polygons)
                       Statistical flag (polygons)
                       Classification attribute (lines)
                       International boundary status attribute (lines)
                       Boundary coincidence with rivers (lines)

Annotation text: Country names

Feature class	Feature	Number of features	Number of attributes
Polygons	All polygon features	Represented by ca. 12,902 polygons	19
	Geopolitical units	256 features represented by ca. 12,132 polygons	
	Continents	Represented by ca. 208 polygons	
	Offshore islands	Represented by ca. 11,924 polygons	
Lines	All line features	Represented by ca. 18,040 lines	9
	Coastlines	Represented by ca. 14,351 lines	
	International boundaries (all types)	Represented by ca. 1,204 lines	
	Coral reefs	Represented by ca. 1,525 lines	

In special circumstances, separate geographical areas have been defined in the coverage that do not have an equivalent FIPS country code. In the sixteen cases where this occurred, ESRI assigned a series of special country codes all beginning with the letter "X". Instead of indicating a country name these X-series codes provide a description of the special circumstances present for these areas. For

example, XG equals "Chinese control claimed by India,"
and XN equals "Sudan, administered by Egypt." See
Appendix C for a complete listing of X-series codes.

The country name annotation was placed so that it would not
overlap the city name annotation that accompanies the Major
Cities layer.

Polygon attributes

Geographic reference attributes

COUNTRY
CNTRY_NAME
REGION
CONTINENT

These attributes contain the following: FIPS 10-3 two-letter
country codes, country names, region names, and continent
names. Codes for countries and region and continent names
are listed in Appendix C. The world regions are shown on
the map in Chapter 1. These geographic reference codes can
be used to select particular country polygons, world regions,
or entire continents for display or study.

Land/ocean indicator

LAND_OCEAN

The codes for this attribute identify continents, islands, and
ocean areas, as follows:

Codes Definitions
 1 = Continent
 2 = Offshore island
 3 = Ocean

Cartographic significance

ISLND_RANK

Offshore islands are ranked for cartographic significance,
primarily on the basis of size. These rank codes are present
only for islands surrounded by ocean; no islands within
inland water bodies are included in this layer. Greenland is
the largest island. Of the approximately 11,925 islands in

Country Boundaries

the coverage, fewer than 18 percent (ca. 2,100) are ranked as basic reference features. The codes are as follows:

Codes		Definitions
1	=	Basic reference feature
2	=	Major
3	=	Additional major
4	=	Intermediate
5	=	Minor
9	=	Unranked

Statistical flag

STAT_FLAG   Flag attribute used to identify a single polygon for each FIPS 10-3 country code. The flag is applied to the largest polygon (based on area) in each country. The codes are as follows:

Codes		Definitions
0	=	Other polygon
1	=	Largest polygon per country

Note: the STAT_FLAG attributes in the statistical attribute coverages include an additional code value ("2") in order to accommodate the generation of summary statistics.

World organization membership attributes

These attributes indicate membership in international organizations. Each of the organization attributes can be used to select a group of country polygons for display or study. The codes are as follows:

Codes		Definitions
0	=	Not a member of this organization
1	=	A member of this organization

EEC   European Economic Community (12 members).

FAO   Food and Agriculture Organization (157 members).

GA
GA_MEMB_YR

United Nations General Assembly (159 members), and the year that the country joined the U.N. General Assembly.

IAEA

International Atomic Energy Agency (110 members; excludes Vatican City, which is not part of the database).

IBRD

International Bank for Reconstruction and Development (i.e.,World Bank; 152 members).

IMF

International Monetary Fund (154 members).

OPEC

Organization of Petroleum Exporting Countries (13 members).

SC

United Nations Security Council (5 permanent members).

UNESCO

United Nations Education, Scientific and Cultural Organization (159 members).

WHO

World Health Organization (165 members).

WMO

World Meteorological Organization (158 members represented in this database).

Line attributes

Classification attributes

TYPE
BND_TYPE

Each line is classified according to the type of feature it represents. This attribute allows you to symbolize different line features (political boundaries, coastlines, reefs, etc.) differently. TYPE contains the code number, and BND_TYPE contains the English description. The codes are as follows:

Country Boundaries

Codes   Equivalents
1 = Coastline
2 = International boundary
3 = Coral reef
4 = World region boundary
9 = Grid line

Grid lines (code 9) have been incorporated into this coverage for processing purposes. These grid lines carry no thematic information and can be "turned off" during data displays by reselecting for all TYPE codes not equal to 9. The grid lines follow lines of longitude and latitude.

International boundary status attribute

BND_STATUS   Each international boundary is classified according to boundary status. This attribute allows you to display the various types of boundaries using different colors or line symbols. The codes are as follows:

Codes   Definitions
1 = Demarcated or delimited
2 = Indefinite or in dispute
3 = Line of separation or sovereignty on land
4 = Demilitarized zone in Israel
5 = No defined line
6 = Selected claim lines
9 = Not an international boundary

Boundary coincidence with rivers

BND_COINC   Each international boundary is classified as whether it is
coincident with a river line segment in the RIV3M coverage.
This attribute allows you to identify those portions of
international boundaries that were considered coincident with
a river or a portion of a river. This determination was made
by the United States government agency that originally
developed World Data Bank II. Approximately 35 percent
of the international boundary lines in the coverage are
classified as coincident. The codes are as follows:

Codes   Definitions
   0 = Not coincident with river line segment
   1 = Coincident with river line segment

Geographic reference attributes

COUNTRY1   These attributes contain the following: two-letter country
COUNTRY2   codes (two attributes), country names, regional codes, and
CNTRY_NAME   continent codes. The countries on either side of an inter-
REGION   national boundary are listed by code in separate attributes
CONTINENT   (COUNTRY1 and COUNTRY2), and by name in a single
attribute (CNTRY_NAME; e.g., "France/Germany"). Only
one country is identified for coastlines. A similar dual
coding scheme was used for boundaries between regions
and continents, except that codes rather than names were
used.

The "KQ" (Kingman Reef) country code exists only as a line
attribute. The land area of Kingman Reef is too narrow to be
represented as a polygon at 1:3 million scale.

Countries, regions, and continents and their corresponding
codes are listed in Appendix C; regions are also shown on
the map in Chapter 1.

Country Internal Divisions
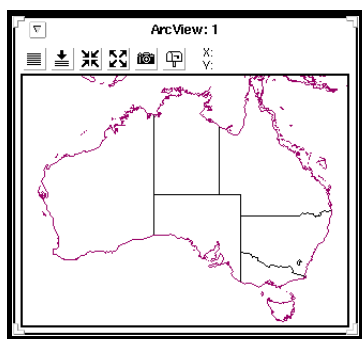
Lines

Layer description

The Country Internal Divisions layer contains the internal administrative boundaries for 126 countries worldwide. Since the hierarchy of naming conventions for internal divisions varies from country to country, the internal division boundaries are coded in the database according to the hierarchical level they occupy in each country. For example, in the United States a state boundary would be a first-order division boundary, while a county boundary would be a second-order division boundary.

Using the Country Internal Divisions coverage

To display the country internal division lines for one or more countries, the following sequence is recommended. First, select and display the desired polygon features for the area of interest. Second, select the desired internal division boundary level.

Of the approximately 10,500 internal division lines, 72 percent represent first-order boundaries. Only fifteen fourth-order internal division boundary lines exist in the database; these all occur in the Philippines.

This layer contains lines that are only country internal divisions. Internal division lines terminate at the coastline and at international boundaries. In order to obtain complete visual closure of internal division boundaries within a

Summary of the Country Internal Divisions coverage

Coverage name: ADMIN3M

Source and currency: U.S. Government—World Data Bank II, 1988

Thematic attribute   Classification attribute
groups: Boundary coincidence with rivers
                Geographic reference attributes

Feature class	Feature	Number of features	Number of attributes
Lines	All line features	Represented by ca. 14,675 lines	6
	First-order division boundaries	Represented by ca. 10,500 lines	
	Second-order division boundaries	Represented by ca. 3,875 lines	
	Third-order division boundaries	Represented by ca. 275 lines	
	Fourth-order division boundaries	Represented by 15 lines	

country it is necessary to display the coastline and/or the international boundaries.

In a few countries (e.g., South Africa) some internal divisions may not connect to any other feature at one end.

Country Internal Divisions

Line attributes

Classification attribute

BND_LEVEL   This attribute provides the level number of the country internal division boundary. The first order is the highest level administrative division within the country (state, province, department, etc.). The number of levels present varies from country to country. The codes are as follows:

Codes		Definitions
1	=	First-order internal division
2	=	Second-order internal division
3	=	Third-order internal division
4	=	Fourth-order internal division

Boundary coincidence with rivers

BND_COINC   Each internal division boundary is classified as to coincidence with a river line segment. Approximately 18 percent of the internal division boundary lines are coded as coincident. The codes are as follows:

Codes		Definitions
0	=	Not coincident with river line segment
1	=	Coincident with river line segment

Geographic reference attributes

COUNTRY
CNTRY_NAME
REGION
CONTINENT

These attributes contain the following: two-letter country codes, country names, regional codes, and continent codes. Where a line represents a regional or continent boundary, both areas are named (e.g., N_A/S_A). These attributes make it possible to select administrative divisions by country, world region, and continent. The areas and their corresponding codes are listed in Appendix C; regions are also shown on the map in Chapter 1.
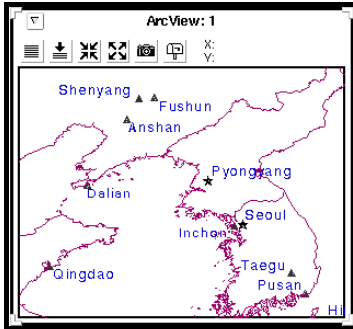
Major Cities

Points

Layer description

The Major Cities layer contains point features representing 451 cities worldwide, including both large urban centers and national capitals. There are name attributes for both the conventional (Romanized) and native spellings of each city. The names and spellings presented here reflect the decisions and determinations of the International Board of Geographic Names as of January 31, 1992. Annotation containing city names also accompanies this layer.

Using the Major Cities coverage

The Major Cities point features are useful as general geographic identifiers, especially for small-scale maps. The attributes for the cities allow very large population centers and national capitals to be differentiated from other types of cities. The countries with the largest number of cities are the United States (40), China (35), Russia (19), and India (17).

Given the difficulty of representing and displaying diacritical marks, the diacritical attribute indicates only the presence of a diacritical mark. The diacritical mark may be of any type and may appear at any location in the city name.

The annotated city names are in cartographically appropriate positions that are compatible with the annotated country names in the Country Boundaries layer. The size of these names will automatically change when the scale of a display map is changed.

Major Cities

Summary of the Major Cities coverage

Coverage name: CITY3M

Source and currency: Cartography from the Defense Mapping Agency, Operational Navigation Charts, various years. Attribute data from the *World Fact Book*, 1989.

Thematic attribute groups:
Name attribute
Classification attributes
Additional name attribute
Geographic reference attributes

Annotation text: City names

Feature class	Feature	Number of features	Number of attributes
Points	All point features	Represented by ca. 450 points	9
	Capitals	Represented by 144 points	
	Major cities	Represented by 42 points	

Point attributes

Name attribute

NAME This attribute contains the conventional spelling (Romanized) of the city. The name and spelling follow the Board of Geographic Names standards as of January 31, 1992.

Classification attributes

CAPITAL This attribute indicates whether the city is a national capital. The codes are as follows:

Codes   Definitions
0 = Not a national capital
1 = A national capital

MAJ_CITY   This attribute indicates whether a non-national capital city
                has a population greater than 3,000,000. The codes are as
                follows:

                Codes   Definitions
                   0   =   Not a major city
                   1   =   A major city

                Geographic reference attributes

COUNTRY   These geographic reference codes can be used to select cities
CNTRY_NAME   by country, world region, or continent. Continent, region,
REGION   and country names and their codes are listed in Appendix C.
CONTINENT

                Additional name attributes

LOCAL_NAME   This attribute contains the local or native spelling of the city.
                The name and spelling follow the current Board of
                Geographic Names standards as of January 31, 1992. The
                spelling in this attribute is the closest possible rendering
                using a standard English character set. No special foreign
                characters were used and no diacritical marks except the
                apostrophe are present.

DIACR_FLAG   This attribute indicates whether diacritical marks are used in
                the local spelling of the city. The codes are as follows:

                Codes   Definitions
                   0   =   No diacritical mark present
                   1   =   Diacritical mark is present

Railroads
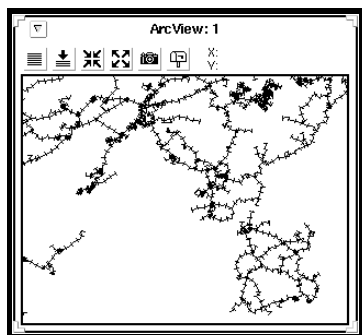
Lines

Layer description

The Railroads layer contains railroad information for more than 135 countries around the world. It includes both a rail type attribute, which contains primarily gauge width information, and a display scale attribute, which provides feature selection ability based on map scale.

Using the Railroads coverage

The completeness of the railroad data varies by country. The countries with the largest number of railroad line segments are Russia (6,123), China (3,001), and Germany (2,258).

The code structure in the display scale attribute indicates the smallest scale at which it would be cartographically appropriate to display a particular railroad line segment. (It would be appropriate to display a railroad line at larger scales than the one listed.) The smallest appropriate display scale (or representative fraction) is 1:80,000,000; the largest is 1:5,000,000.

Appendix D contains information about the completeness of the Railroads layer.

Summary of the Railroads coverage

Coverage name: RR3M

Source and currency: U.S. Government—World Data Bank II, 1988

Thematic attribute   Classification attributes
groups: Cartographic significance
                                   Geographic reference attributes

Feature class	Feature	Number of features	Number of attributes
Lines	All line features	Represented by ca. 26,925 lines	7
	Broad gauge	Represented by ca. 8,000 lines	
	Standard gauge	Represented by ca. 12,600 lines	
	Narrow gauge	Represented by ca. 4,125 lines	
	Ferries	Represented by ca. 30 lines	
	Under construction (all types)	Represented by ca. 30 lines	
	Undifferentiated	Represented by ca. 2,150 lines	

Line attributes

Classification attributes

TYPE
RAIL_TYPE

Each railroad segment is classified according to the following list of road types. TYPE contains the code number, and RAIL_TYPE contains the English description.

Codes   Equivalents
  1 = Broad gauge
  2 = Standard gauge
  3 = Narrow gauge
  4 = Railroad ferry
  5 = Broad gauge under construction
  6 = Standard gauge under construction

(continued)

Railroads

Codes   Equivalents
   7 = Narrow gauge under construction
   8 = Undifferentiated under construction
   9 = Undifferentiated

There are no standard measurement values for broad, standard, and narrow gauge widths. The actual widths for these terms vary from country to country. In Canada, Western Europe, and the United States standard gauge is defined as 4 feet 8.5 inches (1.435 meters).

Cartographic significance

DISP_SCALE   Each railroad segment is classified with an appropriate display scale ranking. The rankings range from a map scale of 1:80,000,000 (smallest) to 1:5,000,000 (largest).

Codes   Definitions
  80 = 1:80,000,000 scale
  40 = 1:40,000,000 scale
  20 = 1:20,000,000 scale
  10 = 1:10,000,000 scale
   5 = 1:5,000,000 scale
   0 = Additional unranked railroads

Geographic reference attributes

COUNTRY
CNTRY_NAME
REGION
CONTINENT

These attributes contain names and codes that make it possible to select railroad features by country, world region, and continent. Continents, regions, and countries and their codes are listed in Appendix C.

Rivers and Water Bodies
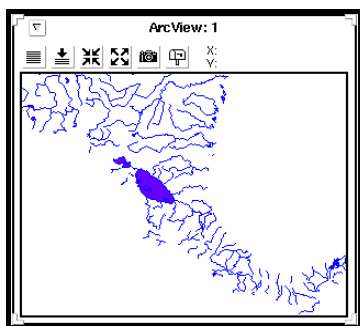
Polygons and lines

Layer description

The Rivers and Water Bodies layer contains hydrographic features. This coverage is made up of both lines and polygons that represent perennial rivers, intermittent rivers, canals, lakes, reservoirs, intermittent lakes, salt pans, lagoons, ice shelves, and islands within inland water bodies.

Using the Rivers and Water Bodies coverages

Because the Rivers and Water Bodies layer contains both polygon and line features, a single hydrologic feature may have been represented by both of these graphic elements. For example, the Indus river begins as a single line, enters a polygonal reservoir, changes to a braided stream represented by a network of interconnected lines, changes into a polygonal river with islands, and ends up meeting the ocean in a delta represented by multiple diverging lines.

The Rivers and Water Bodies layer exists as three coverages. There is a full global coverage (RIV3M) which can be used for display, as well as east and west subsections (RIV3M_E, RIV3M_W) which can be used for querying the database. The dividing line between the subsections follows the 27 degree West longitude line from pole to pole.

Rivers and Water Bodies

Summary of the Rivers and Water Bodies coverages

Coverage names: RIV3M, RIV3M_E, RIV3M_W

Source and currency: U.S. Government—World Data Bank II, 1988

Thematic attribute   Classification attributes (polygons and lines)
groups: Cartographic significance (polygons and lines)
                       Geographic reference attributes (polygons and lines)
                       Boundary coincidence with rivers (lines)

Feature class	Feature	Number of features (full coverage)	Number of attributes
Polygons	All polygon features	Represented by ca. 10,825 polygons	7
	Rivers	Represented by ca. 150 polygons	
	Reservoirs	Represented by ca. 275 polygons	
	Lakes	Represented by ca. 6,300 polygons	
	Intermittent lakes	Represented by ca. 275 polygons	
	Salt pans	Represented by ca. 300 polygons	
	Lagoons	Represented by 6 polygons	
	Inland water islands	Represented by ca. 1,600 polygons	
	Ice shelves	Represented by 65 polygons	
	Not inland water	Represented by ca. 1,885 polygons	
Lines	All line features	Represented by ca. 35,600 lines	9
	Perennial rivers	Represented by ca. 21,100 lines	
	Intermittent rivers	Represented by ca. 1,325 lines	
	Canals	Represented by ca. 175 lines	
	Irrigation canals	Represented by ca. 215 lines	
	Shorelines	Represented by ca.11,325 lines	
	Country boundaries	Represented by 259 lines	
	Closure lines	Represented by 8 lines	
	Grid lines	Represented by 1,225 lines	

Polygon attributes

Classification attributes

TYPE
WATER_TYPE

Each polygon is classified according to the type of water feature it represents. TYPE contains the code number, and WATER_TYPE contains the English description. The codes are as follows:

Codes   Equivalents
  1 = River
  2 = Reservoir
  3 = Perennial lake
  4 = Intermittent lake
  5 = Salt pan
  6 = Lagoon
  7 = Island (inland waterbodies only)
  8 = Ice shelf (Antarctica only)
  9 = Not inland water

The island code applies only to inland water bodies. Island-like features formed by the interweaving of single lines such as occur in a braided stream or in the distributaries of deltas are given a code of "9" (not inland water).

Cartographic significance

WATER_RANK

Polygonal water features have been ranked for cartographic significance, primarily on the basis of size and visual prominence. This attribute allows the user to selectively display those water features that are appropriate to the chosen map scale or needed for visual reference. The codes are as follows:

Codes   Definitions
  0 = Unranked water feature
  1 = Basic reference
  2 = Major
  3 = Additional major
  4 = Intermediate
  5 = Minor
  9 = Not inland water

Rivers and Water Bodies

Geographic reference attributes

COUNTRY
CNTRY_NAME
REGION
CONTINENT

These geographic reference attributes contain codes and names that make it possible to select polygonal water features by country, world region, and continent. The areas and their corresponding codes are listed in Appendix C; regions are also shown on the map in Chapter 1.

Line attributes

Classification attributes

TYPE
RIVER_TYPE

Each line is classified according to type of feature it represents. TYPE contains the code number, and RIVER_TYPE contains the English description. These attributes allow you to select and symbolize the various water features differently. The majority of lines are perennial rivers, but other water features are present. Also present in this layer are a few international boundaries, polygon closure lines, and grid lines.

Codes   Equivalents
1 = Perennial river
2 = Intermittent river
3 = Canal
4 = Irrigation canal
5 = Shoreline
6 = Country boundary
7 = Closure line
9 = Grid lines

Some short sections of international boundaries (code 6) are included in this layer as line features. This was necessary in order to divide water bodies located in two or more countries into their component national territories.

Closure lines (code 7) separate abutting water feature polygons. They are most often used to show reservoirs along rivers where the rivers and reservoirs are large enough to be represented as polygons.

Cartographic significance

RIVER_RANK   Perennial rivers, intermittent rivers, and canals have been ranked for cartographic significance on the basis of overall size, length, volume, and visual prominence. This attribute allows the user to selectively display those water features that are appropriate to the chosen map scale or needed for visual reference. The codes are as follows:

Codes   Definitions
 1 = Major
 2 = Additional major
 3 = Additional
 4 = Minor
 9 = Unranked

Boundary coincidence with rivers

RIV_COINC   This attribute identifies those portions of rivers that were deemed coincident with an international border or portions of an international border in the CTRY3M coverage. Approximately 25 percent of the river lines in this coverage are classified as coincident. The codes are as follows:

Codes   Definitions
 0 = Not coincident with an international boundary line segment
 1 = Coincident with an international boundary line segment

Geographic reference attributes

COUNTRY1
COUNTRY2
CNTRY_NAME
REGION
CONTINENT

These attributes contain the following: two-letter country codes (two attributes), country names, regional codes, and continent codes. Because rivers often serve as international boundaries, two country code attributes have been provided. The countries on either side of a river are listed by code in separate attributes (COUNTRY1 and COUNTRY2), and by name in a single attribute (CNTRY_NAME; e.g., "France/Germany"). If a river is completely within a

Rivers and Water Bodies

country, either COUNTRY1 or COUNTRY2 will contain a blank.

Where rivers form the boundaries between regions and continents, both area codes are listed and separated by a slash (e.g., E_EU/W_EU).

Countries, regions, and continents and their corresponding codes are listed in Appendix C; regions are also shown on the map in Chapter 1.

Roads
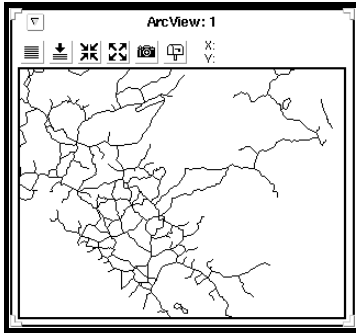
Lines

Layer description

The Roads layer contains information about roads for more than 150 countries around the world. It includes attributes for road type (primarily surface type), an attribute that makes it possible to select features on the basis of map scale, and geographic reference attributes.

Using the Roads coverages

The Roads layer exists as three coverages. There is a full global coverage (RDS3M) which can be used for display, as well as east and west subsections (RDS3M_E, RDS3M_W) which can be used for querying the database. The dividing line between the subsections coincides with the Europe/Asia world region border in Russia, then extends through the Caspian Sea and along the Iranian boundary with Turkmenistan, Afghanistan, and Pakistan, south to the Arabian Sea.

The user can minimize display drawing times by working with a subset of roads data whenever possible. Geographic reference attributes, the cartographic significance attribute, and the road type attributes are useful for creating data subsets.

The completeness of roads data varies by country. The countries with the largest number of road line segments are China (15,666), Russia (3,286), Germany (1,819), and the Philippines (1,815). Appendix D contains information about the completeness of the Roads layer.

The code structure in the display scale attribute indicates the smallest scale at which it would be cartographically

Roads

Summary of Roads coverages

Coverage names: RDS3M, RDS3M_E, RDS3M_W

Source and currency: World Data Bank II, 1988

Thematic attribute   Classification attributes
groups: Cartographic significance
                                Geographic reference attributes

Feature class	Feature	Number of features (full coverage)	Number of attributes
Lines	All line features	Represented by ca. 55,500 polygons	7
	High-speed roads	Represented by ca. 2,750 lines	
	Hard surface roads	Represented by ca. 24,000 lines	
	Gravel roads	Represented by ca. 8,675 lines	
	Unsurfaced roads	Represented by ca. 13,300 lines	
	Tracks and trails	Represented by ca. 6,100 lines	
	Roads under construction	Represented by ca. 25 lines	
	Undifferentiated roads	Represented by ca. 625 lines	

appropriate to display a particular road line segment. (It would be appropriate to display the road segment at larger scales than the one listed.) The smallest appropriate display scale (or representative fraction) is 1:80,000,000; the largest is 1:5,000,000.

Line attributes

Classification attributes

TYPE
ROAD_TYPE

Each road segment is classified according to the following list of road types. TYPE contains the code number, and ROAD_TYPE contains the English description.

Codes		Equivalents
1	=	Highspeed
2	=	Hard surface
3	=	Gravel
4	=	Unsurfaced
5	=	Track or trail
6	=	Under construction
7	=	Undifferentiated

Cartographic significance

DISP_SCALE

Each road segment is classified with appropriate display scale ranking. The rankings range from a map scale of 1:80,000,000 (smallest) to 1:5,000,000 (largest).

Codes		Definitions
80	=	1:80,000,000 scale
40	=	1:40,000,000 scale
20	=	1:20,000,000 scale
10	=	1:10,000,000 scale
5	=	1:5,000,000 scale
0	=	Additional unranked roads

Geographic reference attributes

COUNTRY
CNTRY_NAME
REGION
CONTINENT

These geographic reference attributes contain codes and names that make it possible to select road features by country, world region, and continent. The areas and their corresponding codes are listed in Appendix C; regions are also shown on the map in Chapter 1.

ArcWorld 1:3M index layers

The coverages in the ArcWorld 1:3M index layers include three latitude/longitude grids, a scene index for Landsat satellite data, and an index to Operational Navigation Charts published by the U.S. Defense Mapping Agency. Users can quickly determine the location of geographic features by using one of the latitude/longitude grids. The map and satellite indexes provide information needed for ordering those products; they can also provide a convenient way to zoom in on a particular study area. The ArcWorld 1:3M index layers are listed in the table below.

Layer	Coverage names
Landsat Nominal Scene Index	SAT_PT, SAT_BND
Latitude/Longitude Grids	LTLG5, LTLG10, LTLG20*
Operational Navigation Chart (ONC) Index	ONC_IDX

* The LTLG20 coverage is also provided with ArcWorld 1:25M.

Landsat Nominal Scene Index
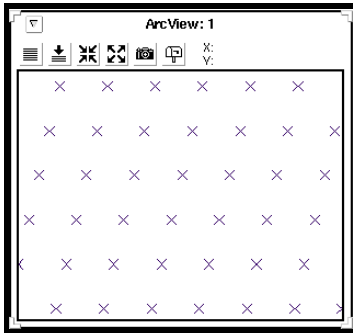
Points
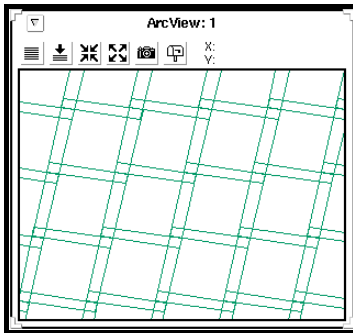
Lines

Layer description

The Landsat Nominal Scene Index layer contains a worldwide index of 233 paths and 113 rows for a total of more than 26,000 nominal satellite scenes. The scene outlines apply to both Thematic Mapper and Multispectral Scanner data acquired by Landsats 4 and 5. The index is composed of two coverages, one containing the scene center points, and the other containing scene footprints. The attributes in both coverages are the same; they include path numbers, row numbers, latitude/longitude coordinates, and countries covered.

A scene footprint is a rectangular outline that represents the geographic extent of the Earth's surface for which data are collected along a particular Landsat orbit. Each footprint is identified by an orbital path number and scene row number, and each footprint has a corresponding center point.

Using the Landsat Nominal Scene Index coverages

This index is termed "nominal" because minor fluctuations in the satellite's orbit from one pass to the next can cause the actual scene center points and coverages to vary slightly. The index itself was generated through an algorithm and indicates an average orbital pass.

Only scenes occurring during the daylight hours were included in this index. Rows in very close proximity to the north and south poles were excluded from this index because the extreme degree of overlap made them visually indecipherable.

Landsat Nominal Scene Index

Summary of the Landsat Nominal Scene Index coverages

Point coverage

Coverage name: SAT_PT

Source and currency: Nominal scene algorithm provided by the Earth Observation Satellite
                      Company, 1992

Thematic attribute   Identification attributes
groups: Country names

Feature class	Feature	Number of features	Number of attributes
Points	Landsat nominal scene center points	represented by 26,325 points	15

Boundary coverage

Coverage name: SAT_BND

Source and currency: Nominal scene algorithm provided by the Earth Observation Satellite
                      Company, 1992

Thematic attribute   Identification attributes
groups: Country names

Feature class	Feature	Number of features	Number of attributes
Lines	Landsat nominal scene footprints	Represented by ca. 26,325 lines	15

A scene footprint resembles a polygon but is represented by a single self-closing line. The footprint boundary lines may be queried, but because the outer margins of the footprints overlap somewhat, we recommend that you query this layer by using the scene center points.

Scenes cover portions of up to six countries. The countries with the largest number of scenes are Russia (ca. 1,840), Antarctica (ca. 1,630), and Canada (ca. 1,140). More than 15,500 scenes cover only ocean areas.

Point attributes
These attributes are also associated with the line coverage.

Identification attributes

PATH
ROW

Landsat satellite path number and row number.

SCN_CENTER

Latitude and longitude of the scene center, expressed as degrees, minutes, seconds, north or south latitude, followed by degrees, minutes, seconds east or west longitude. Example: 78 07 48N 016 04 12W.

COUNTRY1
COUNTRY2
COUNTRY3
COUNTRY4
COUNTRY5
COUNTRY6

These attributes contain the two-letter codes for the countries the scene covers (to a maximum of six). The country codes are always stored beginning with COUNTRY1, but the countries are not listed in any specific order. Because of the high density of disputed areas in Palestine, the codes for disputed areas in this region of the world (XA through XE) were not included beyond six separate political entities per Landsat scene. (A complete listing of country codes is contained in Appendix C.)

CNTRY_NAM1
CNTRY_NAM2
CNTRY_NAM3
CNTRY_NAM4
CNTRY_NAM5
CNTRY_NAM6

The names of the countries the scene covers are stored in these attributes. The country names are always stored beginning with CNTRY_NAM1, but they are not presented in any specific order.

Latitude/ Longitude Grids
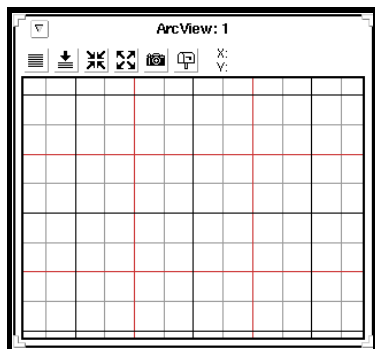
Lines

Layer description

The Latitude/Longitude Grids layer contains lines that represent geographic parallels (lines of latitude) and meridians (lines of longitude) at intervals of 5 degrees, 10 degrees, and 20 degrees. The grids for the three intervals are contained in separate coverages. Attributes include the latitude or longitude value of each line and codes indicating whether a line segment is over land or ocean.

Using the Latitude/Longitude Grids coverages

The "land/water" attribute gives you the flexibility to symbolize the latitude/longitude grid differently so as to bring it to the foreground or background of a display. For example, you might choose to display the graticule in the ocean areas (background), and to exclude it from the area inside the countries to avoid obscuring other map features.

The scale of a map and the extent to which the grid will be used for reference will determine the most suitable grid interval. The 20-degree grid is appropriate for small-scale displays, such as maps showing the full extent of the world. The 10-degree grid is more appropriate for continental or regional displays, while the 5-degree grid is best suited for large-scale maps showing a country or selected area.

Summary of Latitude/Longitude Grids coverages

Five-degree-interval coverage

Coverage name: LTLG5

Source and currency: ESRI, generated, 1992

Thematic attribute
groups: Identification attributes

Feature class	Feature	Number of features	Number of attributes
Lines	Latitude and longitude lines, 5- by 5-degree grid	Represented by ca. 9,375 lines	3

Ten-degree-interval coverage

Coverage name: LTLG10

Source and currency: ESRI, generated, 1992

Thematic attribute
groups: Identification attributes

Feature class	Feature	Number of features	Number of attributes
Lines	Latitude and longitude lines, 10- by 10-degree grid	Represented by ca. 3,440 lines	3

Latitude/Longitude Grids

Twenty-degree-interval coverage

Coverage name: LTLG20

Source and currency: ESRI, algorithm generated, 1992

Thematic attribute
groups: Identification attributes

Feature class	Feature	Number of features	Number of attributes
Lines	Latitude and longitude lines, 20- by 20-degree grid	Represented by ca. 1,450 lines	3

Line attributes

Identification attributes

LATITUDE
: The latitude of the grid line. All south latitude values begin with a minus sign. This attribute contains a blank for lines of longitude.

LONGITUDE
: The longitude of the grid line. All west longitude values begin with a minus sign. This attribute contains a blank for lines of latitude.

LAND_WATER
: Identifies whether a line segment is over land or water. The codes are as follows:

Codes   Definitions
   0 = Line segment lies over an ocean area
   1 = Line segment lies over land or inland water

Operational Navigation Chart Index
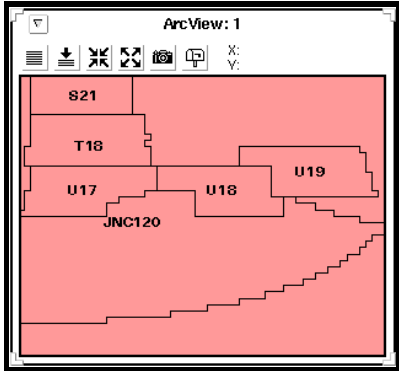
Lines

Layer description

The outlines of the Operational Navigation Chart (ONC) sheet boundaries are shown in this layer. The identification attribute contains the sheet identification numbers (G18, P27, etc.). Six Defense Mapping Agency Jet Navigation Charts (JNCs) which cover south polar areas not covered by the ONC series, are included in the index.

Using the Operational Navigation Chart Index coverage

This layer provides a visual reference for the relationship between the ArcWorld database and ONC map sheets. The polygons in this coverage can be queried for their sheet identification numbers. The ONC index covers only the land areas of the world.

Operational Navigation Chart Index

Summary of the Operational Navigation Chart Index coverage

Coverage name: ONC_IDX

Source and currency: U.S. Defense Mapping Agency—Operational Navigation Chart (ONC) and Jet
                      Navigation Chart (JNC) Standard Index Chart, 1988

Thematic attribute   Identification attribute
groups:

Feature class	Feature	Number of features	Number of attributes
Polygons	ONC map sheet boundaries	Represented by ca. 300 polygons	1

Polygon attribute

Identification attribute

MAP_ID   This attribute contains the map sheet identification code. The
         ONC codes comprise a single letter followed by two digits
         (e.g., H06), are based on a modified row and column
         scheme. Rows are lettered A through V from north to south;
         the letters I and O are excluded. Columns are numbered
         from east to west beginning with the sheet that falls between
         zero degrees longitude and fifteen degrees West longitude.
         Offsets and overlap cause minor variations to this basic
         scheme. The number of ONC map sheets per row varies, in
         part because maps do not exist for areas that cover ocean
         exclusively.

         JNC map sheets for Antarctica (numbers 120 through 125)
         are included in this index in order to provide complete global
         coverage. No other JNC map boundaries are included.
         JNC codes are composed of the letters "JNC" followed by
         the sheet number (e.g., JNC120).

         A blank code indicates that the polygon does not represent an
         ONC or JNC sheet.

ArcWorld 1:3M country statistical attribute layers

The coverages in the ArcWorld 1:3M statistical attribute layers provide a diverse set of statistics at the country level. The tabular sources for statistical data are the World Bank's Social Indicators of Development (SID) 1990 database and the World Resources Institute's (WRI's) World Resources 1992–1993 Data Base. The wide range of attribute data makes it possible to map the countries of the world from a variety of disciplinary perspectives and permits the assessment of trends and spatial relationships between countries.

Six of the ArcWorld 1:3M statistical attribute layers contain attributes from the World Bank SID database. These attributes provide statistical data for 169 of 240 countries worldwide. More than seventy-five topics of general interest have been included in ArcWorld 1:3M; the data for most of these topics are presented as a series of attributes for six different time periods ranging from 1965 to 1989. The layers organize the attributes by thematic content.

The WRI attributes provide statistical data for 171 of 240 countries worldwide. One hundred attributes on topics of general interest from the WRI database have been included in a single ArcWorld 1:3M layer, Natural Resources and the Environment.

Attributes that occur in both the 1:3 million and 1:25 million ArcWorld layers have identical names in both layers.

The statistical attribute layers are as follows:

Layer	Coverage names
Economic and Industrial Indicators	ECONIND
Education and Literacy	EDU_LIT
Food Production and Nutrition	AGRICUL
Health and Vital Statistics	HEALTH
Labor Force Characteristics	LABOR
Natural Resources and the Environment	WRI_3M
Population Characteristics	POP_GEO

Using the country statistical attribute layers

The country statistical attribute coverages contain political boundaries and polygons to provide a geographic context for the statistical data. The country boundaries in these layers do not reflect recent (1991) political changes for the former Soviet Union and Germany in order to match the World Bank and World Resources Institute tabular data from previous years. The Country Boundaries coverage described in the cartographic layer section does incorporate the recent boundary changes in those countries.

Sometimes a statistical data value for a particular geographic area is not available in the database. Three special codes indicate the absence of data values in the statistical attributes. These codes are as follows:

Codes   Definitions
–97 = Missing data or data not available
–98 = Country not included in the source tabular database
–99 = Ocean

Countries that comprise multiple geographic parts, such as offshore islands or overseas territorial possessions, are represented in the database by multiple polygons that all have the same country code. A flag attribute (STAT_FLAG) is provided to identify a single polygon (the largest) for every country. These flags allow the selection of a single data record per country, which is necessary for generating correct summary statistics.

Additional information about the way missing measurement values are handled in the database is given on page 3-9; information about how to use these codes in combination with the statistical flag is given on page 6-4. Chapter 6 also discusses the comparability and completeness of the statistical data in these layers.

Economic and Industrial Indicators
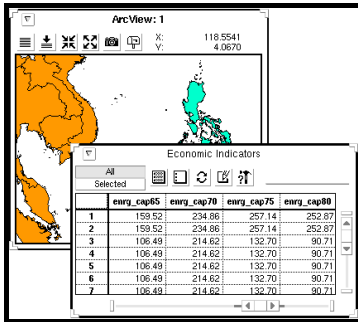
Polygons and lines for countries

Layer description

The Economic and Industrial Indicators layer contains a subset of the attributes found in the sections of the World Bank's Social Indicators of Development (SID) database called Income and Poverty, and Expenditure. These attributes include indicators on income, food expenditures, housing, energy consumption, transportation, and communication.

Using the Economic and Industrial Indicators coverage

Time series attributes range from 1965 to 1989, with data for five-year intervals from 1965 to 1985 and data for the additional year of 1989. Not all years in the time series are available for all topics.

Information about country boundaries, missing measurement values, and the statistical flag attribute that applies to this layer as well as to all of the other statistical attribute layers is given on page 4-42.

Economic and Industrial Indicators

Summary of the Economic and Industrial Indicators coverage

Coverage name: ECONIND

Source and currency: Cartography from U.S. Government, World Data Bank II, 1988
                      Attribute data from the World Bank, Social Indicators of Development 1990
                      database

Thematic attribute   Geographic reference attributes (polygons and lines)
groups: Cartographic attributes (polygons)
                      Statistical flag (polygons)
                      World organization membership (polygons)
                      World Bank country code (polygons)
                      Gross national product (polygons)
                      Household income (polygons)
                      Expenditures and indicators of wealth (polygons)
                      Classification attributes (lines)
                      International boundary status (lines)
                      Boundary coincidence with rivers (lines)

Feature class	Feature	Number of features	Number of attributes
Polygons	Countries and other political divisions	Represented by ca. 12,609 polygons	102
Lines	Coastlines, international boundaries, and world regions	Represented by ca. 16,395 lines	9

Polygon attributes

Geographic reference attributes

COUNTRY
CNTRY_NAME
REGION
CONTINENT

These geographic reference attributes contain codes and names that make it possible to select polygonal features by country, world region, and continent. The areas and their corresponding codes are listed in Appendix C; regions are also shown on the map in Chapter 1.

Cartographic attributes

LAND_OCEAN   Flag used to identify continents, islands, and ocean areas. The codes are as follows:

Codes		Definitions
1	=	Continent
2	=	Offshore island
3	=	Ocean

ISLND_RANK   Offshore islands are ranked for cartographic significance, primarily on the basis of size. These rank codes are only present for islands surrounded by ocean; no islands within inland water bodies are included in this layer. Greenland is the largest island. The codes are as follows:

Codes		Definitions
1	=	Basic reference feature
2	=	Major
3	=	Additional major
4	=	Intermediate
5	=	Minor
9	=	Unranked

Statistical flag

STAT_FLAG   Flag used to identify a single polygon (the largest) for each country for purposes of calculating summary statistics. Chapter 6 provides more information about using this attribute. The codes are as follows:

Codes		Definitions
0	=	Other polygons in country.
1	=	Polygon identifier for disputed territories, reassigned areas, or countries for which data are not tabulated by the World Bank or World Resources Institute. (See Appendix C for a list of disputed territories and reassigned areas.)
2	=	Polygon identifier for countries that are assigned statistical data by the World Bank or World Resources Institute.

Economic and Industrial Indicators

World organization membership attributes

These attributes indicate membership in international organizations. Each of the organization attributes can be used to select a group of country polygons for display or study. The codes are as follows:

Codes   Definitions
  0 = Not a member of this organization
  1 = A member of this organization

EEC   European Economic Community (12 members).

FAO   Food and Agriculture Organization (157 members).

GA
GA_MEMB_YR   United Nations General Assembly (159 members), and the year that the country joined the U.N. General Assembly.

IAEA   International Atomic Energy Agency (110 members; excludes Vatican City, which is not part of the database).

IBRD   International Bank for Reconstruction and Development (i.e.,World Bank; 152 members).

IMF   International Monetary Fund (154 members).

OPEC   Organization of Petroleum Exporting Countries (13 members).

SC   United Nations Security Council (5 permanent members).

UNESCO   United Nations Education, Scientific, and Cultural Organization (159 members).

WHO   World Health Organization (165 members).

WMO   World Meteorological Organization (158 members represented in this database).

World Bank country code attribute

WB_CNTRY
This attribute contains the three-letter country code used by the World Bank in the SID database. Disputed territories are assigned to individual countries; the specific assignments are listed at the end of Appendix C.

Gross national product

GNP_CAP65
GNP_CAP70
GNP_CAP75
GNP_CAP80
GNP_CAP85
GNP_CAP89

Gross national product per capita by five-year time intervals, in 1989 U.S. dollars.

Household income

INCTOP1065
INCTOP1070
INCTOP1075
INCTOP1080
INCTOP1085
INCTOP1089

Percentage of total household income accruing to the top 10 percent of households ranked by total household income.

INCTOP2065
INCTOP2070
INCTOP2075
INCTOP2080
INCTOP2085
INCTOP2089

Percentage of total household income accruing to the top 20 percent of households ranked by total household income.

INCBOT4065
INCBOT4070
INCBOT4075
INCBOT4080
INCBOT4085
INCBOT4089

Percentage of total household income accruing to the bottom 40 percent of households ranked by total household income.

Economic and Industrial Indicators

INCBOT2065 INCBOT2070 INCBOT2075 INCBOT2080 INCBOT2085 INCBOT2089	Percentage of total household income accruing to the bottom 20 percent of households ranked by total household income.

Expenditures and indicators of wealth

EXPFOODS70 EXPFOODS75 EXPFOODS80 EXPFOODS85 EXPFOODS89	Percentage of Gross Domestic Product (GDP) spent on foods. Computed from United Nations International Comparison Program (ICP) figures, or national estimates, if available. GDP is the final output of goods and services produced by the domestic economy. This figure includes net export of goods and nonfactor services. It does not include overseas workers' remittances, interest on loans, profits, and other factor payments that residents receive from abroad. Factor services are labor and capital.
EXPSTAPL75 EXPSTAPL80 EXPSTAPL85 EXPSTAPL89	Percentage of GDP spent on food staples. Food staples are defined as bread, cereals, potatoes, and tubers. These staples are major foods relating to the consumption of carbohydrates. Computed from ICP figures, or national estimates, if available.
EXPPROTN75 EXPPROTN80 EXPPROTN85 EXPPROTN89	Percentage of GDP spent on meat, fish, milk, cheese, and eggs. These foods approximate a protein measure but exclude beans, nuts, and other high protein-content food products. Computed from ICP figures, or national estimates, if available.
INVSTHSE75 INVSTHSE80 INVSTHSE85 INVSTHSE89	Fixed investment in housing as a percentage of GDP. Includes all public and private outlays on residential buildings, plus net changes in the level of inventory, which relates primarily to work in progress.
EXPENRGY75 EXPENRGY80 EXPENRGY85 EXPENRGY89	Percentage of GDP spent on fuel and power. Includes electricity, gas, liquid and other fuels, and ice. Computed from ICP figures, or national estimates, if available.

ENRG_CAP65
ENRG_CAP70
ENRG_CAP75
ENRG_CAP80
ENRG_CAP85
ENRG_CAP89

Annual consumption of commercial primary energy (coal; lignite; petroleum; natural gas; and hydro, nuclear, and geothermal electricity) expressed in kilograms of oil equivalent per capita.

EXPTRCM70
EXPTRCM75
EXPTRCM80
EXPTRCM85
EXPTRCM89

Percentage of GDP spent on transport and communication. Includes the purchase of motor cars. Computed from ICP figures, or national estimates, if available.

POP_CAR65
POP_CAR70
POP_CAR75
POP_CAR80
POP_CAR85
POP_CAR89

Number of people per passenger car. A passenger car is defined as any private vehicle seating nine people or less.

INVSTTR75
INVSTTR80
INVSTTR85
INVSTTR89

Fixed investment in transport equipment as a percentage of GDP. Includes all public and private outlays on transport equipment, plus net changes in level of inventory.

POP_TELE75
POP_TELE80
POP_TELE85
POP_TELE89

Number of people per installed public or private telephone. A telephone must be connectable to a central exchange to be included. The data are generally derived from International Telecommunications Union publications.

EXPHOUSE65
EXPHOUSE70
EXPHOUSE75
EXPHOUSE80
EXPHOUSE85
EXPHOUSE89

Percentage of GDP spent on housing. The figures reflect actual and imputed household expenditure outlays, such as actual and imputed rents, repair and maintenance charges, and fuel and power for heating, lighting, cooking, and so forth. Computed from ICP figures or national estimates, if available.

Economic and Industrial Indicators

Line attributes

Classification attributes

TYPE
BND_TYPE

Each line is classified according to the type of feature it represents. This attribute allows you to symbolize different line features (political boundaries, coastlines, reefs, etc.) differently. TYPE contains the code number, and BND_TYPE contains the English description. The codes are as follows:

Codes   Equivalents
   1 = Coastline
   2 = International boundary
   3 = Coral reef
   4 = World region boundary
   9 = Grid line

International boundary status attribute

BND_STATUS

Each international boundary is classified according to boundary status. This attribute allows you to display the various types of boundaries using different colors or line symbols. The codes are as follows:

Codes   Definitions
   1 = Demarcated or delimited
   2 = Indefinite or in dispute
   3 = Line of separation or sovereignty on land
   4 = Demilitarized zone in Israel
   5 = No defined line
   6 = Selected claim lines
   9 = Not an international boundary

Boundary coincidence with rivers

BND_COINC

Each international boundary is classified as to being coincident with a river line segment in the RIV3M coverage. This attribute allows you to identify those portions of international boundaries that were considered coincident with

a river or a portion of a river. This determination was made by the United States government agency that originally developed World Data Bank II. Approximately 35 percent of the international boundary lines in the coverage are classified as coincident. The codes are as follows:

Codes   Definitions
  0 = Not coincident with river line segment
  1 = Coincident with river line segment

Geographic reference attributes

COUNTRY1
COUNTRY2
CNTRY_NAME
REGION
CONTINENT

These attributes contain the following: two-letter country codes (two attributes), country names, regional codes, and continent codes. The countries on either side of an international boundary are listed by code in separate attributes (COUNTRY1 and COUNTRY2), and by name in a single attribute (CNTRY_NAME; e.g., "France/Germany"). Only one country is identified for coastlines. A similar dual coding scheme was used for boundaries between regions and continents, except that codes rather than names were used. Countries, regions, and continents and their corresponding codes are listed in Appendix C; regions are also shown on the map in Chapter 1.

Education and Literacy

***Polygons and lines
for countries***

Layer description

The Education and Literacy layer contains a subset of the attributes found in the section of the World Bank's Social Indicators of Development (SID) database called Education. These attributes include statistics on expenditure for education; primary, secondary, and tertiary school enrollments; pupil-teacher ratios; illiteracy; and newspaper circulation.

Using the Education and Literacy coverage

Time series attributes range from 1965 to 1989, with data in five-year intervals for 1965 to 1985 and data for the additional year of 1989. Not all years in the time series are available for all topics.

Information about country boundaries, missing measurement values, and the statistical flag attribute that applies to this layer, as well as to all of the other statistical attribute layers, is given on page 4-42.

Summary of the Education and Literacy coverage

Coverage name: EDU_LIT

Source and currency: Cartography from U.S. Government, World Data Bank II, 1988
Attribute data from the World Bank, Social Indicators of Development 1990
database

Thematic attribute
groups:

Geographic reference attributes (polygons and lines)
Cartographic attributes (polygons)
Statistical flag (polygons)
World organization membership (polygons)
World Bank country code (polygons)
Educational expenditure (polygons)
School enrollment (polygons)
Pupil-teacher ratios (polygons)
Success in primary school (polygons)
Literacy (polygons)
Classification attributes (lines)
International boundary status (lines)
Boundary coincidence with rivers (lines)

Feature class	Feature	Number of features	Number of attributes
Polygons	Countries and other political divisions	Represented by ca. 12,609 polygons	91
Lines	Coastlines, international boundaries, and world regions	Represented by ca. 16,395 lines	9

Polygon attributes

Geographic reference attributes

COUNTRY
CNTRY_NAME
REGION
CONTINENT

These geographic reference attributes contain codes and names that make it possible to select polygonal features by country, world region, and continent. The areas and their corresponding codes are listed in Appendix C; regions are also shown on the map in Chapter 1.

Education and Literacy

Cartographic attributes

LAND_OCEAN   Flag used to identify continents, islands, and ocean areas. The codes are as follows:

Codes		Definitions
1	=	Continent
2	=	Offshore island
3	=	Ocean

ISLND_RANK   Offshore islands are ranked for cartographic significance, primarily on the basis of size. These rank codes are only present for islands surrounded by ocean; no islands within inland water bodies are included in this layer. Greenland is the largest island. The codes are as follows:

Codes		Definitions
1	=	Basic reference feature
2	=	Major
3	=	Additional major
4	=	Intermediate
5	=	Minor
9	=	Unranked

Statistical flag

STAT_FLAG   Flag used to identify a single polygon (the largest) for each country for purposes of calculating summary statistics. Chapter 6 provides more information about using this attribute. The codes are as follows:

Codes		Definitions
0	=	Other polygons in country.
1	=	Polygon identifier for disputed territories, reassigned areas, or countries for which data are not tabulated by the World Bank or World Resources Institute. (See Appendix C for a list of disputed territories and reassigned areas.)
2	=	Polygon identifier for countries that are assigned statistical data by the World Bank or World Resources Institute.

World organization membership attributes

EEC
FAO
GA
GA_MEMB_YR
IAEA
IBRD
IMF
OPEC
SC
UNESCO
WHO
WMO

These attributes indicate membership in international organizations. Each of the organization attributes can be used to select a group of country polygons for display or study. The organizations indicated by these attributes are listed on page 4-46. The codes are as follows:

Codes		Definitions
0	=	Not a member of this organization
1	=	A member of this organization

World Bank country code attribute

WB_CNTRY

This attribute contains the three-letter country code used by the World Bank in the SID database. Disputed territories are assigned to individual countries; the specific assignments are listed at the end of Appendix C.

Educational expenditure

EXPEDUC70
EXPEDUC75
EXPEDUC80
EXPEDUC85
EXPEDUC89

Percentage of Gross Domestic Product (GDP) spent on education by five-year intervals. This figure includes both government and private spending. Computed from United Nations International Comparison Program (ICP) figures, or national estimates, if available.

School enrollment

Definitions of "school age" varies by country. Many but not all countries consider primary school age to be 6–11 years and secondary school age to be 12–17 years. Values over 100 percent are possible if some pupils are younger or older than the country's standard school-age range.

Education and Literacy

P_PRIMRY65 P_PRIMRY70 P_PRIMRY75 P_PRIMRY80 P_PRIMRY85 P_PRIMRY89	Percentage of school-age children who are enrolled in primary school.
P_PRI_F65 P_PRI_F70 P_PRI_F75 P_PRI_F80 P_PRI_F85 P_PRI_F89	Percentage of female school-age children who are enrolled in primary school.
P_SECNDY65 P_SECNDY70 P_SECNDY75 P_SECNDY80 P_SECNDY85 P_SECNDY89	Percentage of school-age children who are enrolled in secondary school.
P_SEC_F65 P_SEC_F70 P_SEC_F75 P_SEC_F80 P_SEC_F85 P_SEC_F89	Percentage of female school-age children who are enrolled in secondary school.
P_SCIENG65 P_SCIENG70 P_SCIENG75 P_SCIENG80 P_SCIENG85 P_SCIENG89	Percentage of all tertiary students who are enrolled in science and engineering fields. Includes both public and private institutions. Field of study is defined as the student's main area of specialization based on International Standard Classification of Education criteria.

Pupil-teacher ratios

PUPTCH_P65 PUPTCH_P70 PUPTCH_P75 PUPTCH_P80 PUPTCH_P85 PUPTCH_P89	The pupil-teacher ratio for primary schools. This ratio is computed by dividing the number of pupils enrolled in primary school by the total number of primary school teachers.

PUPTCH_S65
PUPTCH_S70
PUPTCH_S75
PUPTCH_S80
PUPTCH_S85
PUPTCH_S89

The pupil-teacher ratio for secondary schools. This ratio is computed by dividing the number of pupils enrolled in secondary school by the total number of secondary school teachers.

Success in primary school

PUP_GR4_75
PUP_GR4_80
PUP_GR4_85
PUP_GR4_89

Percentage of children who started primary school and reached grade 4, based on enrollment records. The data are affected by the number of repeaters.

REPEAT_P65
REPEAT_P70
REPEAT_P75
REPEAT_P80
REPEAT_P85
REPEAT_P89

Percentage of all children enrolled in primary school who repeat a grade.

Literacy

ILLITER65
ILLITER70
ILLITER75
ILLITER80
ILLITER85
ILLITER89

Percentage of the population 15 years of age and older who cannot, with understanding, both read and write a short simple statement on everyday life. The application of this criteria is subject to significant qualifiers in a number of countries.

ILLIT_F85
ILLIT_F89

Percentage of the female population 15 years of age and older who cannot, with understanding, both read and write a short simple statement on everyday life. The application of this criteria is subject to significant qualifiers in a number of countries.

NEWSPAPR65
NEWSPAPR70
NEWSPAPR75
NEWSPAPR80
NEWSPAPR85
NEWSPAPR89

Average circulation of a daily general-interest newspaper, per 1,000 persons. A daily general-interest newspaper is defined as a news periodical published at least four times a week.

Education and Literacy

Line attributes
Thorough definitions of these attributes are given on page 4-50.

Classification attributes

TYPE
BND_TYPE

Each line is classified according to the type of feature it represents. TYPE contains the code number, and BND_TYPE contains the English description. The codes are as follows:

Codes		Equivalents
1	=	Coastline
2	=	International boundary
3	=	Coral reef
4	=	World region boundary
9	=	Grid line

International boundary status attribute

BND_STATUS

Each international boundary is classified according to boundary status. The codes are as follows:

Codes		Definitions
1	=	Demarcated or delimited
2	=	Indefinite or in dispute
3	=	Line of separation or sovereignty on land
4	=	Demilitarized zone in Israel
5	=	No defined line
6	=	Selected claim lines
9	=	Not an international boundary

Boundary coincidence with rivers

BND_COINC

Each international boundary is classified as to being coincident with a river line segment in the RIV3M coverage. The codes are as follows:

Codes		Definitions
0	=	Not coincident with river line segment
1	=	Coincident with river line segment

Geographic reference attributes

COUNTRY1
COUNTRY2
CNTRY_NAME
REGION
CONTINENT

These attributes contain the following: two-letter country codes (two attributes), country names, regional codes, and continent codes. Countries, regions, and continents and their corresponding codes are listed in Appendix C; regions are also shown on the map in Chapter 1.

Food Production and Nutrition

***Polygons and lines
for countries***

Layer description

The Food Production and Nutrition layer contains a subset
of the attributes found in the sections of the World Bank's
Social Indicators of Development (SID) database called
Natural Resources and Food. These attributes include
information on the amount of agricultural land, population
density on agricultural land, forest area, deforestation rates,
cereal crop imports, food aid, food production, daily calorie
consumption, and protein supply.

Using the Food Production and Nutrition coverage

Time series attributes range from 1965 to 1989, with data in
five-year intervals for 1965 to 1985 and data for the
additional year of 1989. Not all years in the time series are
available for all topics.

Information about country boundaries, missing measurement
values, and the statistical flag attribute that applies to this
layer, as well as to all of the other statistical attribute layers,
is given on page 4-42.

Summary of the Food Production and Nutrition coverage

Coverage name: AGRICUL

Source and currency: Cartography from U.S. Government, World Data Bank II, 1988
Attribute data from the World Bank, Social Indicators of Development 1990
database

Thematic attribute   Geographic reference attributes (polygons and lines)
groups: Cartographic attributes (polygons)
Statistical flag (polygons)
World organization membership (polygons)
World Bank country code (polygons)
Agricultural land (polygons)
Forests (polygons)
Food imports and aid (polygons)
Food production and supply (polygons)
Classification attributes (lines)
International boundary status (lines)
Boundary coincidence with rivers (lines)

Feature class	Feature	Number of features	Number of attributes
Polygons	Countries and other political divisions	Represented by ca. 12,609 polygons	79
Lines	Coastlines, international boundaries, and world regions	Represented by ca. 16,395 lines	9

Polygon attributes

Geographic reference attributes

COUNTRY
CNTRY_NAME
REGION
CONTINENT

These geographic reference attributes contain codes and names that make it possible to select polygonal features by country, world region, and continent. The areas and their corresponding codes are listed in Appendix C; regions are also shown on the map in Chapter 1.

Food Production and Nutrition

Cartographic attributes

LAND_OCEAN Flag used to identify continents, islands, and ocean areas. The codes are as follows:

Codes   Definitions
1 = Continent
2 = Offshore island
3 = Ocean

ISLND_RANK Offshore islands are ranked for cartographic significance, primarily on the basis of size. These rank codes are only present for islands surrounded by ocean; no islands within inland water bodies are included in this layer. Greenland is the largest island. The codes are as follows:

Codes   Definitions
1 = Basic reference feature
2 = Major
3 = Additional major
4 = Intermediate
5 = Minor
9 = Unranked

Statistical flag

STAT_FLAG Flag used to identify a single polygon (the largest) for each country for purposes of calculating summary statistics. Chapter 6 provides more information about using this attribute. The codes are as follows:

Codes   Definitions
0 = Other polygons in country.
1 = Polygon identifier for disputed territories, reassigned areas, or countries for which data are not tabulated by the World Bank or World Resources Institute. (See Appendix C for a list of disputed territories and reassigned areas.)
2 = Polygon identifier for countries that are assigned statistical data by the World Bank or World Resources Institute.

World organization membership attributes

EEC
FAO
GA
GA_MEMB_YR
IAEA
IBRD
IMF
OPEC
SC
UNESCO
WHO
WMO

These attributes indicate membership in international organizations. Each of the organization attributes can be used to select a group of country polygons for display or study. The organizations indicated by these attributes are listed on page 4-46. The codes are as follows:

Codes   **Definitions**
0   =   Not a member of this organization
1   =   A member of this organization

World Bank country code attribute

WB_CNTRY

This attribute contains the three-letter country code used by the World Bank in the SID database. Disputed territories are assigned to individual countries; the specific assignments are listed at the end of Appendix C.

Agricultural land

P_AGLAND65
P_AGLAND70
P_AGLAND75
P_AGLAND80
P_AGLAND85
P_AGLAND89

The amount of agricultural land as a percentage of the total land area, in five-year intervals. Includes areas used for crops, pasture, market or kitchen gardens, and land lying fallow. Total land excludes areas of inland waters and rivers.

POPDNSAG65
POPDNSAG70
POPDNSAG75
POPDNSAG80
POPDNSAG85
POPDNSAG89

Population per square kilometer of agricultural land, in five-year intervals.

Food Production and Nutrition

Forests

FORESTS65
FORESTS70
FORESTS75
FORESTS80
FORESTS85
FORESTS89

The land area under natural or planted stands of trees, measured in square kilometers. Includes productive and nonproductive areas and cleared land that will be reforested in the near future.

NETDEFOR65
NETDEFOR70
NETDEFOR75
NETDEFOR80
NETDEFOR85
NETDEFOR89

The net annual rate of change of forest and woodland area, expressed as a percentage. A positive number indicates an increase in forested area.

Food imports and aid

IMPTCERL65
IMPTCERL70
IMPTCERL75
IMPTCERL80
IMPTCERL85
IMPTCERL89

Food imports of cereals, measured in metric tons. Cereal imports are defined as comprising all cereals in the Standard International Trade Classification, revision 2, groups 041–046. The cereal imports are based on calendar-year data and are measured in grain equivalents.

AIDCERLB70
AIDCERLB75
AIDCERLB80
AIDCERLB85
AIDCERLB89

Cereal food aid, measured in metric tons. Aid covers wheat and flour, bulgur, coarse grains, and the cereal component of blended foods. The cereal food aid is based on data reported for crop years.

Food production and supply

FOODPROD65
FOODPROD70
FOODPROD75
FOODPROD80
FOODPROD85
FOODPROD89

The average annual quantity of food produced per capita in relation to the quantity produced in 1979–1981. The quantity produced in 1979–1981 is assigned a relative value of 100. Food is defined as comprising nuts, pulses, fruit, cereals, vegetables, sugarcane, sugar beets, starchy roots, edible oils, livestock, and livestock products. These figures exclude animal feed, seeds for agriculture, and food lost in processing.

Food Production and Nutrition

P_AGGDPB65
P_AGGDPB70
P_AGGDPB75
P_AGGDPB80
P_AGGDPB85
P_AGGDPB89

Percentage share of agriculture in the GDP. The percentage share of agriculture covers forestry, hunting, and fishing, as well as agriculture. In developing countries with high levels of subsistence farming, much of agricultural production is either not exchanged, or not exchanged for money. This increases the difficulty of measuring the contribution of agriculture to GDP and reduces the reliability and comparability of such numbers.

CAL_CAP65
CAL_CAP70
CAL_CAP75
CAL_CAP80
CAL_CAP85
CAL_CAP89

The daily calorie supply per capita, computed as the energy equivalent of net food supplies in a country, per capita, per day. Available supplies comprise domestic production, imports less exports, and changes in stock. This figure excludes animal feed, seeds for agriculture, and food lost in processing.

PROT_CAP65
PROT_CAP70
PROT_CAP75
PROT_CAP80
PROT_CAP85
PROT_CAP89

The protein content of the net food supply per capita, measured in grams. Net food supplies comprise domestic production, imports less exports, and changes in stock. This figure excludes animal feed, seeds for agriculture, and food lost in processing. U.S. Department of Agriculture (USDA) minimum allowances are 60 grams of total protein per day and 20 grams of animal or pulse (peas, beans, lentils, etc.) protein.

Line attributes
Thorough definitions of these attributes are given on page 4-50.

Classification attributes

TYPE
BND_TYPE

Each line is classified according to the type of feature it represents. TYPE contains the code number, and BND_TYPE contains the English description. The codes are as follows:

Codes   Equivalents
1 = Coastline
2 = International boundary
3 = Coral reef
4 = World region boundary
9 = Grid line

Food Production and Nutrition

International boundary status attribute

BND_STATUS

Each international boundary is classified according to boundary status. The codes are as follows:

Codes		Definitions
1	=	Demarcated or delimited
2	=	Indefinite or in dispute
3	=	Line of separation or sovereignty on land
4	=	Demilitarized zone in Israel
5	=	No defined line
6	=	Selected claim lines
9	=	Not an international boundary

Boundary coincidence with rivers

BND_COINC

Each international boundary is classified as to being coincident with a river line segment in the RIV3M coverage. The codes are as follows:

Codes		Definitions
0	=	Not coincident with river line segment
1	=	Coincident with river line segment

Geographic reference attributes

COUNTRY1
COUNTRY2
CNTRY_NAME
REGION
CONTINENT

These attributes contain the following: two-letter country codes (two attributes), country names, regional codes, and continent codes. Countries, regions, and continents and their corresponding codes are listed in Appendix C; regions are also shown on the map in Chapter 1.

Health and Vital Statistics
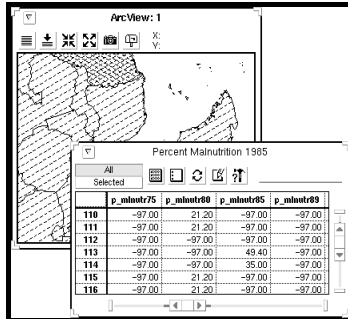
Polygons and lines for countries

Layer description

The Health and Vital Statistics layer contains a subset of the attributes found in the sections of the World Bank's Social Indicators of Development (SID) database called Human Resources, Medical Care, and Poverty. These attributes include information and indicators on safe water; malnutrition; expenditure on medical care; number of physicians, nurses, and hospital beds per person; birth and death rates; infant mortality; fertility and contraception; family size; and life expectancy.

Using the Health and Vital Statistics coverage

Time series attributes range from 1965 to 1989, with data in five-year intervals for 1965 to 1985 and data for the additional year of 1989. Not all years in the time series are available for all topics.

Information about country boundaries, missing measurement values, and the statistical flag attribute that applies to this layer, as well as to all of the other statistical attribute layers, is given on page 4-42.

Health and Vital Statistics

Summary of the Health and Vital Statistics coverage

Coverage name: HEALTH

Source and currency: Cartography from U.S. Government, World Data Bank II, 1988
                      Attribute data from the World Bank, Social Indicators of Development 1990
                      database

Thematic attribute   Geographic reference attributes (polygons and lines)
groups: Cartographic attributes (polygons)
                       Statistical flag (polygons)
                       World organization membership (polygons)
                       World Bank country code (polygons)
                       Access to safe water (polygons)
                       Malnutrition (polygons)
                       Health care expenditures and availability (polygons)
                       Vital statistics (polygons)
                       Classification attributes (lines)
                       International boundary status (lines)
                       Boundary coincidence with rivers (lines)

Feature class	Feature	Number of features	Number of attributes
Polygons	Countries and other political divisions	Represented by ca. 12,609 polygons	110
Lines	Coastlines, international boundaries, and world regions	Represented by ca. 16,395 lines	9

Polygon attributes

Geographic reference attributes

COUNTRY
CNTRY_NAME
REGION
CONTINENT

These geographic reference attributes contain codes and names that make it possible to select polygonal features by country, world region, and continent. The areas and their corresponding codes are listed in Appendix C; regions are also shown on the map in Chapter 1.

Cartographic attributes

LAND_OCEAN   Flag used to identify continents, islands, and ocean areas. The codes are as follows:

Codes   Definitions
  1 = Continent
  2 = Offshore island
  3 = Ocean

ISLND_RANK   Offshore islands are ranked for cartographic significance, primarily on the basis of size. These rank codes are only present for islands surrounded by ocean; no islands within inland water bodies are included in this layer. Greenland is the largest island. The codes are as follows:

Codes   Definitions
  1 = Basic reference feature
  2 = Major
  3 = Additional major
  4 = Intermediate
  5 = Minor
  9 = Unranked

Statistical flag

STAT_FLAG   Flag used to identify a single polygon (the largest) for each country for purposes of calculating summary statistics. Chapter 6 provides more information about using this attribute. The codes are as follows:

Codes   Definitions
  0 = Other polygons in country.
  1 = Polygon identifier for disputed territories, reassigned areas, or countries for which data are not tabulated by the World Bank or World Resources Institute. (See Appendix C for a list of disputed territories and reassigned areas.)
  2 = Polygon identifier for countries that are assigned statistical data by the World Bank or World Resources Institute.

Health and Vital Statistics

World organization membership attributes

EEC
FAO
GA
GA_MEMB_YR
IAEA
IBRD
IMF
OPEC
SC
UNESCO
WHO
WMO

These attributes indicate membership in international organizations. Each of the organization attributes can be used to select a group of country polygons for display or study. The organizations indicated by these attributes are listed on page 4-46. The codes are as follows:

Codes   **Definitions**
0 = Not a member of this organization
1 = A member of this organization

World Bank country code attribute

WB_CNTRY

This attribute contains the three-letter country code used by the World Bank in the SID database. Disputed territories are assigned to individual countries; the specific assignments are listed at the end of Appendix C.

Access to safe water

SAFEH2O70
SAFEH2O75
SAFEH2O80
SAFEH2O85
SAFEH2O89

Percentage of the total population with reasonable access to safe water supply, by five-year intervals. This definition includes treated surface water and untreated but uncontaminated groundwater, such as springs, sanitary wells, and protected boreholes.

SAFH2OUB70
SAFH2OUB75
SAFH2OUB80
SAFH2OUB85
SAFH2OUB89

Percentage of the urban population with reasonable access to safe water supply. This definition includes treated surface water and untreated but uncontaminated groundwater, such as springs, sanitary wells, and protected boreholes. In urban areas this may be a public fountain or standpost located not more than 200 meters away.

SAFH2ORB65
SAFH2ORB70
SAFH2ORB75
SAFH2ORB80
SAFH2ORB85
SAFH2ORB89

Percentage of the rural population with reasonable access to safe water supply. This definition includes treated surface water and untreated but uncontaminated groundwater, such as springs, sanitary wells, and protected boreholes. In rural areas "reasonable access" implies that persons do not have to spend a disproportionate part of each day obtaining water.

Malnutrition

P_MLNUTR65
P_MLNUTR70
P_MLNUTR75
P_MLNUTR80
P_MLNUTR85
P_MLNUTR89

Percentage of children under five years of age suffering from malnutrition. Methods for assessing malnutrition vary. Data for a few countries are for children three or four years of age and younger.

Health care expenditures and availability

EXP_MED70
EXP_MED75
EXP_MED80
EXP_MED85
EXP_MED89

Percentage of Gross Domestic Product (GDP) spent on medical care. This includes both private and government spending. Computed from United Nations International Comparison Program (ICP) figures, or national estimates, if available.

POP_DOCT65
POP_DOCT70
POP_DOCT75
POP_DOCT80
POP_DOCT85
POP_DOCT89

Population per physician. Physicians include medical assistants who dispense medical services similar to registered physicians. The definition of recognized medical practitioners differs among countries.

POP_NURS65
POP_NURS70
POP_NURS75
POP_NURS80
POP_NURS85
POP_NURS89

Population per nurse. Nurses include both graduate, practical, assistant, and auxiliary nurses and paraprofessional personnel such as health workers, first-aid workers, traditional birth attendants, and so on.

Health and Vital Statistics

POP_HBED65
POP_HBED70
POP_HBED75
POP_HBED80
POP_HBED85
POP_HBED89

Population per hospital bed. A hospital is defined as an establishment permanently staffed by at least one physician. Hospitals include public, private, general, and specialized facilities, and rehabilitation centers.

Vital statistics

BIR_RATE65
BIR_RATE70
BIR_RATE75
BIR_RATE80
BIR_RATE85
BIR_RATE89

Crude birth rate, which is defined as the number of births per 1,000 persons in a given year. The data are based on a combination of observed values and interpolated and projected estimates.

FERTILTY65
FERTILTY70
FERTILTY75
FERTILTY80
FERTILTY85
FERTILTY89

Total fertility rate, which is defined as the average number of children that would be born alive to a woman during her lifetime, if she were to bear children in accordance with prevailing age-specific fertility rates. The data are based on a combination of observed values and interpolated and projected estimates.

CONTRCPF70
CONTRCPF75
CONTRCPF80
CONTRCPF85
CONTRCPF89

Percentage of married women of childbearing age who are using, or whose husbands are using, any form of contraception. Childbearing age is usually defined as ages fifteen to forty-nine, although some countries measure contraceptive usage for other age groups.

CHLD_W_U65
CHLD_W_U70
CHLD_W_U75
CHLD_W_U80
CHLD_W_U85
CHLD_W_U89

Ratio of the number of children under five years of age per 100 women ages 15–49, for the urban population.

CHLD_W_R65
CHLD_W_R70
CHLD_W_R75
CHLD_W_R80
CHLD_W_R85
CHLD_W_R89

Ratio of the number of children under five years of age per 100 women ages 15–49, for the rural population.

DTH_RATE65
DTH_RATE70
DTH_RATE75
DTH_RATE80
DTH_RATE85
DTH_RATE89

Crude death rate, which is defined as the number of deaths per 1,000 persons in a given year. The data are based on a combination of observed values and interpolated and projected estimates.

INF_DTH65
INF_DTH70
INF_DTH75
INF_DTH80
INF_DTH85
INF_DTH89

Infant mortality rate, which is defined as the number of deaths of infants under one year of age per 1,000 live births in a given year. The data are based on a combination of observed values and interpolated and projected estimates. A few countries use an atypical definition of live births, which reduces their infant mortality rates relative to other countries.

DTHUND5_85
DTHUND5_89

Number of deaths of children under five years of age per 1,000 live births in a given year. The data are estimates from projection models.

LIFE_EXP65
LIFE_EXP70
LIFE_EXP75
LIFE_EXP80
LIFE_EXP85
LIFE_EXP89

Life expectancy at birth for the total population. Life expectancy is defined as the number of years a newborn infant would live if the prevailing patterns of mortality were to remain the same throughout its life. The data are based on a combination of observed values and interpolated and projected estimates.

LIFEXP_F65
LIFEXP_F70
LIFEXP_F75
LIFEXP_F80
LIFEXP_F85
LIFEXP_F89

Life expectancy at birth for females. Life expectancy is defined as the number of years a newborn infant would live if the prevailing patterns of mortality were to remain the same throughout its life. The data are based on a combination of observed values and interpolated and projected estimates.

Health and Vital Statistics

Line attributes
Thorough definitions of these attributes are given on page 4-50.

Classification attributes

TYPE
BND_TYPE

Each line is classified according to the type of feature it represents. TYPE contains the code number, and BND_TYPE contains the English description. The codes are as follows:

Codes   Equivalents
1 = Coastline
2 = International boundary
3 = Coral reef
4 = World region boundary
9 = Grid line

International boundary status attribute

BND_STATUS

Each international boundary is classified according to boundary status. The codes are as follows:

Codes   Definitions
1 = Demarcated or delimited
2 = Indefinite or in dispute
3 = Line of separation or sovereignty on land
4 = Demilitarized zone in Israel
5 = No defined line
6 = Selected claim lines
9 = Not an international boundary

Boundary coincidence with rivers

BND_COINC

Each international boundary is classified as to being coincident with a river line segment in the RIV3M coverage. The codes are as follows:

Codes   Definitions
0 = Not coincident with river line segment
1 = Coincident with river line segment

Geographic reference attributes

COUNTRY1
COUNTRY2
CNTRY_NAME
REGION
CONTINENT

These attributes contain the following: two-letter country codes (two attributes), country names, regional codes, and continent codes. Countries, regions, and continents and their corresponding codes are listed in Appendix C; regions are also shown on the map in Chapter 1.

Labor Force Characteristics

Polygons and lines for countries

Layer description

The Labor Force Characteristics layer contains attributes found in the section of the World Bank's Social Indicators of Development (SID) database called Labor.   These attributes include information and indicators on the size of the labor force, percentage of the labor force working in agriculture or industry, female-to-male laborer ratios, and labor force participation rates.

Using the Labor Force Characteristics coverage

Time series attributes range from 1965 to 1989, with data in five-year intervals for 1965 to 1985 and data for the additional year of 1989. Not all years in the time series are available for all topics.

Information about country boundaries, missing measurement values, and the statistical flag attribute that applies to this layer, as well as to all of the other statistical attribute layers, is given on page 4-42.

Summary of the Labor Force Characteristics coverage

Coverage name: LABOR

Source and currency: Cartography from U.S. Government, World Data Bank II, 1988
Attribute data from the World Bank, Social Indicators of Development 1990
database

Thematic attribute   Geographic reference attributes (polygons and lines)
groups: Cartographic attributes (polygons)
Statistical flag (polygons)
World organization membership (polygons)
World Bank country code (polygons)
Labor force attributes (polygons)
Classification attributes (lines)
International boundary status (lines)
Boundary coincidence with rivers (lines)

Feature class	Feature	Number of features	Number of attributes
Polygons	Countries and other political divisions	Represented by ca. 12,609 polygons	68
Lines	Coastlines, international boundaries, and world regions	Represented by ca. 16,395 lines	9

Polygon attributes

Geographic reference attributes

COUNTRY
CNTRY_NAME
REGION
CONTINENT

These geographic reference attributes contain codes and
names that make it possible to select polygonal features by
country, world region, and continent. The areas and their
corresponding codes are listed in Appendix C; regions are
also shown on the map in Chapter 1.

Labor Force Characteristics

Cartographic attributes

LAND_OCEAN   Flag used to identify continents, islands, and ocean areas. The codes are as follows:

Codes   Definitions
1 = Continent
2 = Offshore island
3 = Ocean

ISLND_RANK   Offshore islands are ranked for cartographic significance, primarily on the basis of size. These rank codes are only present for islands surrounded by ocean; no islands within inland water bodies are included in this layer. Greenland is the largest island. The codes are as follows:

Codes   Definitions
1 = Basic reference feature
2 = Major
3 = Additional major
4 = Intermediate
5 = Minor
9 = Unranked

Statistical flag

STAT_FLAG   Flag used to identify a single polygon (the largest) for each country for purposes of calculating summary statistics. Chapter 6 provides more information about using this attribute. The codes are as follows:

Codes   Definitions
0 = Other polygons in country.
1 = Polygon identifier for disputed territories, reassigned areas, or countries for which data are not tabulated by the World Bank or World Resources Institute. (See Appendix C for a list of disputed territories and reassigned areas.)
2 = Polygon identifier for countries that are assigned statistical data by the World Bank or World Resources Institute.

World organization membership attributes

EEC
FAO
GA
GA_MEMB_YR
IAEA
IBRD
IMF
OPEC
SC
UNESCO
WHO
WMO

These attributes indicate membership in international organizations. Each of the organization attributes can be used to select a group of country polygons for display or study. The organizations indicated by these attributes are listed on page 4-46. The codes are as follows:

Codes **Definitions**
 0 = Not a member of this organization
 1 = A member of this organization

World Bank country code attribute

WB_CNTRY

This attribute contains the three-letter country code used by the World Bank in the SID database. Disputed territories are assigned to individual countries; the specific assignments are listed at the end of Appendix C.

Labor force attributes

LABORFOR65
LABORFOR70
LABORFOR75
LABORFOR80
LABORFOR85
LABORFOR89

Total labor force, which is defined as the number of "economically active" people in the population, by five-year intervals. This definition of total labor force includes the armed forces and the unemployed, but excludes homemakers and other unpaid caregivers.

P_AGRIC65
P_AGRIC70
P_AGRIC75
P_AGRIC80
P_AGRIC85
P_AGRIC89

Percentage of the total labor force engaged in farming, forestry, hunting, and fishing.

P_INDUS65
P_INDUS70
P_INDUS75
P_INDUS80
P_INDUS85
P_INDUS89

Percentage of the total labor force engaged in mining, manufacturing, construction, and the electricity, water, and gas industries.

Labor Force Characteristics

P_FEMALE65 P_FEMALE70 P_FEMALE75 P_FEMALE80 P_FEMALE85 P_FEMALE89	Percentage of the total labor force composed of females. Female participation rates in the labor force are significantly underestimated in several developing countries according to the World Bank.
FEM_URB65 FEM_URB70 FEM_URB75 FEM_URB80 FEM_URB85 FEM_URB89	Number of females per 100 males for the urban working-age population (15–64).
FEM_RUR65 FEM_RUR70 FEM_RUR75 FEM_RUR80 FEM_RUR85 FEM_RUR89	Number of females per 100 males for the rural working-age population (15–64). The significant differences between the urban and rural gender ratios reflect migration patterns.
PARTICIP65 PARTICIP70 PARTICIP75 PARTICIP80 PARTICIP85 PARTICIP89	Percentage of the total population the labor force makes up. These figures are based on International Labour Office estimates.
PARTCP_F65 PARTCP_F70 PARTCP_F75 PARTCP_F80 PARTCP_F85 PARTCP_F89	Percentage of population of all ages in the labor force. These figures are based on International Labour Office estimates, on the age–sex structure of the population.

Line attributes
Thorough definitions of these attributes are given on page 4-50.

Classification attributes

TYPE
BND_TYPE

Each line is classified according to the type of feature it represents. TYPE contains the code number, and BND_TYPE contains the English description. The codes are as follows:

Codes   Equivalents
1 = Coastline
2 = International boundary
3 = Coral reef
4 = World region boundary
9 = Grid line

International boundary status attribute

BND_STATUS

Each international boundary is classified according to boundary status. The codes are as follows:

Codes   Definitions
1 = Demarcated or delimited
2 = Indefinite or in dispute
3 = Line of separation or sovereignty on land
4 = Demilitarized zone in Israel
5 = No defined line
6 = Selected claim lines
9 = Not an international boundary

Boundary coincidence with rivers

BND_COINC

Each international boundary is classified as to being coincident with a river line segment in the RIV3M coverage. The codes are as follows:

Codes   Definitions
0 = Not coincident with river line segment
1 = Coincident with river line segment

Labor Force Characteristics

Geographic reference attributes

COUNTRY1
COUNTRY2
CNTRY_NAME
REGION
CONTINENT

These attributes contain the following: two-letter country codes (two attributes), country names, regional codes, and continent codes. Countries, regions, and continents and their corresponding codes are listed in Appendix C; regions are also shown on the map in Chapter 1.

Natural Resources and the Environment

Polygons and lines for countries

Layer description

This layer contains more than 100 attributes from the World Resource Institute's World Resources 1992–1993 Data Base. These attributes provide country-level information on a wide range of topics, such as gross domestic product, central government expenditures, sanitation, education, health, general infrastructure, agriculture, forestry, protected land areas, biological diversity, energy production and consumption, aquaculture, and atmospheric emissions.

Using the Natural Resources and the Environment coverage

Information about country boundaries, missing measurement values, and the statistical flag attribute that applies to this layer, as well as to all of the other statistical attribute layers, is given on page 4-42.

Natural Resources and the Environment

Summary of the Natural Resources and the Environment coverage

Coverage name: WRI_3M

Source and currency: Cartography from U.S. Government, World Data Bank II, 1988
Attribute data from the World Resources Institute, World Resources
1992–1993 Data Base

Thematic attribute   Geographic reference attributes (polygons and lines)
groups: Cartographic attributes (polygons)
Statistical flag (polygons)
World organization membership (polygons)
World Resources Institute country code (polygons)
Gross domestic product (polygons)
Central government expenditures (polygons)
Sanitation attributes (polygons)
Education attributes (polygons)
Health attributes (polygons)
General infrastructure (polygons)
Agriculture and forestry (polygons)
Protected land areas (polygons)
Species diversity and status (polygons)
Energy production and consumption (polygons)
Marine catch and aquaculture (polygons)
Atmospheric emissions (polygons)
Classification attributes (lines)
International boundary status (lines)
Boundary coincidence with rivers (lines)

Feature class	Feature	Number of features	Number of attributes
Polygons	Countries and other political divisions	Represented by ca. 12,609 polygons	120
Lines	Coastlines, inter-national boundaries, and world regions	Represented by ca. 16,395 lines	9

Natural Resources and the Environment

Polygon attributes

Geographic reference attributes

COUNTRY
CNTRY_NAME
REGION
CONTINENT

These geographic reference attributes contain codes and names that make it possible to select polygonal features by country, world region, and continent. The areas and their corresponding codes are listed in Appendix C; regions are also shown on the map in Chapter 1.

Cartographic attributes

LAND_OCEAN

Flag used to identify continents, islands, and ocean areas. The codes are as follows:

Codes   Definitions
1 = Continent
2 = Offshore island
3 = Ocean

ISLND_RANK

Offshore islands are ranked for cartographic significance, primarily on the basis of size. These rank codes are only present for islands surrounded by ocean; no islands within inland water bodies are included in this layer. Greenland is the largest island. The codes are as follows:

Codes   Definitions
1 = Basic reference feature
2 = Major
3 = Additional major
4 = Intermediate
5 = Minor
9 = Unranked

Natural Resources and the Environment

Statistical flag

STAT_FLAG   Flag used to identify a single polygon (the largest) for each country for purposes of calculating summary statistics. Chapter 6 provides more information about using this attribute. The codes are as follows:

Codes   Definitions
  0 = Other polygons in country.
  1 = Polygon identifier for disputed territories, reassigned areas, or countries for which data are not tabulated by the World Bank or World Resources Institute. (See Appendix C for a list of disputed territories and reassigned areas.)
  2 = Polygon identifier for countries that are assigned statistical data by the World Bank or World Resources Institute.

World organization membership attributes

EEC
FAO
GA
GA_MEMB_YR
IAEA
IBRD
IMF
OPEC
SC
UNESCO
WHO
WMO

These attributes indicate membership in international organizations. Each of the organization attributes can be used to select a group of country polygons for display or study. The organizations indicated by these attributes are listed on page 4-46. The codes are as follows:

Codes   Definitions
  0 = Not a member of this organization
  1 = A member of this organization

World Resources Institute country code

WRI_CNTRY   This attribute contains a two-letter code for the countries of the world as they were identified by the World Resources Institute in the World Resources 1992–1993 database. In this attribute disputed territories are assigned to individual countries; the specific assignments are listed at the end of Appendix C.

Gross Domestic Product

P_AGGDPR88
P_INDGDP88
P_SERGDP88

Percentage of Gross Domestic Product (GDP) contributed by activities in agriculture, industry, and services in 1988. GDP is the sum of the final outputs of various sectors of a country's economy, minus the value of the inputs for production. These figures include net export of goods and nonfactor services. They do not include overseas workers' remittances, interest on loans, profits, and other factor payments that residents receive from abroad. (Factor services are labor and capital.) Some of the country values are from earlier years.

Central government expenditures

Central government expenditures in 1989 for the following (in U.S. dollars, except percentage):

P_GVTGDP89	As a percentage of GDP.
GVT_CAP89	Per capita.
GVDEFENS89	Defense.
GVEDUCAT89	Education.
GVHEALTH89	Health.
GVWLFHSE89	Social security, welfare, and housing.
GVRECCLR89	Recreation, culture, and religion.
GVAGFORF89	Agriculture, forestry, fishing, and hunting.
GVTRNCOM89	Transportation and communication.

Sanitation attributes

SAFH2OUR88
SAFH2ORR88

Percentage of the urban population and percentage of the rural population with access to safe drinking water. Access to safe water in urban areas means having piped water or access to a public piped water supply within 200 yards of a dwelling, and in rural areas access means treated water or protected, untreated water that is close enough to a dwelling to fetch in a reasonable amount of time.

Natural Resources and the Environment

SANITATU80 SANITATR80	Percentage of the urban population and percentage of the rural population with access to sanitation services. Sanitation services include public sewers, septic systems, pit privies, and so on.
HLTHSERV88	Percentage of the total population with access to health services. Access means that a person can reach local health services by local transportation within one hour.

Education attributes

PRIMRY_F89 PRIMRY_M89	The number of females and the number of males who are age twenty-five and older and have completed primary school.
POSTSECF89 POSTSECM89	The number of females and the number of males who are age twenty-five and older and have some postsecondary education.

Health attributes

ORTUSE_R88	Percentage of children experiencing episodes of diarrhea that were treated with Oral Rehydration Salts (ORT). (Diarrheal disease may lead to dehydration or malnutrition.)
IMMUN_TB90 IM_DPT90 IM_POLIO90 IM_MEASL90	The percentage of one-year-old children who were fully immunized in 1990 against the following diseases: tuberculosis; diphtheria, pertussis (whooping cough), and tetanus (DPT); polio; and measles.
CONTRCEP89	The percentage of married or cohabiting couples that use any method of birth control.

Natural Resources and the Environment

General infrastructure

WILDERNS88   Wilderness area as a percentage of total land area, 1988. Wilderness area is defined as lands showing no evidence of development (settlements, roads, buildings, airports, pipelines, powerlines, reservoirs, etc.). The minimum area for inclusion was 4,000 square kilometers.

HHLDSIZR86   Average number of occupants per household, 1970–1986.

HHWOELEC82   Percentage of households without electricity from public utilities, 1970–1982. Note: this figure includes residences serviced by local generators or other privately owned means of obtaining electricity.

TOTROADS89
PAVEDRDS89   Total kilometers of roads per 1,000 square kilometers of land area, and the kilometers of paved roads per 1,000 square kilometers of land area. Data are from the latest available figures between 1981 and 1989.

AIRPORTS89   Total number of public airports.

Agriculture and forestry

CROPLAND89   Total area of cropland, in thousands of hectares. Cropland refers to land under temporary and permanent crops, temporary meadows, market and kitchen gardens, and temporarily fallow land. Permanent cropland comprises crops that do not need to be replanted after each harvest, such as cocoa, coffee, rubber, fruit trees, and vines.

FERTILZE89   Average annual quantity of fertilizers consumed (nitrogen, phosphate, and potash), in kilograms per hectare of cropland, 1987–1989.

Natural Resources and the Environment

AIDCERLR89   Total cereal aid received by major recipients from major donors, in thousands of metric tons, 1989. A major recipient is a country that received at least 10,000 tons of cereal aid.

NOSOILCN89   Total land area with soil that has no inherent chemical and physical restraints to agricultural productivity, in thousands of hectares, 1989. The following physical and chemical constraints are absent in the soils included in this figure: steep slope, shallowness, poor drainage, low nutrient retention, aluminum toxicity, acidity, phosphorus fixation, amorphous material, vertic properties (i.e., shrinking and swelling), low potassium reserves, calcareous soil, salinity, excess sodium, acid sulfate soil, and gravel, and rocks.

CLOSEFOR80
OPENFOR80
PLANTATN80
OTHWOODS80   Extent of closed forests, open forests, plantations, and other woodlands in 1980, in thousands of hectares.

DEFORCLO85
P_DEFCLO85   Average annual deforestation for closed forests, in thousands of hectares, and percentage of the total closed forest being deforested annually; 1981–1985. Deforestation is defined as the permanent clearing of forests for use in shifting cultivation, permanent agriculture, or settlements. Not included are alterations such as selective logging.

DEFORTOT85
P_DEFTOT85   Average annual deforestation for all forests, in thousands of hectares, and percentage of all forested areas being deforested annually; 1981–1985. These figures refer to the total forest area, including open forest, closed forest, plantation, and other types of generally wooded areas.

ESTDEFOR89   The most recent estimate of average annual deforestation, in thousands of hectares.

REFOREST85   Average annual reforestation, in thousands of hectares, 1981–1985.

Protected land areas

MANGCLOF80
PROTCLOF80

Extent of managed closed forest areas, and extent of protected closed forest areas; in thousands of hectares.

P_PROTLN90

Percentage of national land area that is protected, in thousands of hectares. Protected land includes both totally and partially protected areas. Marine and coastal protected area figures are calculated for all littoral, coral, island, marine, and estuarine components. This figure does not include locally or provincially protected sites, privately owned areas, or areas managed primarily for the extraction of natural resources. National lists also usually include sites that are under international protection systems.

PRMARINE90
PRMARN_A90

The number of protected marine and coastal areas, and the area of those protected areas, in thousands of hectares.

BIORESRV90
BIORES_A90

The number of biosphere reserves (terrestrial and coastal environments that have been internationally recognized under the United Nations Educational, Scientific, and Cultural Organization Biosphere Program), and the area of those reserves, in thousands of hectares.

WETLANDS90
WETLND_A90

The number of internationally significant wetlands, and the area of those wetlands, in thousands of hectares.

Species diversity and status

The number of known species (including introduced species) and the number of threatened species (endangered, vulnerable, rare, or indeterminate; excluding introduced species) of the following kinds of animals:

MAMLSPEC90
MAMLTHRT89

Mammals (excludes cetaceans; i.e., whales and porpoises).

BIRDSPEC89
BIRDTHRT89

Birds.

Natural Resources and the Environment

REPTSPEC89 REPTTHRT89	Reptiles.
AMPHSPEC89 AMPHTHRT89	Amphibians.
FFSHSPEC89 FFSHTHRT89	Freshwater fishes.
PLANTAXA91	Total number of known native vascular plant species.
P_ENDMFL91	Endemic flora (plants that occur only in a single geopolitical area or group of islands) as a percentage of the total plant species.
PLANTHRT91 PLTHR_1K91 PLTHR_KM91	Rare and threatened plant taxa—total number; per 1,000 species; and per 10,000 square kilometers. These figures are generally based on recorded species, but sometimes include estimates. In most cases plant taxa refer to native vascular species.

Because taxonomic concepts and the extent of knowledge are variable, direct comparisons between countries are not possible using the total number of taxa or the number per 1,000 species. The third attribute, PLTHR_KM91, provides a relative estimate for comparing threatened species in countries of different size; because the relationship between area and the number of plant species is nonlinear, a species–area curve was used to standardize this figure.

Energy production and consumption

Commercial production of the following, in petajoules (10^{15} joules):

PROD_SOL89	Solid fuel (includes bituminous coal, lignite, peat, and oil shale burned directly).

PROD_LIQ89 Liquid fuel (includes crude petroleum and natural gas liquids).

PROD_GAS89 Gaseous fuel (includes natural gas and other petroleum gases).

PRDGEOWN89 Electric power from geothermal and wind energy.

PRDHYDRO89 Hydroelectric power.

PRDNUCLR89 Electric power from nuclear energy.

PROD_TOT89 Total energy production (includes solid, liquid, and gaseous fuels and primary electricity production).

CONS_TOT89 Total commercial energy consumption, in petajoules, 1989.

CONS_87_89 Commercial energy consumption for 1989, in megajoules per constant. The constant is calculated using the gross national product expressed in 1987 U.S. dollars. This figure represents domestic production plus net imports, less stock increases, less aircraft and marine bunkers, less unallocated quantities.

ENRG_IMP89 Energy imports expressed as a percentage of energy consumption. This figure represents net imports, less stock increases, less aircraft and marine bunkers, less unallocated quantities. A negative value indicates that exports are greater than imports.

TRFLCONS89
P_TRFUEL89 Total consumption of traditional fuels (fuelwood, charcoal, bagasse [sugar processing waste], animal and vegetal wastes), and traditional fuels as a percentage of total fuel requirements.

ENRINTIN89
ENRINTAG89 Environmental intensity of industrial activities, and environmental intensity of agricultural activities; in megajoules per industrial GDP, expressed in 1989 U.S. dollars.

Natural Resources and the Environment

MUNWASTE89   Annual generation of municipal waste, in kilograms per capita. This figure includes household and bulky waste, as well as comparable wastes from small commercial or industrial enterprises, and market and kitchen residuals that are collected and treated by or for municipalities. These data are available only for the twenty-four countries that belong to the Organization for Economic Cooperation and Development (OECD). The year of the estimate varies from 1980 to 1990.

Marine catch and aquaculture

MRNCATCH89   Average annual marine catch, in thousands of metric tons, 1987–1989.

AQCULTPR89   Average annual aquaculture production of fish and shellfish, thousands of metric tons, 1987–1989.

FOODFISH88   Average annual food supply from fish and fishery products, 1986–1988, in kilograms per capita.

Atmospheric emissions

Carbon dioxide emissions resulting from industrial processes in 1989, in thousands of metric tons, from the following sources:

CO2_SOL89   Solid fuels.

CO2_LIQ89   Liquid fuels.

CO2_GAS89   Gas fuels.

CO2GASFL89   Gas flaring.

CO2CEMNT89   Cement manufacturing.

Natural Resources and the Environment

CO2_TOT70   Total industrial carbon dioxide emissions, 1970.

CO2_CAP89   Industrial carbon dioxide emissions in metric tons per capita, 1989.

CO2DEFOR89   Carbon dioxide emissions due to changes in land use (primarily deforestation), in thousands of metric tons, for 1989.

METHANE89   Methane emissions resulting from human activities, in thousands of metric tons, for 1989. This figure includes methane contributions from solid waste, coal mining, oil and gas production, wet rice agriculture, and livestock production.

CFC89   Chlorofluorocarbon (CFC) emissions, in thousands of metric tons, for 1989.

SO2_89   Total sulfur dioxide emissions, in thousands of metric tons, for 1989.

Line attributes
Thorough definitions of these attributes are given on page 4-50.

Classification attributes

TYPE
BND_TYPE   Each line is classified according to the type of feature it represents. TYPE contains the code number, and BND_TYPE contains the English description. The codes are as follows:

Codes   Equivalents
  1 = Coastline
  2 = International boundary
  3 = Coral reef
  4 = World region boundary
  9 = Grid line

Natural Resources and the Environment

International boundary status attribute

BND_STATUS

Each international boundary is classified according to boundary status. The codes are as follows:

Codes   Definitions
  1 = Demarcated or delimited
  2 = Indefinite or in dispute
  3 = Line of separation or sovereignty on land
  4 = Demilitarized zone in Israel
  5 = No defined line
  6 = Selected claim lines
  9 = Not an international boundary

Boundary coincidence with rivers

BND_COINC

Each international boundary is classified as to being coincident with a river line segment in the RIV3M coverage. The codes are as follows:

Codes   Definitions
  0 = Not coincident with river line segment
  1 = Coincident with river line segment

Geographic reference attributes

COUNTRY1
COUNTRY2
CNTRY_NAME
REGION
CONTINENT

These attributes contain the following: two-letter country codes (two attributes), country names, regional codes, and continent codes. Countries, regions, and continents and their corresponding codes are listed in Appendix C; regions are also shown on the map in Chapter 1.

Population Characteristics
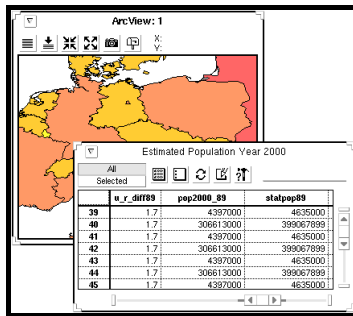
***Polygons and lines
for countries***

Layer description

The Population Characteristics layer contains a subset of the attributes found in the section of the World Bank's Social Indicators of Development (SID) database called Human Resources. These attributes include information on population size and estimates, age structure, age dependency ratios, percentage of urban and rural population, growth rates, total land area, population density, and household size.

Using the Population Characteristics coverage

Time series attributes range from 1965 to 1989, with data in five-year intervals for 1965 to 1985 and data for the additional year of 1989. Not all years in the time series are available for all topics.

Information about country boundaries, missing measurement values, and the statistical flag attribute that applies to this layer, as well as to all of the other statistical attribute layers, is given on page 4-42.

Population Characteristics

Summary of the Population coverage

Coverage name: POP_GEO

Source and currency: Cartography from U.S. Government, World Data Bank II, 1988
Attribute data from the World Bank, Social Indicators of Development 1990
database

Thematic attribute Geographic reference attributes (polygons and lines)
groups: Cartographic attributes (polygons)
Statistical flag (polygons)
World organization membership (polygons)
World Bank country code (polygons)
Population by age, sex, and situation (polygons)
Population growth rates and projections (polygons)
Population density (polygons)
Classification attributes (lines)
International boundary status (lines)
Boundary coincidence with rivers (lines)

Feature class	Feature	Number of features	Number of attributes
Polygons	Countries and other political divisions	Represented by ca. 12,609 polygons	106
Lines	Coastlines, international boundaries, and world regions	Represented by ca. 16,395 lines	9

Polygon attributes

Geographic reference attributes

COUNTRY
CNTRY_NAME
REGION
CONTINENT

These geographic reference attributes contain codes and names that make it possible to select polygonal water features by country, world region, and continent. The areas and their corresponding codes are listed in Appendix C; regions are also shown on the map in Chapter 1.

Cartographic attributes

LAND_OCEAN   Flag used to identify continents, islands, and ocean areas.
The codes are as follows:

Codes   Definitions
  1 = Continent
  2 = Offshore island
  3 = Ocean

ISLND_RANK   Offshore islands are ranked for cartographic significance,
primarily on the basis of size. These rank codes are only
present for islands surrounded by ocean; no islands within
inland water bodies are included in this layer. Greenland is
the largest island. The codes are as follows:

Codes   Definitions
  1 = Basic reference feature
  2 = Major
  3 = Additional major
  4 = Intermediate
  5 = Minor
  9 = Unranked

Statistical flag

STAT_FLAG   Flag used to identify a single polygon (the largest) for each
country for purposes of calculating summary statistics.
Chapter 6 provides more information about using this
attribute. The codes are as follows:

Codes   Definitions
  0 = Other polygons in country.
  1 = Polygon identifier for disputed territories,
         reassigned areas, or countries for which data are
         not tabulated by the World Bank or World
         Resources Institute. (See Appendix C for a list of
         disputed territories and reassigned areas.)
  2 = Polygon identifier for countries that are assigned
         statistical data by the World Bank or World
         Resources Institute.

Population Characteristics

World organization membership attributes

EEC
FAO
GA
GA_MEMB_YR
IAEA
IBRD
IMF
OPEC
SC
UNESCO
WHO
WMO

These attributes indicate membership in international organizations. Each of the organization attributes can be used to select a group of country polygons for display or study. The organizations indicated by these attributes are listed on page 4-46. The codes are as follows:

Codes   Definitions
0 = Not a member of this organization
1 = A member of this organization

World Bank country code attribute

WB_CNTRY

This attribute contains the three-letter country code used by the World Bank in the SID database. Disputed territories are assigned to individual countries; the specific assignments are listed at the end of Appendix C.

Population by age, sex, and situation

TOTPOP65
TOTPOP70
TOTPOP75
TOTPOP80
TOTPOP85
TOTPOP89

Total population by five-year intervals.

P_0_14_65
P_0_14_70
P_0_14_75
P_0_14_80
P_0_14_85
P_0_14_89

Percentage of the population between zero and fourteen years of age by five-year intervals.

P_15_64_65
P_15_64_70
P_15_64_75
P_15_64_80
P_15_64_85
P_15_64_89

Percentage of the population between fifteen and sixty-four years of age by five-year intervals.

AGERATIO65
AGERATIO70
AGERATIO75
AGERATIO80
AGERATIO85
AGERATIO89

The age dependency ratio by five-year intervals. This is defined as the ratio of the dependent population (under fifteen and over sixty-four years) to the working-age population (fifteen to sixty-four).

P_URBAN65
P_URBAN70
P_URBAN75
P_URBAN80
P_URBAN85
P_URBAN89

Percentage of the total population classified as living in urban areas, by five-year intervals.

FEM_URB65
FEM_URB70
FEM_URB75
FEM_URB80
FEM_URB85
FEM_URB89

Ratio of females to every 100 males in urban areas. Under normal demographic and economic circumstances, the female-to-male ratio should not be significantly below 100.

FEM_RUR65
FEM_RUR70
FEM_RUR75
FEM_RUR80
FEM_RUR85
FEM_RUR89

Ratio of females to every 100 males in rural areas. Under normal demographic and economic circumstances, the female-to-male ratio should not be significantly below 100.

Population growth rates and projections

GRW_RATE65
GRW_RATE70
GRW_RATE75
GRW_RATE80
GRW_RATE85
GRW_RATE89

The annual growth rate for the total population. Annual growth rate (1964–65, 1974–75, and 1988–89) is calculated from mid-year total population.

URBGRWRT65
URBGRWRT70
URBGRWRT75
URBGRWRT80
URBGRWRT85
URBGRWRT89

The annual growth rate for the urban population. Annual growth rate (1964–65, 1974–75, and 1988–89) is calculated from mid-year urban population.

Population Characteristics

U_R_DIFF65 U_R_DIFF70 U_R_DIFF75 U_R_DIFF80 U_R_DIFF85 U_R_DIFF89	Net difference between the urban and rural growth rates. This figure reflects the tempo of urbanization. However, it is not a net urban–rural migration measure because the calculation also factors in basic birth and death variables which are likely to differ between urban and rural areas.
POP2000_89	The World Bank's population projection for the year 2000. These data were calculated on the basis of a World Bank model that uses country-specific trends moderated by overall regional or global circumstances. The base year for the demographic parameters used in this estimate was 1985.
STATPOP89	Estimated total population when zero population growth is achieved. Zero population growth is defined as a constant birth rate equal to the death rate, with a stable age structure.

Population density

LANDAREA65 LANDAREA70 LANDAREA75 LANDAREA80 LANDAREA85 LANDAREA89	Total land area expressed in square kilometers. All land area and inland water is included in this figure.
POPDNSTY65 POPDNSTY70 POPDNSTY75 POPDNSTY80 POPDNSTY85 POPDNSTY89	Population per square kilometer of total surface area, for five-year intervals.
HHLDSIZB65 HHLDSIZB70 HHLDSIZB75 HHLDSIZB80 HHLDSIZB85 HHLDSIZB89	Average number of persons per household for the total population in five-year intervals. A household consists of a group of individuals who share living quarters and main meals.

HHSIZE_U65
HHSIZE_U70
HHSIZE_U75
HHSIZE_U80
HHSIZE_U85
HHSIZE_U89

Average number of persons per household for urban areas, in five-year intervals. A household consists of a group of individuals who share living quarters and main meals.

Line attributes
Thorough definitions of these attributes are given on page 4-50.

Classification attributes

TYPE
BND_TYPE

Each line is classified according to the type of feature it represents. TYPE contains the code number, and BND_TYPE contains the English description. The codes are as follows:

Codes   Equivalents
1 = Coastline
2 = International boundary
3 = Coral reef
4 = World region boundary
9 = Grid line

International boundary status attribute

BND_STATUS

Each international boundary is classified according to boundary status. The codes are as follows:

Codes   Definitions
1 = Demarcated or delimited
2 = Indefinite or in dispute
3 = Line of separation or sovereignty on land
4 = Demilitarized zone in Israel
5 = No defined line
6 = Selected claim lines
9 = Not an international boundary

Population Characteristics

Boundary coincidence with rivers

BND_COINC   Each international boundary is classified as to being coincident with a river line segment in the RIV3M coverage. The codes are as follows:

Codes   Definitions
0 = Not coincident with river line segment
1 = Coincident with river line segment

Geographic reference attributes

COUNTRY1
COUNTRY2
CNTRY_NAME
REGION
CONTINENT

These attributes contain the following: two-letter country codes (two attributes), country names, regional codes, and continent codes. Countries, regions, and continents and their corresponding codes are listed in Appendix C; regions are also shown on the map in Chapter 1.

Chapter 5

The ArcWorld 1:25M and Browse Map layers

The ArcWorld 1:25M coverages represent generalized versions of some of the larger-scale ArcWorld 1:3M coverages. The 1:25 million coverages have many of the same cartographic features as the 1:3 million coverages, although they are represented in less detail. The 1:25 million coverages are designed for people interested in either world or regional-level analysis, or an exploratory reconnaissance before delving into the ArcWorld 1:3M layers for more detailed information.

The Browse Map coverages, which are also described in this chapter, are designed for people who want to display any of the 500 or so ArcWorld statistical attributes on a highly generalized world map. The Browse Map coverages draw very rapidly and are useful for exploring general global thematic patterns.

The ArcWorld 1:25M and Browse Map layers are listed in the table on the next page.

The ArcWorld 1:25M and Browse Map layers are as follows:

Layer	ArcWorld 1:25M coverage names	Browse Map coverage names
Cartographic and index layers		
Country Boundaries	CTRY25M	—
Latitude/Longitude Grid	LTLG20	LTLG_BR
Major Cities	CITY25M	CITY_BR
Map Elements	SC_25M*	—
Rivers and Water Bodies	RIV25M	—
Statistical attribute layers		
Economic and Industrial Indicators	—	ECONIND
Education and Literacy	—	EDU_LIT
Food Production and Nutrition	—	AGRICUL
Health and Vital Statistics	—	HEALTH
Labor Force Characteristics	—	LABOR
Natural Resources and the Environment	—	WRI_BR
Population Characteristics	—	POP_GEO
Selected Statistical Attributes	STAT25M	STAT_BR

* The Map Elements coverage is provided only for Robinson projection in the UNIX ARC/INFO format.

Country Boundaries
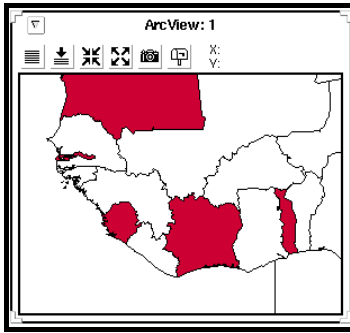
Polygons and lines

Layer description

The Country Boundaries layer serves as a small-scale national-level basemap for the entire globe. Two hundred forty separate geopolitical entities are represented and identified according to the Federal Information Processing Standards (FIPS) country codes (from FIPS publication 10-3). The fifteen former Soviet Union republics were upgraded to full international status. East and West Germany and North and South Yemen were combined into single countries. These changes make the layer current to world political conditions as of January 1, 1992.

Line attributes are present that identify coastlines and six types of international boundaries. Attributes that permit countries to be individually selected for display are contained in both the line and polygon attribute tables. Annotation containing country names accompanies this layer.

Using the Country Boundaries coverage

Countries with multiple geographic parts such as offshore islands or overseas territorial possessions are represented in the database by multiple polygons all having the same country code. A flag attribute (STAT_FLAG) is provided to identify the largest polygon for each country. This flag allows selection of a single data record per country, which is necessary for correct tabulation purposes. The countries represented by the most polygons are Canada (257), Russia (190), United States (131), and Indonesia (129).

The country name annotation was placed so that it would not overlap the city name annotation that accompanies the Major Cities layer.

Country Boundaries

Summary of the Country Boundaries coverage

Coverage name   CTRY25M

Source and currency: U.S. Government—World Data Bank II, 1988

Thematic attribute   Geographic reference attributes (polygons and lines)
groups: Land/ocean indicator (polygons)
                      Cartographic significance (polygons)
                      Statistical flag (polygons)
                      World organization membership attributes (polygons)
                      Classification attributes (lines)
                      International boundary status attribute (lines)
                      Geographic reference attributes (lines)

Annotation text: Country names

Feature class	Feature	Number of features	Number of attributes
Polygons	All polygon features	Represented by ca. 2,074 polygons	19
	Geopolitical units	256 features represented by ca. 2,029 polygons	
	Continents	Represented by ca. 198 polygons	
	Offshore islands	Represented by ca. 1,831 polygons	
Lines	All line features	Represented by ca. 3,940 lines	8
	Coastlines	Represented by ca. 3,265 lines	
	International boundaries (all types)	Represented by ca. 510 lines	

Polygon attributes

Geographic reference attributes

COUNTRY
CNTRY_NAME
REGION
CONTINENT

These attributes contain the following: FIPS 10-3 two-letter country codes, country names, region names, and continent names. Codes for countries and region and continent names are listed in Appendix C. The world regions are shown on the map in Chapter 1. These geographic reference codes can be used to select particular country polygons, world regions, or entire continents for display or study.

Land/ocean indicator

LAND_OCEAN

This attribute contains words to identify continental areas, offshore islands, and ocean polygons. The words are as follows:

- Continent
- Island
- Ocean

Cartographic significance

ISLND_RANK

Offshore islands are ranked for cartographic significance, primarily on the basis of size. These rank codes are only present for islands surrounded by ocean; no inlands within inland water bodies are included. Greenland is the largest island. The codes are as follows:

Codes		Definitions
1	=	Basic reference feature
2	=	Major
3	=	Additional major
4	=	Intermediate
5	=	Minor
9	=	Unranked

Country Boundaries

Statistical flag

STAT_FLAG

Flag attribute to identify a unique polygon for each FIPS 10-3 country code. The flag is applied to the largest polygon (based on area) in each country. The codes are as follows:

Codes   Definitions
   0 = Other polygon
   1 = Largest polygon per country

Note: the STAT_FLAG attributes in the statistical attribute coverages include an additional code value ("2") in order to accommodate the generation of summary statistics.

World organization membership attributes

EEC
FAO
GA
GA_MEMB_YR
IAEA
IBRD
IMF
OPEC
SC
UNESCO
WHO
WMO

These attributes indicate membership in international organizations. Each of the organization attributes can be used to select a group of country polygons for display or study. The organizations indicated by these attributes are listed on page 4-46. The codes are as follows:

Codes   Definitions
   0 = Not a member of this organization
   1 = A member of this organization

Line attributes

Classification attributes

TYPE
BND_TYPE

Each line is classified according to the type of feature it represents. This attribute allows you to symbolize different line features (political boundaries, coastlines, reefs, etc.) differently. TYPE contains the code number, and BND_TYPE contains the English description. The codes are as follows:

Codes   Definitions
   1 = Coastline
   2 = International boundary
   4 = World region boundary
   9 = Grid line

Grid lines (code 9) have been incorporated into this coverage for processing purposes. These grid lines carry no thematic information and can be "turned off" during data displays by reselecting for all TYPE codes not equal to 9, or by setting the line color to be blank for that category. The grid lines follow lines of longitude and latitude.

International boundary status attribute

BND_STATUS   Each international boundary is classified according to boundary status. This attribute allows you to display the various types of boundaries using different colors or line symbols. The codes are as follows:

Codes   Definitions
   1 = Demarcated or delimited
   2 = Indefinite or in dispute
   3 = Line of separation or sovereignty on land
   4 = Demilitarized zone in Israel
   5 = No defined line
   6 = Selected claim lines
   9 = Not an international boundary

Country Boundaries

Geographic reference attributes

COUNTRY1
COUNTRY2
CNTRY_NAME
REGION
CONTINENT

These attributes contain the following: two-letter country codes (two attributes), country names, regional codes, and continent codes. The countries on either side of an international boundary are listed by code in separate attributes (COUNTRY1 and COUNTRY2), and by name in a single attribute (CNTRY_NAME; e.g., "France/Germany"). Only one country is identified for coastlines. A similar dual coding scheme was used for boundaries between regions and continents, except that codes rather than names were used.

Countries, regions, and continents and their corresponding codes are listed in Appendix C; regions are also shown on the map in Chapter 1.

Latitude/ Longitude Grid
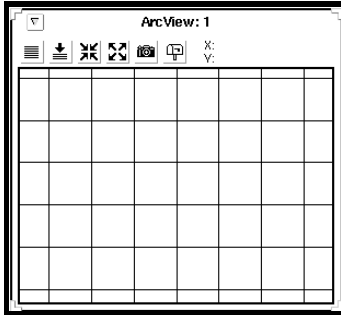
Lines

*1:25M and
Browse Map*

Layer description

The Latitude/Longitude Grid layer includes coverages for both the 1:25 million data and the Browse Map. These coverages contain lines that represent geographic parallels (lines of latitude) and meridians (lines of longitude) at intervals of 20 degrees. Attributes include the latitude or longitude value of each line and codes indicating whether a line segment is over land or ocean.

Using the Latitude/Longitude Grid coverages

The attribute LAND_WATER provides the opportunity to symbolize the latitude/longitude grid differently over land and water. For example, the grid could be displayed in the ocean areas to provide visual reference, and excluded from areas inside countries to avoid obscuring other displayed map features.

The spatial extent, scale, and purpose of the display will determine whether or not the latitude/longitude grid should be included. The 20-degree grid is appropriate for small-scale displays, such as maps showing the full extent of the world or when large areas of ocean are shown.

Latitude/Longitude Grid

Summary of the Latitude/Longitude Grid coverages

Coverage names: LTLG20, LTLG_BR

Source and currency: ESRI, generated, 1992

Thematic attribute
groups: Identification attributes

Feature class	Feature	Number of features (1:25M coverage)	Number of attributes
Lines	Latitude and longitude lines, 20- by 20-degree grid	Represented by ca. 1,450 lines	3

Line attributes
All of the attributes listed below are contained in both the 1:25M and Browse Map coverages.

Identification attributes

LATITUDE — The latitude of the grid line. All south latitude values begin with a minus sign. This attribute contains a blank for lines of longitude.

LONGITUDE — The longitude of the grid line. All west longitude values begin with a minus sign. This attribute contains a blank for lines of latitude.

LAND_WATER — Identifies whether a line segment is over land or water. The codes are as follows:

Codes   Definitions
  0 = Line segment lies over an ocean area
  1 = Line segment lies over land or inland water

Major Cities
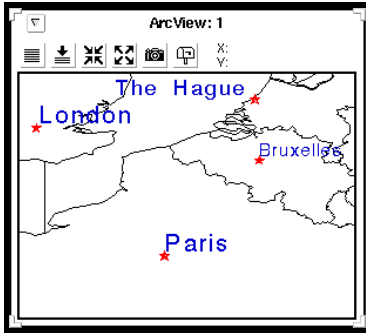
Points

***1:25M and
Browse Map***

Layer description

The Major Cities layer contains point features representing national capitals and other major cities around the world, in both ArcWorld 1:25M and Browse Map coverages.   The 1:25 million-scale coverage represents 144 national capitals plus 42 other large urban centers with a population greater than 3 million, for a total of 186 cities. There are name attributes for both the conventional (Romanized) and native spellings of each city. The names and spellings presented in the coverage reflect the decisions and determinations of the International Board of Geographic Names as of January 31, 1992. The Browse Map coverage represents 129 national capitals, with attributes for the city name, country code, and country name. Annotation containing city names also accompanies both coverages.

Using the Major Cities coverages

The Major Cities point features are useful as general geographic identifiers, especially for small-scale maps. In the 1:25M coverage, the attributes for the cities allow very large population centers and national capitals to be differentiated from other types of cities. The countries with the largest number of cities are the United States (40), China (35), Russia (19), and India (17).

Given the difficulty of representing and displaying diacritical marks, the diacritical attribute in the 1:25M coverage indicates only the presence of a diacritical mark. The diacritical mark may be of any type and may appear at any location in the city name.

The annotated city names are in cartographically appropriate positions that are placed so as to not overlap the country names in the 1:25M Country Boundaries layer. The size of

Major Cities

Summary of the Major Cities coverages

Coverage names: CITY25M, CITY_BR

Source and currency: Cartography from the Defense Mapping Agency, Operational Navigation
                      Charts, various years.   Attribute data from the *World Fact Book*, 1989.

Thematic attribute   Name attribute
groups: Classification attributes
                      Additional name attribute
                      Geographic reference attributes

Annotation text: City names

Feature class	Feature	Number of features (1:25M coverage)	Number of attributes
Points	All point features	Represented by 186 points	9
	National capitals	Represented by 144 points	
	Major urban centers over 3 million	Represented by 42 points	

these names will automatically change when the scale of a
display map is changed.

Point attributes

*The complete list of attributes defined below is contained in the
ArcWorld 1:25M coverage. Asterisks indicate those attributes
that are included in the Browse Map coverage.*

Name attribute

NAME*   This attribute contains the conventional spelling (Romanized)
of the city. The name and spelling follow the Board of
Geographic Names standards as of January 31, 1992.

Classification attributes

CAPITAL

This attribute indicates whether the city is a national capital. The codes are as follows:

Codes   Definitions
 0 =   Not a national capital
 1 =   A national capital

MAJ_CITY

This attribute indicates whether a non-national capital city has a population greater than 3,000,000. The codes are as follows:

Codes   Definitions
 0 =   Not a major city
 1 =   A major city

Geographic reference attributes

COUNTRY*
CNTRY_NAME*
REGION
CONTINENT

These geographic reference codes can be used to select cities by country, world region, or continent. Continent, region, and country names and their codes are listed in Appendix C.

Additional name attributes

LOCAL_NAME

This attribute contains the local or native spelling of the city. The name and spelling follow the current Board of Geographic Names standards as of January 31, 1992. The spelling in this attribute is the closest possible rendering using a standard English character set. No special foreign characters were used and no diacritical marks except the apostrophe are present.

DIACR_FLAG

This attribute indicates whether diacritical marks are used in the local spelling of the city. The codes are as follows:

Codes   Definitions
 0 =   No diacritical mark present
 1 =   Diacritical mark is present

Map Elements

Polygons and lines

Layer description

The Map Elements layer contains a scale bar and title that can be used to make your display look like a finished map.

Using the Map Elements coverage

This layer contains only one coverage, in the Robinson projection in UNIX format. This coverage is not provided in the MS-DOS format because similar information can be created in ArcView for Windows using the Map Composition environment (accessed through the Preferences menu).

In the polygon theme, the scale bar is coded so that it may be filled with one or two colors. An annotation theme provides the title and characters associated with the other map elements.

The scale is given in kilometers for use with the data in the Robinson projection. Because the scale bar is in a predetermined location that cannot be changed, it can only be used for maps that display the full extent of the database.

Summary of the Map Elements coverage

Coverage name: SC_25M

Source and currency: ESRI, 1992

Thematic attribute
groups: Classification attribute (polygons)

Annotation text: Map title and scale

Feature class	Feature	Number of features	Number of attributes
Polygons	All polygon features	Represented by 8 polygons	1
Lines	All line features	Represented by 19 lines	0

Polygon attribute

Classification attribute

FILL The scale bar is designed so that it can be filled with alternating colors. The codes are as follows:

Codes Definitions
1 = First color
2 = Second color

Rivers and Water Bodies
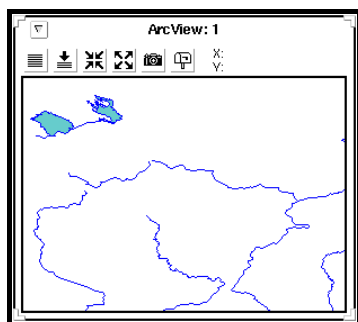
Polygons and lines

Layer description

The Rivers and Water Bodies layer contains hydrographic features that are intended to provide basic visual orientation for small-scale maps. It is made up of both lines and polygons that represent large perennial rivers and lakes.

Using the Rivers and Water Bodies coverage

The Rivers and Water Bodies layer contains both polygon and line features in a single coverage. A feature may require that it be represented using both these graphic elements. For example, the Nile River begins as a lake, then changes to a single line, passes through a reservoir, becomes a single line again, and is finally enters the Mediterranean Sea as series of short branching lines.

Because all water features are coded for the country in which they occur, short sections of international boundaries are present inside lakes in this coverage in order to divide the water body into its component national territories.

Those rivers that are of sufficient width to be represented as polygons in the 1:3M Rivers and Water Bodies coverages are represented solely by a centerline in this 1:25,000,000-scale coverage.

Summary of the Rivers and Water Bodies coverage

Coverage name: RIV25M

Source and currency: U.S. Government—World Data Bank II, 1988

Thematic attribute   Classification attributes (polygons and lines)
groups: Geographic reference attributes (polygons and lines)
                    Boundary coincidence with rivers (lines)

Feature class	Feature	Number of features	Number of attributes
Polygons	All polygon features	Represented by ca. 70 polygons	6
	Major lake	Represented by ca. 60 polygons	
	Not inland water	Represented by ca. 10 polygons	
Lines	All line features	Represented by ca. 3,350 lines	7
	Major river	Represented by ca. 3,190 lines	
	Shoreline	Represented by ca. 130 lines	
	Country boundary	Represented by ca. 25 lines	
	Grid line	Represented by 5 lines	

Polygon attributes

Classification attributes

TYPE
WATER_TYPE

Each polygon is classified according to the type of water feature it represents. TYPE contains the code number, and WATER_TYPE contains the English description. The codes are as follows:

Codes   Equivalents
   1 =   Major lake
   2 =   Not inland water

Rivers and Water Bodies

Geographic reference attributes

COUNTRY
CNTRY_NAME
REGION
CONTINENT

These geographic reference attributes contain codes and names that make it possible to select polygonal water features by country, world region, and continent. The areas and their corresponding codes are listed in Appendix C; regions are also shown on the map in Chapter 1.

Line attributes

Classification attributes

TYPE
RIVER_TYPE

Each line is classified according to type of feature it represents. TYPE contains the code number, and RIVER_TYPE contains the English description. These attributes allow you to select and symbolize the various water features differently. The majority of lines are major rivers, but other water features are present. Also present in this layer are a few international boundaries, polygon closure lines, and grid lines.

Codes   Equivalent
1 = Major river
2 = Shoreline
3 = Country boundary
9 = Grid line

Geographic reference attributes

COUNTRY1
COUNTRY2
CNTRY_NAME
REGION
CONTINENT

These attributes contain the following: two-letter country codes (two attributes), country names, regional codes, and continent codes. Because rivers often serve as international boundaries, two country code attributes have been provided. The countries on either side of a river are listed by code in separate attributes (COUNTRY1 and COUNTRY2), and by name in a single attribute (CNTRY_NAME; e.g., "France/Germany"). If a river is completely within a country, either COUNTRY1 or COUNTRY2 will contain a blank.

Where rivers form the boundaries between regions and continents, both area codes are listed and separated by a slash (e.g., E_EU/W_EU).

Countries, regions, and continents and their corresponding codes are listed in Appendix C; regions are also shown on the map in Chapter 1.

Selected Statistical Attributes
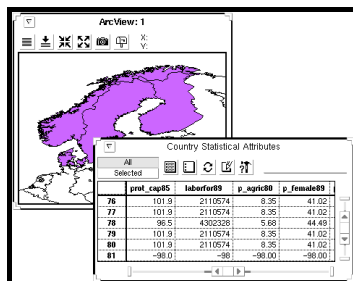
Polygons and lines for countries

1:25M and Browse Map

Layer description

The Selected Statistical Attributes layer contains seventy attributes selected from the ArcWorld 1:3M country statistical attribute layers. These attributes include data from both the World Bank and the World Resources Institute on topics such as population, vital statistics, health, agriculture, forestry, food production, the labor force, economic development, the environment, and education. These attributes are linked to both the 1:25,000,000-scale and the Browse Map cartographic data.

Using the Selected Statistical Attributes coverages

The statistical attribute names used in this coverage are the same as those in the 1:3,000,000-scale coverages.

The country statistical attribute coverages contain political boundaries and polygons to provide the geographic extent for the statistical data. The country boundaries in this layer do not reflect recent (1991) political changes in the former Soviet Union and Germany in order to match the World Bank and World Resources Institute tabular data from previous years. The 1:25M Country Boundaries coverage described at the beginning of this chapter does incorporate the recent boundary changes in those countries.

Summary of the Selected Statistical Attributes coverages

Coverage name: STAT25M, STAT_BR

Source and currency: Cartography from U.S. Government, World Data Bank II, 1988 (1:25M) and Browse Map cartography from a manually generalized version of the WDBII. Attribute data from the World Bank, Social Indicators of Development 1990 database and the World Resources Institute, World Resources 1992–1993 Data Base

Thematic attribute groups: Geographic reference attributes (polygons and lines)
Cartographic attributes (polygons)
Statistical flag (polygons)
World organization membership attributes
Classification attributes (lines)

World Bank attribute groups (polygons)
World Bank country code
Population
Vital statistics
Health
Agriculture and forestry
Food production and nutrition
Labor force
Economic development
Education

WRI attribute groups (polygons)
Economic development
Health
Wilderness area attribute
Housing
Land attributes
Animal and plant life
Energy
Municipal waste
Food supply
Atmospheric emissions

Feature class	Feature	Number of features (1:25M coverage)	Number of attributes
Polygons	All polygon features	Represented by ca. 2,025 polygons	90
Lines	All line features	Represented by ca. 3,888 lines	8
	Coastlines	Represented by ca. 3,265 lines	
	International boundaries	Represented by ca. 510 lines	

Selected Statistical Attributes

Sometimes a statistical data value for a particular geographic area is not available in the database. Three special codes indicate the absence of data values in the statistical attributes. These special codes are as follows:

Codes   Definitions
–97 = Missing data or data not available
–98 = Country not included in the source tabular database
–99 = Ocean (1:25M coverage only)

Countries that comprise multiple geographic parts, such as offshore islands or overseas territorial possessions, are represented in the database by multiple polygons that all have the same country code. A flag attribute (STAT_FLAG) is provided to identify a single polygon (the largest) for every country. These flags allow the selection of a single data record per country, which is necessary for generating correct summary statistics.

Additional information about the way missing measurement values are handled in the database is given on page 3-9; information about how to use these codes in combination with the statistical flag is given on page 6-4. Chapter 6 also discusses the comparability and completeness of the statistical data in these layers.

Polygon attributes

The complete list of attributes defined below is contained in the ArcWorld 1:25M coverage. Asterisks indicate those attributes that are included in the Browse Map coverage.

Geographic reference attributes

COUNTRY*
CNTRY_NAME*
REGION
CONTINENT

These geographic reference attributes contain codes and names that make it possible to select polygonal features by country, world region, and continent. The areas and their corresponding codes are listed in Appendix C; regions are also shown on the map in Chapter 1.

Cartographic attributes

LAND_OCEAN   This attribute contains words to identify continental areas, offshore islands, and ocean polygons. The words are as follows:

- Continent
- Island
- Ocean

ISLND_RANK   Offshore islands are ranked for cartographic significance, primarily on the basis of size. These rank codes are only present for islands surrounded by ocean; no inlands within inland water bodies are included. Greenland is the largest island. The codes are as follows:

Codes   Definitions
1 = Basic reference feature
2 = Major
3 = Additional major
4 = Intermediate
5 = Minor
9 = Unranked

Statistical flag attribute

STAT_FLAG*   Flag used to identify a single polygon (the largest) for each country for purposes of calculating summary statistics. Chapter 6 provides more information about using this attribute. The codes are as follows:

Codes   Definitions
0 = Other polygons in country.
1 = Polygon identifier for disputed territories, reassigned areas, or countries for which data are not tabulated by the World Bank or World Resources Institute. (See Appendix C for a list of disputed territories and reassigned areas.)
2 = Polygon identifier for countries that are assigned statistical data by the World Bank or World Resources Institute.

Selected Statistical Attributes

World organization membership attributes

EEC
FAO
GA
GA_MEMB_YR
IAEA
IBRD
IMF
OPEC
SC
UNESCO
WHO
WMO

These attributes indicate membership in international organizations. Each of the organization attributes can be used to select a group of country polygons for display or study. The organizations indicated by these attributes are listed on page 4-46. The codes are as follows:

Codes   **Definitions**
  0 =   Not a member of this organization
  1 =   A member of this organization

World Bank attribute groups

World Bank country code

WB_CNTRY*

This attribute contains the three-letter country code used by the World Bank in the SID database. Disputed territories are assigned to individual countries; the specific assignments are listed at the end of Appendix C.

Population

TOTPOP89*

Total population for 1989.

P_0_14_89*

Percentage of the population between zero and fourteen years of age, in 1989.

P_15_64_89*

Percentage of the population between fifteen and sixty-four years of age, in 1989.

GRW_RATE89*

These attributes contain the growth rate for the total population. Annual growth rate (1988–89) calculated from midyear total population.

URBGRWRT89*   These attributes contain the growth rate for the urban population. Annual growth rate (1988–89) calculated from midyear urban population.

U_R_DIFF89*   Net difference between the urban and rural growth rates. This figure reflects the tempo of urbanization. However, it is not a net urban–rural migration measure because the calculation also factors in basic birth and death variables which are likely to differ between urban and rural areas.

POP2000_89*   The World Bank's population projection for the year 2000. These data were calculated on the basis of a World Bank model that uses country-specific trends moderated by overall regional or global circumstances. The base year for the demographic parameters used in this estimate was 1985.

LANDAREA85*   Total land area expressed in square kilometers. All land area and inland water is included in this figure.

POPDNSTY85*   Population per square kilometer of total surface area.

Vital statistics

The following data are based on a combination of observed values and interpolated and projected estimates.

BIR_RATE89*   Crude birth rate, which is defined as the number of births per 1,000 persons in a given year.

DTH_RATE89*   Crude death rate, which is defined as the number of deaths per 1,000 persons in a given year.

INF_DTH89*   Infant mortality rate, which is defined as the number of deaths of infants under one year of age per 1,000 live births in a given year. A few countries use an atypical definition of live births, which reduces their infant mortality rates relative to other countries.

Selected Statistical Attributes

LIFE_EXP89* Life expectancy at birth for the total population. Life expectancy is defined as the number of years a newborn infant would live if the prevailing patterns of mortality were to remain the same throughout its life.

Health

SAFEH2O85* Percentage of the total population with reasonable access to safe water supply. This definition includes treated surface water and untreated but uncontaminated groundwater, such as springs, sanitary wells, and protected boreholes.

EXP_MED85* Percentage of Gross Domestic Product (GDP) spent on medical care. This includes both private and government spending. Computed from United Nations International Comparison Program (ICP) figures, or national estimates, if available.

POP_DOCT80* Population per physician. Physicians include medical assistants who dispense medical services similar to registered physicians. The definition of recognized medical practitioners differs among countries.

POP_HBED80* Population per hospital bed. A hospital is defined as an establishment permanently staffed by at least one physician. Hospitals include public, private, general, and specialized facilities, and rehabilitation centers.

Agriculture and forestry

P_AGLAND85* The amount of agricultural land as a percentage of the total land area. Includes areas used for crops, pasture, market or kitchen gardens, and land lying fallow. Total land excludes areas of inland waters and rivers.

POPDNSAG85* Population per square kilometer of agricultural land.

Selected Statistical Attributes

FORESTS85*   The land area under natural or planted stands of trees, measured in square kilometers. Includes productive and nonproductive areas and cleared land that will be reforested in the near future.

NETDEFOR85*   The net annual rate of change of forest and woodland area, expressed as a percentage. A positive number indicates an increase in forested area.

Food production and nutrition

FOODPROD89*   The average annual quantity of food produced per capita in relation to the quantity produced in 1979–1981. The quantity produced in 1979–1981 is assigned a relative value of 100. Food is defined as comprising nuts, pulses, fruit, cereals, vegetables, sugarcane, sugar beets, starchy roots, edible oils, livestock, and livestock products. This figure excludes animal feed, seeds for agriculture, and food lost in processing.

CAL_CAP85*   The daily calorie supply per capita, computed as the energy equivalent of net food supplies in a country, per capita, per day. Available supplies comprise domestic production, imports less exports, and changes in stock. This figure excludes animal feed, seeds for agriculture, and food lost in processing.

PROT_CAP85*   The protein content of the net food supply per capita, measured in grams. Net food supplies comprise domestic production, imports less exports, and changes in stock. This figure excludes animal feed, seeds for agriculture, and food lost in processing. U.S. Department of Agriculture (USDA) minimum allowances are 60 grams of total protein per day and 20 grams of animal or pulse (peas, beans, lentils, etc.) protein.

Selected Statistical Attributes

Labor force

LABORFOR89* Total labor force in 1989. Total labor force is defined as the number of "economically active" people in the population. This definition of total labor force includes the armed forces and the unemployed, but excludes homemakers and other unpaid caregivers.

P_AGRIC80* Percentage of the total labor force engaged in farming, forestry, hunting, and fishing in 1980.

P_FEMALE89* Percentage of the total labor force composed of females. Female participation rates in the labor force are significantly underestimated in several developing countries according to the World Bank.

PARTICIP89* Percentage of the total population the labor force makes up. This figure is based on International Labour Office estimates.

PARTCP_F89* Percentage of population of all ages in the labor force. These figures are based on International Labour Office estimates, on the age–sex structure of the population.

Economic development

GNP_CAP89* Gross national product per capita for 1989, in 1989 U.S. dollars.

EXPFOODS85* Percentage of Gross Domestic Product (GDP) spent on foods. Computed from United Nations International Comparison Program (ICP) figures, or national estimates, if available. GDP is the final output of goods and services produced by the domestic economy. This figure includes net export of goods and nonfactor services. It does not include overseas workers' remittances, interest on loans, profits, and other factor payments that residents receive from abroad. Factor services are labor and capital.

ENRG_CAP85*   Annual consumption of commercial primary energy (coal; lignite; petroleum; natural gas; and hydro, nuclear, and geothermal electricity) expressed in kilograms of oil equivalent per capita.

POP_CAR80*   Number of people per passenger car. A passenger car is defined as any private vehicle seating nine people or less.

POP_TELE80*   Number of people per installed public or private telephone. A telephone must be connectable to a central exchange to be included. The data are generally derived from International Telecommunications Union publications.

Education

EXPEDUC85*   Percentage of Gross Domestic Product (GDP) spent on education for 1985. This figure includes both government and private spending. Computed from United Nations International Comparison Program (ICP) figures, or national estimates, if available.

P_PRIMRY85*   Percentage of school-age children who were enrolled in primary school in 1985. Definitions of "school age" varies by country. Many but not all countries consider primary school age to be 6–11 years and secondary school age to be 12–17 years. Values over 100 percent are possible if some pupils are younger or older than the country's standard school-age range.

P_SECNDY85*   Percentage of school-age children who were enrolled in secondary school in 1985.

P_SCIENG85*   Percentage of all tertiary students who are enrolled in science and engineering fields. Includes both public and private institutions. Field of study is defined as the student's main area of specialization based on International Standard Classification of Education criteria.

Selected Statistical Attributes

PUPTCH_P85* The pupil-teacher ratio for primary schools. This ratio is computed by dividing the number of pupils enrolled in primary school by the total number of primary school teachers.

ILLITER85* Percentage of the population fifteen years of age and older who cannot, with understanding, both read and write a short simple statement on everyday life. The application of this criteria is subject to significant qualifiers in a number of countries.

World Resources Institute attributes

Economic development

P_AGGDPR88*
P_INDGDP88*
P_SERGDP88*
Percentage of GDP contributed by activities in agriculture, industry, and services in 1988. GDP is the sum of the final outputs of various sectors of a country's economy, minus the value of the inputs for production. These figures include net export of goods and nonfactor services. They do not include overseas workers' remittances, interest on loans, profits, and other factor payments that residents receive from abroad. (Factor services are labor and capital.) Some of the country values are from earlier years.

P_GVTGDP89* Central government expenditures in 1989 as a percentage of GDP.

Health

SAFH2OUR88*
SAFH2ORR88*
Percentage of the urban population and percentage of the rural population with access to safe drinking water. Access to safe water in urban areas means having piped water or access to a public piped water supply within 200 yards of a dwelling, and in rural areas access means treated water or

protected, untreated water that is close enough to a dwelling to fetch in a reasonable amount of time.

IM_DPT90*
IM_MEASL90*

The percentage of one-year-old children who were fully immunized in 1990 against the following diseases: diphtheria, pertussis (whooping cough), and tetanus (DPT); and measles.

CONTRCEP89*

The percentage of married or cohabiting couples that use any method of birth control.

Wilderness area attribute

WILDERNS88*

Wilderness area as a percentage of total land area, 1988. Wilderness area is defined as lands showing no evidence of development (settlements, roads, buildings, airports, pipelines, powerlines, reservoirs, etc.). The minimum area for inclusion was 4,000 square kilometers.

Housing

HHLDSIZR86*

Average number of occupants per household, 1970–1986.

HHWOELEC82*

Percentage of households without electricity from public utilities, 1970–1982. Note: this figure includes residences serviced by local generators or other privately owned means of obtaining electricity.

Land attributes

CROPLAND89*

Total area of cropland, in thousands of hectares. Cropland refers to land under temporary and permanent crops, temporary meadows, market and kitchen gardens, and temporarily fallow land. Permanent cropland comprises crops that do not need to be replanted after each harvest, such as cocoa, coffee, rubber, fruit trees, and vines.

Selected Statistical Attributes

NOSOILCN89* Total land area with soil that has no inherent chemical and physical restraints to agricultural productivity, in thousands of hectares, 1989. The following physical and chemical constraints are absent in the soils included in this figure: steep slope, shallowness, poor drainage, low nutrient retention, aluminum toxicity, acidity, phosphorus fixation, amorphous material, vertic properties (i.e., shrinking and swelling), low potassium reserves, calcareous soil, salinity, excess sodium, acid sulfate soil, gravel, and rocks.

DEFORTOT85* Average annual deforestation for all forests, in thousands of hectares 1981–1985. Deforestation is defined as the permanent clearing of forests for use in shifting cultivation, permanent agriculture, or settlements. Not included are alterations such as selective logging. These figures refer to the total forest area, including open forest, closed forest, plantation, and other types of generally wooded areas.

P_PROTLN90* Percentage of national land area that is protected, in thousands of hectares. Protected land includes both totally and partially protected areas. Marine and coastal protected area figures are calculated for all littoral, coral, island, marine, and estuarine components. This figure does not include locally or provincially protected sites, privately owned areas, or areas managed primarily for the extraction of natural resources. National lists also usually include sites that are under international protection systems.

Animal and plant life

MAMLSPEC90* The number of known mammal species in a country
MAMLTHRT89* (including introduced species), and the number of threatened mammal species (endangered, vulnerable, rare, or indeterminate—excluding introduced species). Both of these figures exclude whales and porpoises.

PLANTHRT91*
PLTHR_1K91*
PLTHR_KM91*

Rare and threatened plant taxa—total number; per 1,000 species; and per 10,000 square kilometers. These figures are generally based on recorded species, but sometimes include estimates. In most cases plant taxa refer to native vascular species.

Because taxonomic concepts and the extent of knowledge are variable, direct comparisons between countries are not possible using the total number of taxa or the number per 1,000 species. The third attribute, PLTHR_KM91, provides a relative estimate for comparing threatened species in countries of different size; because the relationship between area and the number of plant species is nonlinear, a species–area curve was used to standardize this figure.

Energy

CONS_87_89*

Commercial energy consumption for 1989, in megajoules per constant. The constant is calculated using the gross national product expressed in 1987 U.S. dollars. This figure represents domestic production plus net imports, less stock increases, less aircraft and marine bunkers, less unallocated quantities.

ENRG_IMP89*

Energy imports expressed as a percentage of energy consumption. This figure represents net imports, less stock increases, less aircraft and marine bunkers, less unallocated quantities. A negative value indicates that exports are greater than imports.

P_TRFUEL89*

Traditional fuels as a percentage of total fuel requirements. Traditional fuels include fuelwood, charcoal, bagasse (sugar processing waste), animal wastes, and vegetal wastes.

Selected Statistical Attributes

Municipal waste attributes

MUNWASTE89*   Annual generation of municipal waste, in kilograms per capita. This figure includes household and bulky waste, as well as comparable wastes from small commercial or industrial enterprises, and market and kitchen residuals that are collected and treated by or for municipalities. These data are available only for the twenty-four countries that belong to the Organization for Economic Cooperation and Development (OECD). The year of the estimate varies from 1980 to 1990.

Food supply

FOODFISH88*   Average annual food supply from fish and fishery products, 1986–1988, in kilograms per capita.

Atmospheric emissions

CO2_CAP89*   Industrial carbon dioxide emissions in metric tons per capita, 1989. This figure includes industrial carbon dioxide additions from solid, liquid, and gas fuels, gas flaring, and cement manufacture.

CO2DEFOR89*   Carbon dioxide emissions due to changes in land use (primarily deforestation), in thousands of metric tons, for 1989.

METHANE89*   Methane emissions resulting from human activities, in thousands of metric tons, for 1989. This figure includes methane contributions from solid waste, coal mining, oil and gas production, wet rice agriculture, and livestock production.

CFC89*   Chlorofluorocarbon (CFC) emissions, in thousands of metric tons, for 1989.

Line attributes

These line attributes are contained in the ArcWorld 1:25M coverage, but not in the Browse Map coverage.

Classification attribute

TYPE
BND_TYPE

Each line is classified according to the type of feature it represents. This attribute allows you to symbolize different line features (political boundaries, coastlines, reefs, etc.) differently. TYPE contains the code number, and BND_TYPE contains the English description. The codes are as follows:

Codes   Definitions
 1 =   Coastline
 2 =   International boundary
 4 =   World region boundary
 9 =   Grid line

International boundary status attribute

BND_STATUS

Each international boundary is classified according to boundary status. This attribute allows you to display the various types of boundaries using different colors or line symbols. The codes are as follows:

Codes   Definitions
 1 =   Demarcated or delimited
 2 =   Indefinite or in dispute
 3 =   Line of separation or sovereignty on land
 4 =   Demilitarized zone in Israel
 5 =   No defined line
 6 =   Selected claim lines
 9 =   Not an international boundary

Geographic reference attribute

COUNTRY1
COUNTRY2
CNTRY_NAME
REGION
CONTINENT

These attributes contain the following: two-letter country codes (two attributes), country names, regional codes, and continent codes. Countries, regions, and continents and their corresponding codes are listed in Appendix C; regions are also shown on the map in Chapter 1.

Browse Map statistical attributes

*Polygons and lines
for countries*

Browse Map

Layer descriptions

The seven Browse Map statistical attribute layers contain the attributes that are linked to the highly generalized Browse Map representation of the countries of the world. The statistical attributes match those included in the ArcWorld 1:3M statistical attribute layers from the World Bank and the World Resources Institute.

Using the Browse Map statistical attribute coverages

The attribute names used in this coverage are the same as those in the 1:3,000,000-scale statistical coverages and the 1:25M Selected Statistical Attributes coverage.

These layers contain political boundaries and polygons to provide the geographic extent for the statistical data. Approximately 140 countries are represented in the Browse Map coverages, which is a reduction of a few more than 100 countries from the number represented in the ArcWorld 1:3M and 1:25M coverages. The countries that were eliminated from the Browse Map coverage were primarily very small countries, particularly island nations, which rarely have statistical data associated with them.

The country boundaries in this layer do not reflect recent (1991) political changes in the former Soviet Union and Germany in order that they match the World Bank and World Resources Institute tabular data sets.

Summary of the Browse Map statistical attribute layers

Coverage names
and topics:

ECONIND	Economic and Industrial Indicators
EDU_LIT	Education and Literacy
AGRICUL	Food Production and Nutrition
HEALTH	Health and Vital Statistics
LABOR	Labor Force Characteristics
WRI_BR	Natural Resources and the Environment
POP_GEO	Population Characteristics

Source and currency: Cartography from a manually generalized and scanned version of the U.S. Government, World Data Bank II, 1988. Attribute data from the World Bank, Social Indicators of Development 1990 database (all of the above coverages except WRI_BR), and the World Resources Institute, World Resources 1992–1993 Data Base (WRI_BR only)

Feature class	Feature	Number of features	Number of attributes
Polygons	All polygon features	141 countries represented by ca. 235 polygons	Varies with the coverage
Lines	All line features	Represented by ca. 536 lines	0

Occasionally a statistical data value for a particular geographic area is not available in the database. Special "flag" values indicate the absence of data values in the statistical attributes. These special flag codes are as follows:

Codes		Definitions
–97	=	Missing data or data not available
–98	=	Country not included in the source tabular database

Countries that have multiple geographic parts, such as offshore islands or overseas territorial possessions, are represented in the database by multiple polygons that all have the same country code. A flag attribute (STAT_FLAG) is provided to identify the largest polygon in a country. These flags allow the selection of a single data record per country, which is necessary for generating correct summary statistics from the database.

Additional information about the way missing measurement values are handled in the database is given on page 3-9; information about how to use these codes in combination with the statistical flag is given on page 6-4. Chapter 6 also discusses the comparability and completeness of the statistical data in these layers.

Polygon attributes

With the exceptions noted below, the Browse Map statistical attribute coverages contain the same attributes as the corresponding ArcWorld 1:3M country statistical attributes coverages, as described in Chapter 4. Please refer to pages 4-43 through 4-104 for definitions of the polygon attributes.

The Browse Map coverages *do not* contain the following attributes:

Geographic reference attributes

REGION
CONTINENT

Cartographic attributes

LAND_OCEAN
ISLAND_RANK

World organization membership attributes

EEC	IMF
FAO	OPEC
GA	SC
GA_MEMB_YR	UNESCO
IAEA	WHO
IBRD	WMO

Statistical flag attribute

STAT_FLAG   Flag used to identify a single polygon for each country for the purpose of calculating summary statistics. The polygon is selected on the basis of largest area. The codes in the Browse Map coverages are as follows:

Codes   Definitions
  0 = Other polygon
  2 = Largest polygon per country

Line attributes

The Browse Map coverages do not contain any line attributes other than the standard ARC/INFO-generated attributes.

Note on item definitions

Individual tables for the Browse Map statistical attribute coverages have not been repeated in Appendix B because the attributes have the same dBASE and INFO item definitions as those in the ArcWorld 1:3M tables. However, the beginning column numbers in the 1:3M tables do not correspond to the Browse Map coverages since some of the non-statistical attributes have been deleted from the Browse Map coverages.

Chapter 6

Using the database

This chapter contains information that will help you use the ArcWorld database successfully. The information covers three general areas: (1) techniques for selecting data in order to improve software performance, (2) information about working with attributes in order to analyze data, and (3) suggestions for creating attractive, functional graphic displays.

Optimizing performance

Use the Browse Map coverages or 1:25M data whenever possible

As noted in Chapter 2, drawing time can be decreased by using the Browse Map coverages and 1:25,000,000-scale data whenever possible. For small-scale representations of the attribute information present in the 1:3,000,000-scale data, the cartographic level of detail in the Browse Map coverages may be sufficient.

Reduce the number of features

To improve performance when you use a large database like ArcWorld 1:3M, reduce the amount of data you are dealing with as soon as possible. This will improve performance for subsequent search operations (logical operations) as well as reduce drawing times. Most of the layers in the database have been coded by country, world region, and continent. Thus, if you know that your need for cartographic or attribute information is limited to one country or region, selecting first by the appropriate area of interest will speed up subsequent operations. Any of the geographic reference attributes, such as region and country names, can be used for this selection. The use of FIPS 10-3 country codes eliminates the need to spell out long names like "Dominican

Republic." In ArcView, use the Definition tool in the Theme Property Sheet to select the countries with which to work.

Reduce the number of attributes

You can also reduce the number of attributes you work with. If you are an ARC/INFO user, you can use commands like DROPITEM or PULLITEMS to eliminate unnecessary attributes. If you use ArcView for Windows, you can use commercially available PC software like Q + E™, dBASE, or FoxPro™ for this purpose.

Use simple selection statements

Break complex selection logic statements into simpler statements. For example, to select all countries in the Western Africa region in which the percentage of population between the ages of 0 and 14 is greater than 10%, in 1989 you could use the following complex statement:

REGION = Western Africa and P_0_14 _89 > 10

However, the same selection logic can be expressed in the following two statements:

REGION = Western Africa
P_0_14 _89 > 10

and these statements will search the database in less time than a single complex statement.

For use with ARC/INFO, normalize the database

ARC/INFO users may want to create a series of smaller, more compact tables for tabular information in order to take advantage of the relate capability in ARC/INFO. The process of creating compact related tables is called normalization; explanations can be found in standard database design textbooks. The present design of the ArcWorld database allows the ArcView user to access tables that are not normalized.

Working with attributes

Completeness of the attributes

An inherent problem with global databases is the lack of consistency and completeness for all areas of the globe. Some countries of the world have been extensively mapped and have long-standing and sophisticated statistical collection systems; other countries have been incompletely mapped and have few resources to devote to the collection of statistical data. An additional problem is that extensive data collection is done only for the major countries of the world. Small countries, island republics, and overseas territories are not usually surveyed other than for demographic and vital statistics.

Also, the type and number of attributes collected have changed with time. The most comprehensive and complete attributes are, again, demographic and vital statistics data. Data on topics of current interest such as the amount of municipal waste generated per capita have been collected only for industrialized countries. It often takes many years before new kinds of statistics are collected on a worldwide basis. The exact number of countries covered by a particular statistical attribute varies; the ArcWorld database covers approximately 170 of the 240 geopolitical entities in the World.

These completeness factors apply to three of the cartographic layers. The Roads, Railroads, and Country Internal Divisions layers have, to varying degrees, incomplete worldwide coverage. Usually data are missing for entire countries, but roads data end within countries in two situations: (1) no data are present south of approximately 20 degrees South latitude in South America and (2) in Norway and Sweden there are no data north of approximately 59 degrees North latitude. Lists of the major countries without roads, railroads, or country internal divisions data are provided in Appendix D.

Comparability of the statistical attributes

The statistics presented here are compiled from the most authoritative sources available, usually international speciality organizations and/or national governments. Both the World Bank and the World Resources Institute review their data for reliability, validity, appropriateness, and consistency. Nevertheless, users of the ArcWorld data should constantly keep in mind that the concepts, definitions, and methodology underlying these statistical attributes vary, sometimes significantly. Variation can be both from one country to another, and over time within a country. In some cases, data are extrapolated or

estimated from current trends or statistical models. Statistical systems in many developing countries are still weak, and this affects the availability and reliability of the data. For the above reasons the ArcWorld attributes are useful for identifying broad trends and differences.

Generation of statistics using STAT_FLAG

To generate summary statistics, it is necessary to use the STAT_FLAG attribute in conjunction with the "missing data" code explained in Chapter 3. Selecting values greater than -97 eliminates null values from factoring into the classification of the data, and selecting STAT_FLAG = 2 specifies that only polygons with statistical attributes will be drawn. For example, you could examine worldwide CO_2 emissions by defining the following expression:

$$CO2\_CAP89 > \text{-97 AND STAT\_FLAG} = 2$$

You could include countries with "X" codes as part of your thematic display by defining the following expression:

$$CO2\_CAP89 > \text{-97 AND STAT\_FLAG} > 0$$

Although this second expression enhances the appearance of the display, it does not yield correct summary statistics.

Annotation and text labels

There are two options for creating a thematic map with country names. The recommended method is to use the annotation contained in any of the statistical coverages. To display annotation, the statistical theme must be duplicated within the ArcView Table of Contents and defined as an annotation theme. The names of approximately 150 countries are annotated.

The second method is to specify the text labels option within the legend portion of the statistical theme's property sheet. You have the flexibility to specify the font, size, color, and placement of the text labels.

Data export

Attribute data from ArcWorld may be downloaded into other software programs like spreadsheets or database management systems, where charts, graphs, and other graphic displays can be generated. ArcView users can save a selected tabular data set to a file by clicking on the "save the table as a file" icon at the top of a Theme Table. A dialog box appears that you can use for navigating to a directory into which you can write the file. By default, ArcView saves a tab-separated ASCII file. You can change this setting by choosing "Preferences" in the File menu. See Chapter 3 in the *ArcView User's Guide* for more information on saving tabular data.

A list of Windows software for use with ArcWorld appears in Table 1. This list of software is included to illustrate the types of packages with which ArcView for Windows can be used. It is not an endorsement of any particular software product, nor is it inclusive; many other products will work as effectively. These are some of the products that we have tried at ESRI and have found to be effective for use with ArcWorld data.
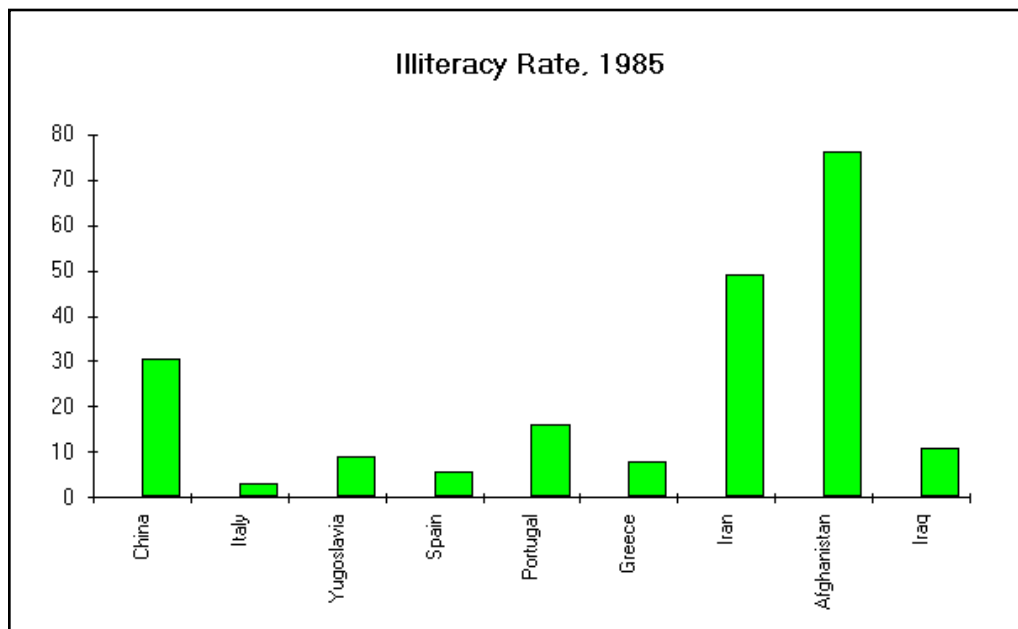
ArcWorld data can be imported into other software applications like Excel for further statistical analysis.

Table 1: Windows software

Software Program	Functions
dBASE	Used to manage and manipulate feature attribute and related tables
Excel	Spreadsheet tools for manipulating selected attribute records, business graphics, summaries, and other spreadsheet functions
Q + E	Joins dBASE attribute tables
CorelDRAW	Graphics editor for Windows
Paintbrush	Graphics editor for Windows (and delivered as part of Windows)
ObjectVision	Used to build front ends to dBASE files
Publisher	A word processing and publishing package that is integrated with Windows
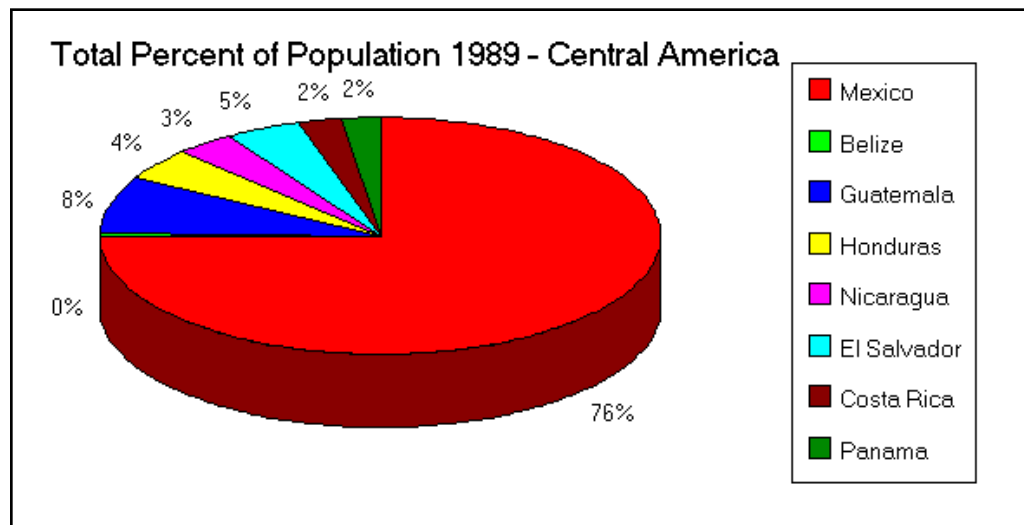
Units of measure

A number of different units of measure are used in ArcWorld attributes. Units used for area, length, volume, and weight are listed in Table 2. Other units used in the database include decimal degrees (used for all geographic coordinate layers and in the latitude/longitude grids) and dollars (which may be expressed in different denominations, like thousands of dollars). For the statistical

attributes a value of "0" equals zero or less than half the unit of measure. The ARC/INFO software-generated items AREA and LENGTH are expressed in decimal degrees for ArcWorld 1:3M and one version of ArcWorld 1:25M. Use of these two items for feature comparisons should be avoided because the ground distance represented by a degree of longitude varies with latitude (69.172 miles at the equator, 0 miles at the poles).

Table 2: Units of measure in the ArcWorld database

Units	Layers in which used	Common equivalents
Area		
Square kilometer	1:3M statistical layers 1:25M Selected Statistical Attributes layer	247.105 acres 0.386 sq. miles
Square meter	All 1:25M Robinson projection polygon layers	10.76 square feet 1.196 sq. yards
Hectare	1:3M statistical layers 1:25M Selected Statistical Attributes layer	2.471 acres
Length		
Meter	All 1:25M Robinson projection layers	3.281 feet
Weight		
Metric ton	1:3M statistical layers 1:25M Selected Statistical Attributes layer	1,000 kilograms 2,204.6 pounds
Kilogram	1:3M statistical layers 1:25M Selected Statistical Attributes layer	2.204 pounds
Gram	1:3M statistical layers 1:25M Selected Statistical Attributes layer	1,000 milligrams 0.035 ounces, avdp.
Energy		
Megajoule	1:3M statistical layers 1:25M Selected Statistical Attributes layer	1 million joules 947.8 British Thermal Units (BTUs)
Petajoule	1:3M statistical layers 1:25M Selected Statistical Attributes layer	1 quadrillion joules 947.8 billion British Thermal Units (BTUs)
Calorie (food calorie)	1:3M statistical layers 1:25M Selected Statistical Attributes layer	3.97 British Thermal Units (BTUs)

Drawing with ArcWorld

Graphic results of selection operations

The geographic features in most of the database layers are coded by country, world region, and continent to facilitate selection operations. Sometimes this type of coding can produce unexpected graphic results. For example, unexpected results may appear because rivers often meander in and out of a country, or international boundaries may meet in the middle of a lake. In these situations, a selection of features by country name will display only portions of the lake and those river segments that are within the country, and not those slightly outside the country boundary. To make the water features look more familiar, display the Country Boundaries layer along with the Rivers and Water Bodies layer.
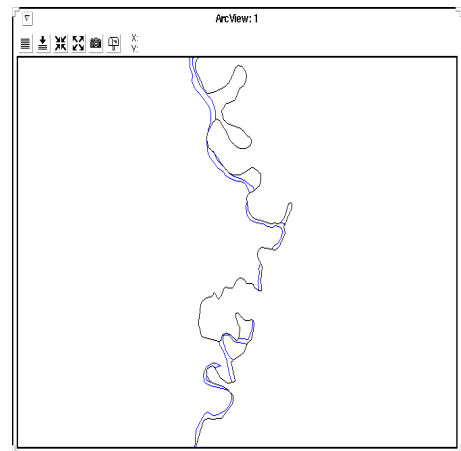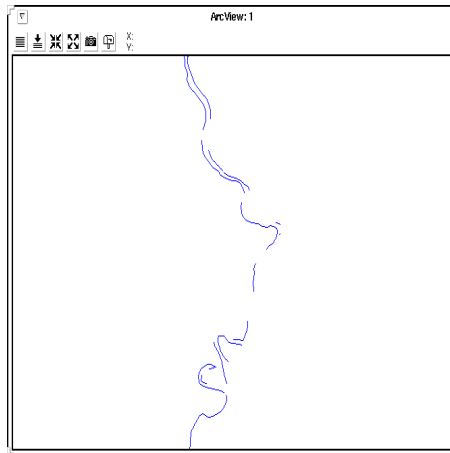
Feature drawing order

The order in which features are drawn on the screen affects the final display. For example, if polygon features are shaded last, the shades will cover any previously drawn shades, line work, and text. You will need to experiment with the drawing order of the features you select in order to achieve the best display. In general, the following drawing order (from bottom to top in the ArcView Table of Contents) can help you achieve the desired display:

1. Color-filled polygon shades
2. Pattern-filled polygons
3. Lines or polygon borders
4. Point features and text

Choroplethic mapping

Choroplethic mapping is the use of area shades or patterns to show the areal distribution of statistical information. Many of the statistical attribute data are ideally represented by this type of mapping.

However, to develop meaningful comparisons, you will often need to standardize the data by area or population. For example, in the World Resources Institute 1990 database, the 1985 population figures for Belgium and Zimbabwe are 9,850,000 and 9,710,000, respectively. If the area of the countries is not taken into account, a choropleth map of the world would show the populations as approximately equal. But Belgium has less than 8 percent the area of Zimbabwe, so the population density is 3,255 people per 1,000 hectares, as compared with 251 people per 1,000 hectares for Zimbabwe; these population situations are very different.

In this instance, the population density for both countries is listed in an attribute named POPDNSTY85 in the Population Characteristics layer. For other population variables, however, such as the total number of people in the year 2000 (POP2000), the data are absolute numbers and have not been standardized by area.

To simplify a display, use the same patterns for the same ranges in all areas. If the value of each country's density were given a unique value, the resulting map would show a different shade for each country, which would be difficult to interpret. Instead, divide the data into a few classes, which are easier to understand when they are mapped. Cartographers generally recommend using from four to ten different classes; some cartographers recommend using an odd number of classes so that there is one class that can be further categorized as high, medium, and low.

You can form classes by using the "class values" option in the ArcView legend window, or by using the ARCPLOT CLASS command in ARC/INFO.

Bivariate mapping

A variation of choroplethic mapping, which was referred to in Chapter 2 as "bivariate mapping," is the method of simultaneously displaying two variables using different symbols over the same geographic area. In ArcView, bivariate mapping can be accomplished by displaying one variable in a color and the other variable in a pattern. This technique is commonly used to investigate possible relationships between two different attributes. For example, we may wish to explore the idea that a country's carbon dioxide emissions from land use may be related to the country's net deforestation rate. In statistical terms, the variable being explained, carbon dioxide emissions, is called the "dependent" variable, and the other is called the "independent" variable. Because ArcView makes it so easy to generate color ramps (colors of gradually changing hue or of gradually increasing intensity, which can be made to correspond to gradual increases in a variable), it is recommended that you use colors to display the independent variables and a pattern to display the dependent variable; using color and pattern in this way makes it easy to create a series of bivariate maps.
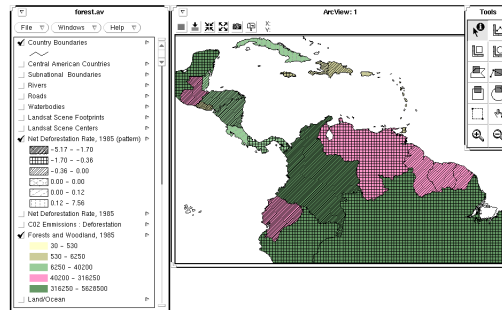
Appendix A

Data quality information

This appendix provides data quality information for the ArcWorld database. The information is presented in the format recommended by the Digital Cartographic Data Standards Task Force as part of the development of the Spatial Data Transfer Standard (SDTS). It includes information about the source data, positional and attribute accuracy, and logical consistency of both the 1:3 million and 1:25 million coverages.

ArcWorld 1:3M data

During the development of the ArcWorld database, several modifications were made to the source data in order to generate a database in which the following was true:

- All data were at a common scale.
- The level of resolution was uniform.
- The coding scheme was consistent.
- Measurements were comparable (standardized).
- Thematic groupings were consistent.

The production of the ArcWorld database involved

- Joining multiple coverages into sections that together provided complete global coverage

- Modifying source cartographic information and attribution schemes

- Associating tabular data with a cartographic base

- Mathematically generating a variety of index grids

- Manually digitizing source materials

In addition, a second, smaller-scale (1:25,000,000) data set was produced from the larger 1:3,000,000 data set.

Summary of ArcWorld 1:3M characteristics

The ArcWorld data at 1:3,000,000 scale consist of the following layers:

- Country Boundaries
- Country Internal Divisions
- Major Cities
- Railroads
- Rivers and Water Bodies
- Roads
- Landsat Nominal Scene Index
- Latitude/Longitude Grids
- Operational Navigational Chart (ONC) Series Index
- Economic and Industrial Indicators
- Education and Literacy
- Food Production and Nutrition
- Health and Vital Statistics
- Labor Force Characteristics
- Natural Resources and the Environment
- Population Characteristics

The ArcWorld 1:3M coverages have the following characteristics:

Characteristic	ArcWorld coverage characteristics
Format	ARC/INFO coverages
Input scale	1:3,000,000 (nominal)

Resolution:
   Lines
 	
   Polygons
	
	0.002 deg
	
	No global minimum feature criteria applied

Resolution of statistical data	To country level
Generalization tolerance	0.0005 deg
Feature classes	Polygon, line, point
Feature attribute tables	Polygon, arc, point
Database normalization status	Unnormalized (repeating records exist)

Number of layers:
   Cartographic
 	
   Index
 	
   Statistical attribute
	
	6 (10 coverages)
	
	3 (6 coverages)
	
	7 (7 coverages)

Characteristic	ArcWorld coverage characteristics

Attribute types	Measurement (interval or ordinal values)
	  Suppressed values: -97 (missing data), -98 (country not in tabular database), -99 (ocean areas)
	
	Code (numeric or alphabetic codes)
	  Suppressed numeric values: -97 (missing data), -98 (country not in tabular database), -99 (ocean areas). Not applicable values (alphabetic): blanks
	
	Name (alphabetic or alphanumeric names)
	  Missing values: blanks

Naming conventions: Coverages	8 alphanumeric characters (only "A–Z", "1–9", or "_" allowed)
Tables	8 primary and 3 extension alphanumeric characters (xxxxxxxx.PAT or .AAT with "A–Z", "1–9", or "_" allowed)
Attributes	10 alphanumeric characters (only "A–Z", "1–9", or "_" allowed)
Indexing	Tabular (all attributes sorted by value in index field) Spatial (all coverages spatially subdivided into quadrangles by feature density)
Projection system	Geographic coordinates
Units of measure	Decimal degrees
Horizontal datum	N/A
Vertical datum	N/A
Coordinate precision	Single (coordinates rounded to the nearest 1/10,000 of a degree)

Lineage

There are four main sources for the ArcWorld 1:3M data:

- Data derived from 1:3,000,000-scale U.S. State Department World Data Bank II
- Mathematically generated indexes
- Data developed by ESRI from a variety of hard copy sources

- Data derived from tabular files published by the World Bank and the World Resources Institute

Each of these is discussed in greater detail below.

Data derived from World Data Bank II

Basic production process

The primary source of cartographic information for the ArcWorld 1:3M coverages was the 1973 World Data Bank II (WDBII) database, which was produced by the U.S. State Department. A variety of ArcWorld coverages incorporate cartographic primitives and/or attribute data from WDBII, including the following:

Layer	Coverage name
Country Boundaries	CTRY3M
Country Internal Divisions	ADMIN3M
Railroads	RR3M
Rivers and Water Bodies	RIV3M, RIV3M_E, RIV3M_W
Roads	RDS3M, RDS3M_E, RDS3M_W
Economic and Industrial Indicators	ECONIND
Education and Literacy	EDU_LIT
Food Production and Nutrition	AGRICUL
Health and Vital Statistics	HEALTH
Labor Force Characteristics	LABOR
Natural Resources/Environment	WRI_3M
Population Characteristics	POP_GEO

There is little formal documentation on the lineage of WDBII, although it is known that the WDBII database was automated from maps with source scales ranging from 1:1,000,000 to 1:4,000,000. The exact areas for which the various sources were used is not known, although it is believed that the 1:4,000,000 maps were used primarily for Antarctica and northeastern Russia. In general, the data show significant inconsistencies in representation rules for road, rail, and hydrographic features, owing primarily to differences in the applications for which the data were acquired. These data were subjected to significant restructuring in that features were transferred from their original thematic groups into others for the ArcWorld design.

ESRI received the data as ASCII flat files of coordinates and related tables. The data were converted to ARC/INFO format by using a routine developed by

ESRI. Significant revisions were made to the original WDBII source data, mainly for purposes of topology correction, spurious polygon removal, and coordinate density reduction (for line primitives). In the original data, many lines did not intersect where intended and there were many spurious polygons (artifacts from stream digitizing) and excess vertices (multiple vertices at identical locations). The original data also lacked polygon topology. ESRI built polygon topology where necessary to conform to the ArcWorld database design, and in many cases transferred line attributes to polygon features.

Various levels of processing were applied to the original data. Within the ArcWorld database, the Roads, Railroads, and Country Internal Divisions data have been subjected only to the basic processes outlined above.

The data for the Country Boundaries layer (including line and polygon feature types) were extensively processed to make the layer current to January 1, 1992. All of the original polygon country name values were eliminated and recoded. The spelling of country names follows the directives of the Board of Geographic Names (as of January 31, 1992). All features have country codes derived from FIPS publication 10-3. The specific date of the standard used in original WDBII coding is unknown.

All political boundaries were edited to reflect national boundaries as of January 1, 1992, including the reunification of Germany, the unification of the Yemens, and the dissolution of the Union of Soviet Socialist Republics. New countries were assigned FIPS codes based on direction from the U.S. State Department via the Defense Mapping Agency (DMA). Polygon attribute codes for membership in various international organizations (United Nations, NATO, etc.) are based on the U.S. State Department's *World Fact Book 1989.* Country names were assigned to islands and other ill-defined features by using the following general hierarchy of sources: DMA/State Department directives for the Digital Chart of the World (DCW), the DCW itself, Defense Intelligence Agency Manual (DIAM) 65-18 (1984), the *National Geographic Atlas of the World—Sixth Edition* (1990), Rand McNally's *The New International Atlas* (1987), and *The Times Atlas of the World—Eighth Comprehensive Edition* (1990). The coding of world regions was based on the United Nations' *Standard Country or Area Codes for Statistical Use* (1982). *Webster's New Geographical Dictionary* (1988) was consulted to resolve ambiguous issues. Countries were coded as belonging entirely to single regions, with the exception of Russia, which was divided into European and Asiatic sections by using internal division boundaries corresponding roughly to the continental boundary described in *Webster's New Geographical Dictionary*.

The Rivers and Water Bodies coverage was extensively processed to build topology from the original line data. The polygons were coded using a voting procedure to identify the most commonly occurring attributes on the lines comprising a polygon feature, and assigning the polygon feature the most common attribute. Afterward, the data were plotted at 1:3,000,000 scale and reviewed for gross errors in attribute coding assignment. All river and water body features were assigned attribute codes that identified the countries they occurred in by performing a large overlay (using the ARC IDENTITY command) of the data with country polygons. Country attributes were assigned to support cartographic display applications. However, rivers or water bodies can be displayed separately from country boundaries where the two coincide.

Data quality review

No independent evaluation of the attribute or positional accuracy of the source data was undertaken, except that international boundaries, country names, and associated attribute codes were exhaustively reviewed for correctness and completeness. However, a series of coverage-based (global) diagnostic tests were run on each ArcWorld coverage to ensure data quality and integrity. Code attributes were reviewed by checking for invalid codes in the database using the ARC/INFO CODEFIND command. Consistency of attribute combination was verified using the ARC CONSIST command. Interlayer consistency was verified by creating composite plots of the various data layers. Automated tests for correct linkages between attribute tables and primitives and for valid feature types were also performed.

Mathematically generated indexes

The following five coverages were mathematically generated:

Layer	Coverage name
Landsat Nominal Scene Index	SAT_PT, SAT_BND
Latitude/Longitude Grid	LTLG5, LTLG10, LTLG20

The theoretical locations of latitude/longitude grids at 5-, 10-, and 20-degree intervals were mathematically generated using the ARC/INFO GENERATE command with the GRID option. The grids were densified at an interval of one degree to support projection processing.

The Landsat Nominal Scene Index was generated mathematically by using the nominal scene center points and an algorithm provided by EOSAT. The nominal scene index generated by the algorithm was plotted in its entirety to verify overall completeness and correctness in all areas.

Data quality review

To ensure data quality, all mathematically generated data were plotted at a scale of approximately 1:30,000,000 and reviewed for anomalies.

Data derived from hard copy sources

The following two coverages were manually digitized from hard copy sources:

Layer	Coverage name
ONC Index	ONC_IDX
Major Cities	CITY3M

The Operational Navigational Chart (ONC) Index was manually digitized by ESRI from the Standard Index Chart listed in Appendix E. The source map was digitized manually in ARC/INFO. The data were then plotted out at scale, and the coding was evaluated for completeness and correctness by being compared to the ONC sheet identification number. The boundaries in the index are not authoritative; in the true boundaries there is significant overlap between sheets, whereas the boundaries in the database are discrete.

The Major Cities layer was manually digitized by ESRI from the 1,000,000-scale ONCs. The city locations that resulted were compared with the smaller-scale ArcWorld Country Boundaries layer. A few cities fell outside the coastline because of differences in the input scale of the two data sources. The locations of the cities that fell outside the coastline were adjusted to match the 1:3,000,000-scale version of the coastline.

The English and native spellings of city names are based on the conventions of the Board of Geographic Names as of January 31, 1992. The data were then plotted out at scale to verify completeness, and adherence to the source manuscript with regard to position and city name.

Data derived from tabular files

The following seven coverages contain attributes derived from statistical tabular data files:

Layer	Coverage name
Economic and Industrial Indicators	ECONIND
Education and Literacy	EDU_LIT
Food Production and Nutrition	AGRICUL
Health and Vital Statistics	HEALTH
Labor Force Characteristics	LABOR
Natural Resources and the Environment	WRI_3M
Population Characteristics	POP_GEO

All the layers above are hybrid data sets that include cartographic data from the ArcWorld Country Boundaries layer and published tabular data sets. The attributes in all the layers listed above except the Natural Resources and the Environment layer are based on the World Bank Standard Indicators of Development (1990–91) data set. The Natural Resources and the Environment layer was derived from attribute data from the World Resources 1992–93 database (World Resources Institute [WRI]).

The World Bank data were available as ASCII tabular files. These files were loaded into INFO (after the appropriate templates were created), and joined to their respective polygon attribute tables. The WRI data were subjected to a similar process, except that the data were originally received in a dBASE III format; these data were used to generate tabular ASCII files, which were loaded in turn into INFO. It should be noted that the cartographic component of the layers containing the database is not as current as that for the Country Boundaries layer: The available attribute data did not reflect the reunification of Germany or the dissolution of the Soviet Union (although Yemen was represented as unified). The cartographic data reflect the political boundaries to which the data were tabulated.

Positional accuracy

No detailed evaluation of the positional accuracy of the ArcWorld 1:3M data has been made; knowledge of the source (WDBII) data is insufficient to determine the positional accuracy of data derived from the source. The latitude/longitude and Landsat grids were mathematically generated and are stored in single-precision coverages. The ESRI-digitized data (the ONC index and major city locations) are intended for cartographic display only, since no rigorous attempt has been made to control their positional accuracy.

Attribute accuracy

The accuracy of most attributes in the ArcWorld 1:3M layers has not been explicitly tested against independent sources. However, all the data have been reviewed for anomalous visual patterns both on-line and in hard copy. Data derived from the World Bank and WRI tabular files were tested for proper relationships with country codes during the processing procedure that linked the tabular data with cartographic coverage components. All attributes were tested by using the automated techniques described in the Lineage section of this appendix. All ESRI-added data (e.g., membership in world organizations, world region codes) were reviewed and verified against source maps.

Logical consistency

All data were found to be topologically correct using ARC/INFO Rev. 6.0.1. No duplicate features are present. All polygons are closed, and all lines intersect where intended. No undershoots or overshoots are present.

Completeness

The ArcWorld data were closely reviewed to ensure the completeness of shorelines and of country boundaries. The completeness of the Rivers and Water Bodies coverage reflects that of the source materials and is considered to be fairly consistent. The completeness of the Country Internal Divisions and Roads layers also reflects the completeness of the source materials and is considered to be less consistent. The statistical data are incomplete in that selected records in the database may not contain data for some attributes.

ArcWorld 1:25M and Browse Map data

Summary of ArcWorld 1:25M characteristics

The ArcWorld data at 1:25,000,000 scale consist of the following layers:

- Country Boundaries
- Latitude/Longitude Grid
- Major Cities
- Map Elements
- Rivers and Water Bodies
- Selected Statistical Attributes

The ArcWorld 1:25M coverages have the following characteristics:

Characteristic	ArcWorld coverage characteristics
Format	ARC/INFO coverages
Input scale	1:25,000,000

Resolution:
    Lines
 	
    Polygons
	N/A
	
	0.01 sq deg (approximately 124 sq km at the equator)

Resolution of statistical data	To country level
Generalization tolerance	0.001 deg (approximately 110 m at the equator)
Feature classes	Polygon, line, point
Feature attribute tables	Polygon, line, point
Database normalization status	Unnormalized (repeating records exist)

Number of layers:
    Cartographic
 	
    Index
 	
    Statistical attribute
	4 (4 coverages)
	
	1 (1 coverage)
	
	1 (1 coverage)

Characteristic	ArcWorld coverage characteristics

Attribute types	Measurement (interval or ordinal values)
	   Suppressed values: -97 (missing data), -98 (country not in database), -99 (ocean areas)
	
	Code (numeric or alphabetic codes)
	   Suppressed numeric values: -97 (missing data), -98 (country not in database), -99 (ocean areas). Not applicable values (alphabetic): blanks
	
	Name (alphabetic or alphanumeric names)
	Missing values: blanks

Naming conventions: Coverages	8 alphanumeric characters (only "A–Z", "1–9" or "_" allowed)
Tables	8 primary and 3 extension alphanumeric characters (xxxxxxxx.PAT or .AAT with "A–Z", "1–9" or "_" allowed)
Attributes	10 alphanumeric characters (only "A–Z", "1–9" or "_" allowed)
Indexing	Tabular (all attributes sorted by value in index field) Spatial (all coverages spatially subdivided into quadrangles by feature density)

Projection system	Robinson
	   Longitude of central meridian: 0˚ 00' 00''
	   False easting: 0 m
	   False northing: 0 m
	
	Geographic coordinates (decimal degrees)

Units of measure	Meters Decimal degrees
Horizontal datum	N/A
Vertical datum	N/A
Coordinate precision	Single (coordinates rounded to the nearest 1/10,000 of a degree)

Summary of ArcWorld Browse Map coverage characteristics

The ArcWorld Browse Map consists of the following coverages:

- Major Cities
- Latitude Longitude Grid
- Economic and Industrial Indicators
- Education and Literacy
- Food Production and Nutrition
- Health and Vital Statistics
- Labor Force Characteristics
- Natural Resources and the Environment
- Population Characteristics
- Selected Statistical Attributes

The ArcWorld Browse Map coverages have the following characteristics:

Characteristic	ArcWorld coverage characteristics
Format	ARC/INFO coverages
Input scale	1:40,000,000
Resolution: Lines	N/A
Polygons	N/A
Resolution of statistical data	To country level
Generalization tolerance	N/A
Feature classes	Polygon, line, point
Feature attribute tables	Polygon, line, point
Database normalization status	Unnormalized (repeating records exist)
Number of layers: Cartographic	1 (1 coverage)
Index	1 (1 coverage)
Statistical attribute	1 (8 coverages)

Characteristic	ArcWorld coverage characteristics

Attribute types	Measurement (interval or ordinal values)
	   Suppressed values: -97 (missing data), -98
	   (country not in database), -99 (ocean areas)
	
	Code (numeric or alphabetic codes)
	   Suppressed numeric values: -97 (missing data),
	   -98 (country not in database), -99 (ocean areas).
	   Not applicable values (alphabetic): blanks
	
	Name (alphabetic or alphanumeric names)
	Missing values: blanks

Naming conventions: Coverages	8 alphanumeric characters (only "A–Z", "1–9" or "_" allowed)
Tables	8 primary and 3 extension alphanumeric characters (xxxxxxxx.PAT or .AAT with "A–Z", "1–9" or "_" allowed)
Attributes	10 alphanumeric characters (only "A–Z", "1–9" or "_" allowed)
Indexing	Tabular (all attributes sorted by value in index field) Spatial (all coverages spatially subdivided into quadrangles by feature density)

Projection system	Robinson
	   Longitude of central meridian: 0˚ 00' 00"
	   False easting: 0 m
	   False northing: 0 m

Units of measure	Meters
Horizontal datum	N/A
Vertical datum	N/A
Coordinate precision	Single (coordinates rounded to the nearest 1/10,000 of a degree)

Lineage

ArcWorld 1:25M and Browse Map data are derived from the following sources:

- Data derived from ArcWorld 1:3M data (principally data derived from 1:3,000,000-scale U.S. State Department's World Data Bank II)
- A mathematically generated latitude/longitude grid
- Data derived from 1:25M ArcWorld coverages (data in the ArcWorld Browse Major Cities coverage)
- Data derived from tabular files published by the World Bank (Social Indicators of Development 1990 database) and World Resources Institute (World Resources 1992–1993 Data Base).

Each of these is described in greater detail below.

Data derived from 1:3M ArcWorld data

The ArcWorld 1:25M cartographic layers are generalized versions of 1:3 million cartographic layers. These layers include the following:

Layer	Coverage
Country Boundaries	CTRY25M
Major Cities	CITY25M
Map Elements	SC_25M
Rivers and Water Bodies	RIV25M

The properties of the source data for the ArcWorld database are described in the section for the 1:3 million layers. In order to generate the 1:25 million coverages, features with specific attribute values were extracted from the 1:3 million coverages and placed in the 1:25 million coverages. They were then selectively edited and generalized to reduce coordinate density and produce a visually pleasing product with a data density and data content similar to other products of the same scale. In addition, some attributes in the 1:3 million Country Boundaries and Rivers and Water Bodies coverages were dropped from the 1:25 million coverages. The Map Elements coverage contains a title and scale bar and was created exclusively for use with the ArcWorld 1:25M data in the Robinson projection.

The Browse Map coverages were generated by selectively editing the 1:3 million WDBII data and ArcWorld 1:25M data in order to reduce feature density and produce a visually pleasing display for rapidly viewing thematic data at a scale of 1:40 million. In addition, some attributes in the 1:3M statistical attributes coverages were dropped for the Browse Map coverages.

In order to produce the cartographic data for the Browse Map statistical attributes coverages, the original WDBII country boundaries were plotted at a scale of approximately 1:40M and the map was then redrafted by a professional cartographer. This generalized, drafted version was scanned and vectorized to produce a polygon coverage of all countries. The coverage was then selectively edited to permit linking of the cartographic features with statistical attributes. The international boundaries of the former Soviet Union and former East and West Germany were retained in order to match the tabular data. In addition, small islands were deleted from the data. Because this included deletion of small island nations, the Browse Map coverages contain fewer countries than those in the ArcWorld 1:25M and 1:3M data.

Country Boundaries layer

Topological edits. All topological edits for the 1:25M Country Boundaries coverage occurred in decimal degrees. Initially, the 1:3 million Country Boundaries coverage was selectively edited to remove all islands with an area of less than 0.01 square degree (approximately 124 square kilometers at the equator). However, all political entities present in the 1:3 million database were retained to ensure that the number of countries would be the same in both the 1:3 million and 1:25 million ArcWorld Country Boundaries coverages. Therefore, at least one polygon was retained for every island nation, even if it were below the minimum feature size. Islands below the minimum feature size that were known to have value for visual reference were also retained. No polygons were removed from continents on the basis of minimum feature size.

After these edits, the coverage was generalized using the ARC GENERALIZE command with a tolerance value of 0.001 degree. At the equator, this tolerance translates into approximately 110 meters at ground scale; the tolerance gradually decreases away from the equator. Therefore, generalization (and coordinate reduction) in northern and southern latitudes is less than in areas near the equator. A tolerance of 0.001 degree was found to be sufficiently high to reduce coordinate density at all latitudes without introducing undue error in equatorial regions, where the effects of the generalization were most severe.

(Once fully edited as described below, the decimal degree version of the coverages was converted to the Robinson projection.)

Attribution.   All attributes from the 1:3 million Country Boundaries coverage were retained, except that the BND_COINC code was dropped from the 1:25 million coverage.

Data quality review.   The generalized coverage was plotted at a scale of 1:25,000,000 and reviewed visually for anomalies in topology and attribution. In addition, automated diagnostic checks were run on the data to ensure that correct topology was maintained after the generalization process.

Rivers and Water Bodies layer

Topological edits. All topological edits for the 1:25 million Rivers and Water Bodies coverage occurred in decimal degrees. Features were selectively extracted from the 1:3 million Rivers and Water Bodies coverage and placed in the 1:25 million Rivers and Water Bodies coverage. They were then edited to ensure that major world river systems were represented appropriately at a scale of 1:25,000,000. The coverage was then generalized to reduce coordinate volume.

As an initial processing step, the centerlines for all rivers represented with both shorelines in the 1:3 million coverage were copied into the 1:25 million Rivers and Water Bodies coverage. A number of large rivers represented as only a single line in the 1:3 million coverage were identified by using the *Atlas of World Physical Features* (Snead, 1972). These rivers were extracted from the 1:3 million coverage and added to the 1:25 million coverage.

Once all desired rivers and river systems were present in the 1:25 million coverage, they were edited to a level of detail more appropriate for the small scale of the coverage. Most major river systems with multiple tributaries in the 1:3 million coverage were edited so as to retain only the longest or most characteristic branch, except in cases where the tributaries were necessary to retain the characteristics of the drainage system in an area. For some river systems, such as the Amazon, the largest tributaries were retained because they were larger than some major rivers in other continents.

Only the largest water bodies were included in the 1:25 million coverage. These were initially identified from the *Information Please Almanac 1990* ("The World's Largest Lakes"). They were then extracted from the 1:3M coverage

and copied into the 1:25 million Rivers and Water Bodies coverage. Only water bodies classified as perennial or intermittent were included. To reduce data volume, lakes represented as lake systems were selectively edited to retain a characteristic lake outline at a scale of 1:25,000,000 as determined from other small-scale sources. The only islands retained were those necessary for visual reference. River outlets for major lakes were generally added to the database, unless this resulted in the addition of long river features that would otherwise not have been part of the 1:25 million coverage. Source rivers for intermittent lakes were not retained for the 1:25 million coverage, unless they were major rivers in their own right.

Following all selective edits, the coverage was generalized using the ARC GENERALIZE command with a tolerance value of 0.001 degree (approximately 110 meters at the equator). As for the Country Boundaries coverage, this value was chosen because it reduced coordinate density for the entire coverage regardless of latitude, but still resulted in a visually pleasing product at the equator, where the effects of the generalization were most severe.

Attribution. The Rivers and Water Bodies coverage is simplified considerably by comparison with the 1:3 million coverage. Therefore, the codes ranking these features according to importance (i.e., WATER_RANK and RIVER_RANK) were dropped from the 1:25 million coverage. The RIV_COINC attribute, which indicates coincidence between rivers and international boundaries, was also dropped for the 1:25 million coverage.

Data quality review. The generalized coverage was plotted at a scale of 1:25,000,000 and reviewed visually for anomalies in topology and attribution. The coverage was also compared to other basemaps of similar scale to ensure that data density and content were appropriate for the coverage considering its scale. In addition, automated diagnostic checks were run on the data to ensure that topology remained correct after the generalization process.

Major Cities layer, ArcWorld 1:25M coverage

Topological edits. The 1:25 million Major Cities coverage contains a subset of the names in the 1:3 million coverage, which includes all national capitals and cities with a population of more than three million.

Attribution. All attributes from the 1:3 million coverage were retained.

Data quality review. The city names were plotted at 1:25,000,000 and reviewed for spelling. Spelling conventions are based on the directives of the Board of Geographic Names.

Major Cities layer, Browse Map coverage

Topological edits. The Major Cities Browse Map coverage contains a subset of the national capitals in the 1:25M coverage.

Attribution. All attributes from the 1:25 million coverage were retained.

Data quality review. All city names were plotted in conjunction with the Browse Map cartographic data to ensure that only those capitals remained in the coverage for which country polygons existed in the Browse Map coverages.

Mathematically generated coverages

Latitude/Longitude Grid layer

The 1:25 million coverages and the Browse coverages include one of the following mathematically generated coverages:

Layer	Coverage
Latitude/Longitude Grid (1:25M)	LTLG20
Latitude/Longitude Grid (Browse Map)	LTLG_BR

For both the 1:25M and Browse Map coverages, a 20-degree-interval latitude/longitude grid was mathematically generated using the ARC/INFO GENERATE command. The grid was densified by adding vertices at one-degree intervals to permit projection processing. The Browse version of the latitude/longitude grid was edited to be consistent with the geographic content of the statistical attribute coverages.

Data quality review.   The grid was plotted at a scale of 1:25,000,000 and reviewed visually for anomalies.

Data derived from tabular files

Statistical attribute layers

The 1:25M coverages include one coverage that was derived from tabular files, as follows:

Layer	Coverage
Selected Statistical Attributes	STAT25M

The Browse Map coverages include eight coverages that were derived from tabular files, as follows:

Layer	Coverage
Economic and Industrial Indicators	ECONIND
Education and Literacy	EDU_LIT
Food Production and Nutrition	AGRICUL
Health and Vital Statistics	HEALTH
Labor Force Characteristics	LABOR
Natural Resources and Environment	WRI_BR
Population Characteristics	POP_GEO
Selected Statistical Attributes	STAT_BR

The ArcWorld 1:25M and Browse Map statistical attributes include data from two tabular sources: the *World Bank's Social Indicators of Development 1990* (SID) database (current through 1990) and the World Resources Institute 1992–1993 database (current to 1992). Both data sets were available as ASCII files. The SID data were initially extracted from the World Bank STARS database. INFO templates were prepared to store a total of thirty attributes from the SID database, including the three-letter World Bank country codes (WB_CNTRY) and forty attributes from the WRI database. Attributes were selected on the basis of importance and completeness. In general, only attributes for which at least 80 percent of the countries had values were included in the database. Some attributes for which fewer than 80 percent of the countries had values were included if the attribute was considered to be of major interest.

The data from the SID and WRI ASCII files were copied into the INFO templates. Once in INFO format, the attributes were linked to the Country Boundaries coverage by using the ARC/INFO command JOINITEM using WB_CNTRY as the relate item. Both the FIPS country codes (COUNTRY) and World Bank country codes (WB_CNTRY) in the Country Boundaries

coverage associated with the statistical attribute layer reflect the currency of the statistical data (1990). Therefore, in the Statistical Attributes layer, East and West Germany and North and South Yemen are coded as separate entities, and the Soviet Union is coded as a single entity.

Data quality review. No exhaustive review of the SID or WRI data was undertaken. However, a sample of the ASCII files was printed and reviewed against printed or on-line source data. Two countries from each continent (representing a sample of approximately 8 percent) were checked for correct correspondence between the INFO files and the original source files.

Positional accuracy

No detailed evaluation of the positional accuracy of the ArcWorld 1:25M or Browse Map data has been undertaken. Knowledge of the source data is insufficient to determine the positional accuracy of the source product or of the 1:25M and Browse coverage data. The 20-degree-interval latitude/longitude grid was mathematically generated and is stored as a single precision coverage.

Attribute accuracy

The accuracy of most attributes in the ArcWorld 1:25M and Browse Map coverages has not been explicitly tested against independent sources. However, all of the data have been reviewed for anomalous visual patterns both on line and in hard copy. Data derived from World Bank and WRI tabular files were tested for proper relationships with country codes during the processing procedure that linked the tabular data with cartographic coverage components. All attributes were tested using the automated techniques described in the Lineage section of this appendix.

Logical consistency

All data were found to be topologically correct using ARC/INFO Rev. 6.0.1. No duplicate features are present. All polygons are closed, and all lines intersect where intended. No undershoots or overshoots are present.

Completeness

The ArcWorld 1:25M data, although generalized in terms of number of features and coordinate density, does retain the completeness of shorelines and of country boundaries that characterize the ArcWorld 1:3M layers. In order to create a smaller and visually pleasing product, only selected major features were included in the 1:25M Rivers and Water Bodies and Major Cities layers. For the same reasons, only a subset of features were retained for the Browse Map Major Cities coverage and the cartographic data of the Browse Map statistical attributes coverages. The statistical attributes contained in the ArcWorld database represent a subset of the tabular source data. In addition, there are some missing data for particular countries (for one or more attributes) within the ArcWorld statistical attributes.

Appendix B

ArcWorld item definitions

The tables in this appendix present the definition of each item in the ArcWorld database. The sample feature attribute tables immediately below illustrate the way in which the item definitions are presented. The columns in all tables are the same, but the ARC/INFO-generated items for point and polygon features differ somewhat from the ARC/INFO-generated items for line features. The notes below the sample tables provide information about these and other table characteristics.

Item definitions are presented for each set of ArcWorld coverages. The coverages appear in the same order as in Chapters 4 and 5: first the 1:3M cartographic, index, and statistical attribute layers, and then the 1:25M layers. In order to reduce repetition, the ARC/INFO-generated items are omitted from the feature attribute tables in this appendix.

Polygon (or point) feature tables

Coverage Names:[1]   TEMPLATE_PY
Layer Type:[2]   Polygon (or Point)

Polygon (or Point) Attribute Table

		dBASE Columns		INFO Items	
Item Description[3,4]	Item Name[5]	Begin Column[6]	Column Definition[7]	Begin Column[8]	Item Definition[9]
Area	AREA	1	13,N,6	1	4,12,F,3
Perimeter	PERIMETER	14	13,N,6	5	4,12,F,3
Arc Internal Number	(coverage name)#	27	11,N,0	9	4,5,B
User Assignable ID	(coverage name)-ID	38	11,N,0	13	4,5,B

Line feature tables

Coverage Names:[1]   TEMPLATE_LN
Layer Type:[2]   Line

Arc Attribute Table

		dBASE Columns		INFO Items	
		Begin	**Column**	**Begin**	**Item**
Item Description[3,4]	**Item Name**[5]	**Column**[6]	**Definition**[7]	**Column**[8]	**Definition**[9]
From Node Number	FNODE#	1	11,N,0	1	4,5,B
To Node Number	TNODE#	12	11,N,0	5	4,5,B
Left Polygon Number	LPOLY#	23	11,N,0	9	4,5,B
Right Polygon Number	RPOLY#	34	11,N,0	13	4,5,B
Arc Length	LENGTH	45	13,N,6	17	4,12,F,3
Arc Internal Number	(coverage name)#	58	11,N,0	21	4,5,B
User Assignable ID	(coverage name)-ID	69	11,N,0	25	4,5,B

Notes:

1. The coverage directory names. For the ArcWorld 1:3M database, the first coverage listed is for the worldwide coverage. The next two coverages listed represent the eastern and western sections, respectively. (The final letter of the smaller coverages designates the Section.)

2. The type of coverage. Coverages that contain only polygons, lines (arcs), or points require only one feature attribute table. Many of the ArcWorld coverages contain both polygon and line features and thus require two feature attribute tables.

3. A brief descriptive variable (item) name. The attribute descriptions in Chapters 4 and 5 provide complete definitions for the attributes and the attribute codes.

4. In all feature attribute tables, the first few items are generated automatically by the ARC/INFO software.

   In a Polygon Attribute Table (PAT), four items are software generated. The four items and their definitions are shown in the PAT example above.

   In a Point Attribute Table (PAT), the ARC/INFO-generated items are the same as in a polygon attribute table, and the area and perimeters are set to zero. Although some documentation refers to the point attribute table as XAT to differentiate it from the polygon attribute table, INFO software does not distinguish between point and polygon attribute

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tables, and so polygons and points cannot be combined in one coverage, nor can point and polygon coverages have the same name.

In an Arc Attribute Table (AAT), seven items are assigned automatically. The seven items and their definitions are shown in the sample AAT above.

5. The defined variable (item) name. INFO or dBASE uses this name to read the item. In INFO, the item name may be up to sixteen characters long, may not include spaces, must begin with a letter, and is case sensitive. Because dBASE has slightly different requirements for the defined item names, the "#" in the INFO software-generated item names is replaced with an underscore "_" in the dBASE tables. The remaining item names in the ArcWorld database have been limited to ten alphanumeric characters so that names are identical in both formats.

6. In the dBASE columns, the Begin Column entry defines the column in which the variable begins. A dBASE record may be up to 4,000 bytes, or 128 items wide (whichever comes first).

7. A dBASE column definition has four elements:
   a. Item name (see note 5)
   b. Item width—the number of bytes needed to store the variable
   c. Item type—may be N, for numeric, or C, for character
   d. Number of displayed decimal places (for item type N)

8. In the INFO Items columns, the Begin Column entry defines the column in which the variable begins. An INFO record may be 4,096 columns (bytes) wide. This limit applies also to related records, so the combined length of selected and related records cannot exceed 4,096. (There are no related items in the ArcWorld 1:3M and ArcWorld 1:25M databases as they are delivered.)

9. An INFO item definition has five elements:
   a. Item name (see note 5)
   b. Item width—the number of bytes needed to store the variable
   c. Output width—the number of columns needed to display the item value
   d. Item type—may be B, for binary; C, for character; F, for floating decimal; I, for integer; or N, for numeric
   e. Number of displayed decimal places (for item types F, N, and on some platforms, B)

Country Boundaries

Coverage Name: CTRY3M
Layer Type: Polygon and Line

Polygon Attribute Table

		dBASE Columns		INFO Items	
Item Description	Item Name	Begin Column	Column Definition	Begin Column	Item Definition
Country FIPS Code	COUNTRY	49	2,C,0	17	2,2,C
Country Name	CNTRY_NAME	51	40,C,0	19	2,2,C
World Region Name	REGION	91	21,C,0	59	21,21,C
Continent Name	CONTINENT	112	13,C,0	80	13,13,C
Land/Water Identifier	LAND_OCEAN	125	9,C,0	93	9,9,C
Island Carto. Display Rank	ISLND_RANK	134	1,N,0	102	1,1,I
Statistical Flag	STAT_FLAG	135	1,N,0	103	1,1,I
European Econ. Community	EEC	136	1,N,0	104	1,1,I
Food and Agriculture Org.	FAO	137	1,N,0	105	1,1,I
UN General Assembly	GA	138	1,N,0	106	1,1,I
UN Gen. Assembly (year)	GA_MEMB_YR	139	4,N,0	107	4,4,I
Int. Atomic Energy Agency	IAEA	143	1,N,0	111	1,1,I
Int. Recon. Dev. (World Bank)	IBRD	144	1,N,0	112	1,1,I
International Monetary Fund	IMF	145	1,N,0	113	1,1,I
Org. of Petrol. Exp. Countries	OPEC	146	1,N,0	114	1,1,I
United Nations Sec. Council	SC	147	1,N,0	115	1,1,I
UN Ed., Sci. and Cult. Org.	UNESCO	148	1,N,0	116	1,1,I
World Health Organization	WHO	149	1,N,0	117	1,1,I
World Meteorological Orga.	WMO	150	1,N,0	118	1,1,I

Annotation: Country names

Arc Attribute Table

		dBASE Columns		INFO Items	
Item Description	Item Name	Begin Column	Column Definition	Begin Column	Item Definition
Boundary Type Code	TYPE	80	1,N,0	29	1,1,I
Boundary Type Name	BND_TYPE	81	10,C,0	30	10,10,C
International Boundary Status	BND_STATUS	91	1,N,0	40	1,1,I
Boundary Coincidence	BND_COINC	92	1,N,0	41	1,1,I
Adjoining Country 1 Code	COUNTRY1	93	2,C,0	42	2,2,C
Adjoining Country 2 Code	COUNTRY2	95	2,C,0	44	2,2,C
Adjoining Country Names	CNTRY_NAME	97	41,C,0	46	41,41,C
Adjoining Region Abbrev.	REGION	138	9,C,0	87	9,9,C
Adjoining Continent Abbrev.	CONTINENT	147	7,C,0	96	7,7,C

Country Internal Divisions

Coverage Name: ADMIN3M
Layer Type: Line

Arc Attribute Table

		dBASE Columns		INFO Items	
Item Description	**Item Name**	**Begin Column**	**Column Definition**	**Begin Column**	**Item Definition**
Internal Div. Bnd. Level	BND_LEVEL	80	1,N,0	29	1,1,I
Boundary Coincidence	BND_COINC	81	1,N,0	30	1,1,I
Country FIPS Code	COUNTRY	82	2,C,0	31	2,2,C
Country Name	CNTRY_NAME	84	40,C,0	33	40,40,C
World Region Name	REGION	124	21,C,0	73	21,21,C
Continent Name	CONTINENT	145	13,C,0	94	13,13,C

Major Cities

Coverage Names: CTY3M
Layer Type: Point

Point Attribute Table

		dBASE Columns		INFO Items	
Item Description	**Item Name**	**Begin Column**	**Column Definition**	**Begin Column**	**Item Definition**
City Name (English)	NAME	49	40,C,0	17	40,40,C
Capital City Flag	CAPITAL	89	1,N,0	57	1,1,1
Major City Flag	MAJ_CITY	90	1,N,0	58	1,1,I
Country FIPS Code	COUNTRY	91	2,C,0	59	2,2,C
Country Name	CNTRY_NAME	93	40,C,N	61	40,40,C
World Region Name	REGION	133	21,C,0	101	21,21,C
Continent Name	CONTINENT	154	13,C,0	122	13,13,C
City Name (Native)	LOCAL_NAME	167	40,C,0	135	40,40,C
Diacritical Mark Flag	DIACR_FLAG	207	1,N,0	175	1,1,I

Annotation: City names

Railroads

Coverage Name: RR3M
Layer Type: Line

Arc Attribute Table

		dBASE Columns		INFO Items	
Item Description	**Item Name**	**Begin Column**	**Column Definition**	**Begin Column**	**Item Definition**
Rail Line Classification	TYPE	80	1,N,0	29	1,1,I
Rail Line Class. Name	RAIL_TYPE	81	30,C,0	30	30,30,C
Cartographic Display Scale	DISP_SCALE	111	2,N,0	60	2,2,I
Country FIPS Code	COUNTRY	113	2,C,0	62	2,2,C
Country Name	CNTRY_NAME	115	40,C,0	64	40,40,C
World Region Name	REGION	155	21,C,0	104	21,21,C
Continent Name	CONTINENT	176	13,C,0	125	13,13,C

Rivers and Water Bodies

Coverage Name: RIV3M, RIV3M_E, RIV3M_W
Layer Type: Polygon and Line

Polygon Attribute Table

		dBASE Columns		INFO Items	
Item Description	**Item Name**	**Begin Column**	**Column Definition**	**Begin Column**	**Item Definition**
Water Feature Type Code	TYPE	49	1,N,0	17	1,1,I
Water Feature Type Name	WATER_TYPE	50	20,C,0	18	20,20,C
Cartographic Display Rank	WATER_RANK	70	2,N,0	38	2,2,I
Country FIPS Code	COUNTRY	72	2,C,0	40	2,2,C
Country Name	CNTRY_NAME	74	40,C,0	42	40,40,C
World Region Name	REGION	114	21,C,0	82	21,21,C
Continent Name	CONTINENT	135	13,C,0	103	13,13,C

Rivers and Water Bodies (continued)

Arc Attribute Table

		dBASE Columns		INFO Items	
Item Description	**Item Name**	**Begin Column**	**Column Definition**	**Begin Column**	**Item Definition**
River Feature Type Code	TYPE	80	1,N,0	29	1,1,I
River Feature Type Name	RIVER_TYPE	81	20,C,0	30	20,20,C
Cartographic Display Rank	RIVER_RANK	101	2,N,0	50	2,2,I
River Coincidence Flag	RIV_COINC	103	1,N,0	52	1,1,I
Adjoining Country 1 Code	COUNTRY1	104	2,C,0	53	2,2,C
Adjoining Country 2 Code	COUNTRY2	106	2,C,0	55	2,2,C
Adjoining Country Names	CNTRY_NAME	108	41,C,0	57	41,41,C
Adjoining Region Abbrev.	REGION	149	9,C,0	98	9,9,C
Adjoining Continent Abbrev.	CONTINENT	158	7,C,0	107	7,7,C

Roads

Coverage Name: RDS3M, RDS3M_E, RDS3M_W
Layer Type: Line

Arc Attribute Table

		dBASE Columns		INFO Items	
Item Description	**Item Name**	**Begin Column**	**Column Definition**	**Begin Column**	**Item Definition**
Road Type Code	TYPE	80	1,N,0	29	1,1,I
Road Type Name	ROAD_TYPE	81	20,C,0	30	20,20,C
Cartographic Display Scale	DISP_SCALE	101	2,N,0	50	2,2,I
Country FIPS Code	COUNTRY	103	2,C,0	52	2,2,C
Country Name	CNTRY_NAME	105	40,C,0	54	40,40,C
World Region Name	REGION	145	21,C,0	94	21,21,C
Continent Name	CONTINENT	166	13,C,0	115	13,13,C

Landsat Scene Index

Coverage Name: SAT_BND, SAT_PT
Layer Type: Line and Point

Arc Attribute Table

		dBASE Columns		INFO Items	
		Begin	**Column**	**Begin**	**Item**
Item Description	**Item Name**	**Column**	**Definition**	**Column**	**Definition**
Path Number	PATH	80	4,C,0	29	4,4,C
Row Number	ROW	84	4,C,0	33	4,4,C
Scene Center Location	SCN_CENTER	88	21,C,0	37	21,21,C
Country FIPS Code One	COUNTRY1	109	2,C,0	58	2,2,C
Country Name One	CNTRY_NAM1	111	40,C,0	60	40,40,C
Country FIPS Code Two	COUNTRY2	151	2,C,0	100	2,2,C
Country Name Two	CNTRY_NAM2	153	40,C,0	102	40,40,C
Country FIPS Code Three	COUNTRY3	193	2,C,0	142	2,2,C
Country Name Three	CNTRY_NAM3	195	40,C,0	144	40,40,C
Country FIPS Code Four	COUNTRY4	235	2,C,0	184	2,2,C
Country Name Four	CNTRY_NAM4	237	40,C,0	186	40,40,C
Country FIPS Code Five	COUNTRY5	277	2,C,0	226	2,2,C
Country Name Five	CNTRY_NAM5	279	40,C,0	228	40,40,C
Country FIPS Code Six	COUNTRY6	319	2,C,0	268	2,2,C
Country Name Six	CNTRY_NAM6	321	40,C,0	270	40,40,C

Landsat Scene Index (continued)

Point Attribute Table

		dBASE Columns		INFO Items	
Item Description	Item Name	Begin Column	Column Definition	Begin Column	Item Definition
Path Number	PATH	49	4,C,0	17	4,4,C
Row Number	ROW	53	4,C,0	21	4,4,C
Scene Center Location	SCN_CENTER	57	21,C,0	25	21,21,C
Country FIPS Code One	COUNTRY1	78	2,C,0	46	2,2,C
Country Name One	CNTRY_NAM1	80	40,C,0	48	40,40,C
Country FIPS Code Two	COUNTRY2	120	2,C,0	88	2,2,C
Country Name Two	CNTRY_NAM2	122	40,C,0	90	40,40,C
Country FIPS Code Three	COUNTRY3	162	2,C,0	130	2,2,C
Country Name Three	CNTRY_NAM3	164	40,C,0	132	40,40,C
Country FIPS Code Four	COUNTRY4	204	2,C,0	172	2,2,C
Country Name Four	CNTRY_NAM4	206	40,C,0	174	40,40,C
Country FIPS Code Five	COUNTRY5	246	2,C,0	214	2,2,C
Country Name Five	CNTRY_NAM5	248	40,C,0	216	40,40,C
Country FIPS Code Six	COUNTRY6	288	2,C,0	256	2,2,C
Country Name Six	CNTRY_NAM6	290	40,C,0	258	40,40,C

Latitude/Longitude Grids

Coverage Name: LTLG5, LTLG10, LTLG20
Layer Type: Line

Arc Attribute Table

		dBASE Columns		INFO Items	
Item Description	Item Name	Begin Column	Column Definition	Begin Column	Item Definition
Latitude	LATITUDE	80	4,C,0	29	4,4,C
Longitude	LONGITUDE	84	4,C,0	33	4,4,C
Land/Water Indicator	LAND_WATER	88	1,N,0	37	1,1,I

Operational Navigation Chart (ONC) Index

Coverage Name: ONC_IDX
Layer Type: Polygon

Polygon Attribute Table

		dBASE Columns		INFO Items	
Item Description	**Item Name**	**Begin Column**	**Column Definition**	**Begin Column**	**Item Definition**
Chart Identification Code	MAP_ID	49	6,C,0	17	6,6,C

Economic and Industrial Indicators

Coverage Name: ECONIND
Layer Type: Polygon and Line

Polygon Attribute Table

		dBASE Columns		INFO Items	
Item Description	**Item Name**	**Begin Column**	**Column Definition**	**Begin Column**	**Item Definition**
Country FIPS Code	COUNTRY	49	2,C,0	17	2,2,C
Country Name	CNTRY_NAME	51	40,C,0	19	40,40,C
World Region Name	REGION	91	21,C,0	59	21,21,C
Continent Name	CONTINENT	112	13,C,0	80	13,13,C
Land/Water Identifier	LAND_OCEAN	125	9,C,0	93	9,9,C
Island Carto. Display Rank	ISLND_RANK	134	1,N,0	102	1,1,I
Statistical Flag	STAT_FLAG	135	1,N,0	103	1,1,I
European Econ. Community	EEC	136	1,N,0	104	1,1,I
Food and Agriculture Org.	FAO	137	1,N,0	105	1,1,I
UN General Assembly	GA	138	1,N,0	106	1,1,I
UN Gen. Assembly (year)	GA_MEMB_YR	139	4,N,0	107	4,4,I
Int. Atomic Energy Agency	IAEA	143	1,N,0	111	1,1,I
Int. Recon. Dev. (World Bank)	IBRD	144	1,N,0	112	1,1,I
Int. Monetary Fund	IMF	145	1,N,0	113	1,1,I
Org. of Petrol. Exp. Countries	OPEC	146	1,N,0	114	1,1,I
United Nations Sec. Council	SC	147	1,N,0	115	1,1,I
UN Ed., Sci. and Cult. Org.	UNESCO	148	1,N,0	116	1,1,I
World Health Organization	WHO	149	1,N,0	117	1,1,I
World Meteorological Orga.	WMO	150	1,N,0	118	1,1,I
World Bank Country Code	WB_CNTRY	151	3,C,0	119	3,3,C
GNP per Capita, 1965	GNP_CAP65	154	5,N,0	122	5,5,I
GNP per Capita, 1970	GNP_CAP70	159	5,N,0	127	5,5,I
GNP per Capita, 1975	GNP_CAP75	164	5,N,0	132	5,5,I
GNP per Capita, 1980	GNP_CAP80	169	5,N,0	137	5,5,I
GNP per Capita, 1985	GNP_CAP85	174	5,N,0	142	5,5,I
GNP per Capita, 1989	GNP_CAP89	179	5,N,0	147	5,5,I
% Income to Top 10% Hhlds 65	INCTOP1065	184	6,N,2	152	6,6,N,2
% Inc. to Top 10% Hhlds 70	INCTOP1070	190	6,N,2	158	6,6,N,2
% Inc. to Top 10% Hhlds 75	INCTOP1075	196	6,N,2	164	6,6,N,2
% Inc. to Top 10% Hhlds 80	INCTOP1080	202	6,N,2	170	6,6,N,2
% Inc. to Top 10% Hhlds 85	INCTOP1085	208	6,N,2	176	6,6,N,2
% Inc. to Top 10% Hhlds 89	INCTOP1089	214	6,N,2	182	6,6,N,2
% Inc. to Top 20% Hhlds 65	INCTOP2065	220	6,N,2	188	6,6,N,2
% Inc. to Top 20% Hhlds 70	INCTOP2070	226	6,N,2	194	6,6,N,2

continued . . .

Economic and Industrial Indicators (continued)

Polygon Attribute Table (cont.)

		dBASE Columns		INFO Items	
Item Description	**Item Name**	**Begin Column**	**Column Definition**	**Begin Column**	**Item Definition**
% Income to Top 20% Hhlds 75	INCTOP2075	232	6,N,2	200	6,6,N,2
% Income to Top 20% Hhlds 80	INCTOP2080	238	6,N,2	206	6,6,N,2
% Income to Top 20% Hhlds 85	INCTOP2085	244	6,N,2	212	6,6,N,2
% Income to Top 20% Hhlds 89	INCTOP2089	250	6,N,2	218	6,6,N,2
% Income to Bot 40%, 65	INCBOT4065	256	6,N,2	224	6,6,N,2
% Income to Bot 40%, 70	INCBOT4070	262	6,N,2	230	6,6,N,2
% Income to Bot 40%, 75	INCBOT4075	268	6,N,2	236	6,6,N,2
% Income to Bot 40%, 80	INCBOT4080	274	6,N,2	242	6,6,N,2
% Income to Bot 40%, 85	INCBOT4085	280	6,N,2	248	6,6,N,2
% Income to Bot 40%, 89	INCBOT4089	286	6,N,2	254	6,6,N,2
% Income to Bot 20%, 65	INCBOT2065	292	6,N,2	260	6,6,N,2
% Income to Bot 20%, 70	INCBOT2070	298	6,N,2	266	6,6,N,2
% Income to Bot 20%, 75	INCBOT2075	304	6,N,2	272	6,6,N,2
% Income to Bot 20%, 80	INCBOT2080	310	6,N,2	278	6,6,N,2
% Income to Bot 20%, 85	INCBOT2085	316	6,N,2	284	6,6,N,2
% Income to Bot 20%, 89	INCBOT2089	322	6,N,2	290	6,6,N,2
Percent of GDP for Food, 1970	EXPFOODS70	328	6,N,2	296	6,6,N,2
Percent of GDP for Food, 1975	EXPFOODS75	334	6,N,2	302	6,6,N,2
Percent of GDP for Food, 1980	EXPFOODS80	340	6,N,2	308	6,6,N,2
Percent of GDP for Food, 1985	EXPFOODS85	346	6,N,2	314	6,6,N,2
Percent of GDP for Food, 1989	EXPFOODS89	352	6,N,2	320	6,6,N,2
Percent of GDP on Staples, 75	EXPSTAPL75	358	6,N,2	326	6,6,N,2
Percent of GDP on Staples, 80	EXPSTAPL80	364	6,N,2	332	6,6,N,2
Percent of GDP on Staples, 85	EXPSTAPL85	370	6,N,2	338	6,6,N,2
Percent of GDP on Staples, 89	EXPSTAPL89	376	6,N,2	344	6,6,N,2
Percent of GDP on Protein, 75	EXPPROTN75	382	6,N,2	350	6,6,N,2
Percent of GDP on Protein, 80	EXPPROTN80	388	6,N,2	356	6,6,N,2
Percent of GDP on Protein, 85	EXPPROTN85	394	6,N,2	362	6,6,N,2
Percent of GDP on Protein, 89	EXPPROTN89	400	6,N,2	368	6,6,N,2
% GDP Fixed Invst Hsg, 75	INVSTHSE75	406	6,N,2	374	6,6,N,2
% GDP Fixed Invst Hsg, 80	INVSTHSE80	412	6,N,2	380	6,6,N,2
% GDP Fixed Invst Hsg, 85	INVSTHSE85	418	6,N,2	386	6,6,N,2
% GDP Fixed Invst Hsg, 89	INVSTHSE89	424	6,N,2	392	6,6,N,2
Percent of GDP on Energy, 75	EXPENRGY75	430	6,N,2	398	6,6,N,2
Percent of GDP on Energy, 80	EXPENRGY80	436	6,N,2	404	6,6,N,2
Percent of GDP on Energy, 85	EXPENRGY85	442	6,N,2	410	6,6,N,2
Percent of GDP on Energy, 89	EXPENRGY89	448	6,N,2	416	6,6,N,2

continued . . .

Economic and Industrial Indicators (continued)

Polygon Attribute Table (cont.)

		dBASE Columns		INFO Items	
Item Description	**Item Name**	**Begin Column**	**Column Definition**	**Begin Column**	**Item Definition**
Energy Consum per Capita, 65	ENRG_CAP65	454	8,N,2	422	8,8,N,2
Energy Consum per Capita, 70	ENRG_CAP70	462	8,N,2	430	8,8,N,2
Energy Consum per Capita, 75	ENRG_CAP75	470	8,N,2	438	8,8,N,2
Energy Consum per Capita, 80	ENRG_CAP80	478	8,N,2	446	8,8,N,2
Energy Consum per Capita, 85	ENRG_CAP85	486	8,N,2	454	8,8,N,2
Energy Consum per Capita, 89	ENRG_CAP89	494	8,N,2	462	8,8,N,2
% GDP on Trans & Comm, 70	EXPTRCM70	502	6,N,2	470	6,6,N,2
% GDP on Trans & Comm, 75	EXPTRCM75	508	6,N,2	476	6,6,N,2
% GDP on Trans & Comm, 80	EXPTRCM80	514	6,N,2	482	6,6,N,2
% GDP on Trans & Comm, 85	EXPTRCM85	520	6,N,2	488	6,6,N,2
% GDP on Trans & Comm, 89	EXPTRCM89	526	6,N,2	494	6,6,N,2
Persons per Passenger Car, 65	POP_CAR65	532	6,N,1	500	6,6,N,1
Persons per Passenger Car, 70	POP_CAR70	538	6,N,1	506	6,6,N,1
Persons per Passenger Car, 75	POP_CAR75	544	6,N,1	512	6,6,N,1
Persons per Passenger Car, 80	POP_CAR80	550	6,N,1	518	6,6,N,1
Persons per Passenger Car, 85	POP_CAR85	556	6,N,1	524	6,6,N,1
Persons per Passenger Car, 89	POP_CAR89	562	6,N,1	530	6,6,N,1
% GDP on Trans Equip., 75	INVSTTR75	568	6,N,2	536	6,6,N,2
% GDP on Trans Equip., 80	INVSTTR80	574	6,N,2	542	6,6,N,2
% GDP on Trans Equip., 85	INVSTTR85	580	6,N,2	548	6,6,N,2
% GDP on Trans Equip., 89	INVSTTR89	586	6,N,2	554	6,6,N,2
Persons per Telephone, 75	POP_TELE75	592	6,N,1	560	6,6,N,1
Persons per Telephone, 80	POP_TELE80	598	6,N,1	566	6,6,N,1
Persons per Telephone, 85	POP_TELE85	604	6,N,1	572	6,6,N,1
Persons per Telephone, 89	POP_TELE89	610	6,N,1	578	6,6,N,1
Percent of GDP on Housing, 65	EXPHOUSE65	616	6,N,2	584	6,6,N,2
Percent of GDP on Housing, 70	EXPHOUSE70	622	6,N,2	590	6,6,N,2
Percent of GDP on Housing, 75	EXPHOUSE75	628	6,N,2	596	6,6,N,2
Percent of GDP on Housing, 80	EXPHOUSE80	634	6,N,2	602	6,6,N,2
Percent of GDP on Housing, 85	EXPHOUSE85	640	6,N,2	608	6,6,N,2
Percent of GDP on Housing, 89	EXPHOUSE89	646	6,N,2	614	6,6,N,2

Economic and Industrial Indicators (continued)

Arc Attribute Table

Item Description	Item Name	dBASE Columns		INFO Items	
		Begin Column	Column Definition	Begin Column	Item Definition
Boundary Type Code	TYPE	80	1,N,0	29	1,1,I
Boundary Type Name	BND_TYPE	81	10,C,0	30	10,10,C
Int. Boundary Status	BND_STATUS	91	1,N,0	40	1,1,I
Boundary Coincidence	BND_COINC	92	1,N,0	41	1,1,I
Adjoining Country 1 Code	COUNTRY1	93	2,C,0	42	2,2,C
Adjoining Country 2 Code	COUNTRY2	95	2,C,0	44	2,2,C
Adjoining Country Names	CNTRY_NAME	97	41,C,0	46	41,41,C
Adjoining Region Abbrev.	REGION	138	9,C,0	87	9,9,C
Adjoining Continent Abbrev.	CONTINENT	147	7,C,0	96	7,7,C

Education and Literacy

Coverage Name: EDU_LIT
Layer Type: Polygon and Line

Polygon Attribute Table (cont.)

Item Description	Item Name	dBASE Columns		INFO Items	
		Begin Column	Column Definition	Begin Column	Item Definition
Country FIPS Code	COUNTRY	49	2,C,0	17	2,2,C
Country Name	CNTRY_NAME	51	40,C,0	19	40,40,C
World Region Name	REGION	91	21,C,0	59	21,21,C
Continent Name	CONTINENT	112	13,C,0	80	13,13,C
Land/Water Identifier	LAND_OCEAN	125	9,C,0	93	9,9,C
Island Carto. Display Rank	ISLND_RANK	134	1,N,0	102	1,1,I
Statistical Flag	STAT_FLAG	135	1,N,0	103	1,1,I
European Econ. Community	EEC	136	1,N,0	104	1,1,I
Food and Agriculture Org.	FAO	137	1,N,0	105	1,1,I
UN General Assembly	GA	138	1,N,0	106	1,1,I
UN Gen. Assembly (year)	GA_MEMB_YR	139	4,N,0	107	4,4,I
Int. Atomic Energy Agency	IAEA	143	1,N,0	111	1,1,I
Int. Recon. Dev. (World Bank)	IBRD	144	1,N,0	112	1,1,I
Int. Monetary Fund	IMF	145	1,N,0	113	1,1,I

continued . . .

Education and Literacy (continued)

Polygon Attribute Table (cont.)

| | | dBASE Columns | | INFO Items | |
| | | Begin | Column | Begin | Item |
Item Description	Item Name	Column	Definition	Column	Definition
Org. of Petrol. Exp. Countries	OPEC	146	1,N,0	114	1,1,I
United Nations Sec. Council	SC	147	1,N,0	115	1,1,I
UN Ed., Sci. and Cult. Org.	UNESCO	148	1,N,0	116	1,1,I
World Health Organization	WHO	149	1,N,0	117	1,1,I
World Meteorological Orga.	WMO	150	1,N,0	118	1,1,I
World Bank Country Code	WB_CNTRY	151	3,C,0	119	3,3,C
Percent GDP for Education, 70	EXPEDUC70	154	6,N,2	122	6,6,N,2
Percent GDP for Education, 75	EXPEDUC75	160	6,N,2	128	6,6,N,2
Percent GDP for Education, 80	EXPEDUC80	166	6,N,2	134	6,6,N,2
Percent GDP for Education, 85	EXPEDUC85	172	6,N,2	140	6,6,N,2
Percent GDP for Education, 89	EXPEDUC89	178	6,N,2	146	6,6,N,2
% Children in Primary Schl, 65	P_PRIMRY65	184	6,N,2	152	6,6,N,2
% Children in Primary Schl, 70	P_PRIMRY70	190	6,N,2	158	6,6,N,2
% Children in Primary Schl, 75	P_PRIMRY75	196	6,N,2	164	6,6,N,2
% Children in Primary Schl, 80	P_PRIMRY80	202	6,N,2	170	6,6,N,2
% Children in Primary Schl, 85	P_PRIMRY85	208	6,N,2	176	6,6,N,2
% Children in Primary Schl, 89	P_PRIMRY89	214	6,N,2	182	6,6,N,2
% Females in Primary Schl, 65	P_PRI_F65	220	6,N,2	188	6,6,N,2
% Females in Primary Schl, 70	P_PRI_F70	226	6,N,2	194	6,6,N,2
% Females in Primary Schl, 75	P_PRI_F75	232	6,N,2	200	6,6,N,2
% Females in Primary Schl, 80	P_PRI_F80	238	6,N,2	206	6,6,N,2
% Females in Primary Schl, 85	P_PRI_F85	244	6,N,2	212	6,6,N,2
% Females in Primary Schl, 89	P_PRI_F89	250	6,N,2	218	6,6,N,2
% Children in Sec. Schl, 65	P_SECNDY65	256	6,N,2	224	6,6,N,2
% Children in Sec. Schl, 70	P_SECNDY70	262	6,N,2	230	6,6,N,2
% Children in Sec. Schl, 75	P_SECNDY75	268	6,N,2	236	6,6,N,2
% Children in Sec. Schl, 80	P_SECNDY80	274	6,N,2	242	6,6,N,2
% Children in Sec. Schl, 85	P_SECNDY85	280	6,N,2	248	6,6,N,2
% Children in Sec. Schl, 89	P_SECNDY89	286	6,N,2	254	6,6,N,2
% Females in Sec. Schl, 65	P_SEC_F65	292	6,N,2	260	6,6,N,2
% Females in Sec. Schl, 70	P_SEC_F70	298	6,N,2	266	6,6,N,2
% Females in Sec. Schl, 75	P_SEC_F75	304	6,N,2	272	6,6,N,2
% Females in Sec..Schl, 80	P_SEC_F80	310	6,N,2	278	6,6,N,2
% Females in Sec. Schl, 85	P_SEC_F85	316	6,N,2	284	6,6,N,2
% Females in Sec. Schl, 89	P_SEC_F89	322	6,N,2	290	6,6,N,2
% Science & Eng. Students, 65	P_SCIENG65	328	6,N,2	296	6,6,N,2
% Science & Eng. Students, 70	P_SCIENG70	334	6,N,2	302	6,6,N,2

continued . . .

Education and Literacy (continued)

Polygon Attribute Table (cont.)

		dBASE Columns		INFO Items	
Item Description	Item Name	Begin Column	Column Definition	Begin Column	Item Definition
% Science & Eng. Students, 75	P_SCIENG75	340	6,N,2	308	6,6,N,2
% Science & Eng. Students, 80	P_SCIENG80	346	6,N,2	314	6,6,N,2
% Science & Eng. Students, 85	P_SCIENG85	352	6,N,2	320	6,6,N,2
% Science & Eng. Students, 89	P_SCIENG89	358	6,N,2	326	6,6,N,2
Prim. Pupil/Teacher Ratio, 65	PUPTCH_P65	364	3,N,0	332	3,3,I
Prim. Pupil/Teacher Ratio, 70	PUPTCH_P70	367	3,N,0	335	3,3,I
Prim. Pupil/Teacher Ratio, 75	PUPTCH_P75	370	3,N,0	338	3,3,I
Prim. Pupil/Teacher Ratio, 80	PUPTCH_P80	373	3,N,0	341	3,3,I
Prim. Pupil/Teacher Ratio, 85	PUPTCH_P85	376	3,N,0	344	3,3,I
Prim. Pupil/Teacher Ratio, 89	PUPTCH_P89	379	3,N,0	347	3,3,I
Secnd. Pupil/Teacher Ratio, 65	PUPTCH_S65	382	6,N,2	350	6,6,N,2
Secnd. Pupil/Teacher Ratio, 70	PUPTCH_S70	388	6,N,2	356	6,6,N,2
Secnd. Pupil/Teacher Ratio, 75	PUPTCH_S75	394	6,N,2	362	6,6,N,2
Secnd. Pupil/Teacher Ratio, 80	PUPTCH_S80	400	6,N,2	368	6,6,N,2
Secnd. Pupil/Teacher Ratio, 85	PUPTCH_S85	406	6,N,2	374	6,6,N,2
Secnd. Pupil/Teacher Ratio, 89	PUPTCH_S89	412	6,N,2	380	6,6,N,2
% of Pupils Reaching Grd 4, 75	PUP_GR4_75	418	6,N,2	386	6,6,N,2
% of Pupils Reaching Grd 4, 80	PUP_GR4_80	424	6,N,2	392	6,6,N,2
% of Pupils Reaching Grd 4, 85	PUP_GR4_85	430	6,N,2	398	6,6,N,2
% of Pupils Reaching Grd 4, 89	PUP_GR4_89	436	6,N,2	404	6,6,N,2
% of Repeat Prim. Pupils, 65	REPEAT_P65	442	6,N,2	410	6,6,N,2
% of Repeat Prim. Pupils, 70	REPEAT_P70	448	6,N,2	416	6,6,N,2
% of Repeat Prim. Pupils, 75	REPEAT_P75	454	6,N,2	422	6,6,N,2
% of Repeat Prim. Pupils, 80	REPEAT_P80	460	6,N,2	428	6,6,N,2
% of Repeat Prim. Pupils, 85	REPEAT_P85	466	6,N,2	434	6,6,N,2
% of Repeat Prim. Pupils, 89	REPEAT_P89	472	6,N,2	440	6,6,N,2
% of Persons Illiterate, 65	ILLITER65	478	6,N,2	446	6,6,N,2
% of Persons Illiterate, 70	ILLITER70	484	6,N,2	452	6,6,N,2
% of Persons Illiterate, 75	ILLITER75	490	6,N,2	458	6,6,N,2
% of Persons Illiterate, 80	ILLITER80	496	6,N,2	464	6,6,N,2
% of Persons Illiterate, 85	ILLITER85	502	6,N,2	470	6,6,N,2
% of Persons Illiterate, 89	ILLITER89	508	6,N,2	476	6,6,N,2
% of Females Illiterate, 85	ILLIT_F85	514	6,N,2	482	6,6,N,2
% of Females Illiterate, 89	ILLIT_F89	520	6,N,2	488	6,6,N,2
Newspapers per 1,000, 65	NEWSPAPR65	526	6,N,1	494	6,6,N,1
Newspapers per 1,000, 70	NEWSPAPR70	532	6,N,1	500	6,6,N,1

continued . . .

Education and Literacy (continued)

Polygon Attribute Table (cont.)

		dBASE Columns		INFO Items	
Item Description	**Item Name**	**Begin Column**	**Column Definition**	**Begin Column**	**Item Definition**
Newspapers per 1,000, 75	NEWSPAPR75	538	6,N,1	506	6,6,N,1
Newspapers per 1,000, 80	NEWSPAPR80	544	6,N,1	512	6,6,N,1
Newspapers per 1,000, 85	NEWSPAPR85	550	6,N,1	518	6,6,N,1
Newspapers per 1,000, 89	NEWSPAPR89	556	6,N,1	524	6,6,N,1

Arc Attribute Table

		dBASE Columns		INFO Items	
Item Description	**Item Name**	**Begin Column**	**Column Definition**	**Begin Column**	**Item Definition**
Boundary Type Code	TYPE	80	1,N,0	29	1,1,I
Boundary Type Name	BND_TYPE	81	10,C,0	30	10,10,C
Int. Boundary Status	BND_STATUS	91	1,N,0	40	1,1,I
Boundary Coincidence	BND_COINC	92	1,N,0	41	1,1,I
Adjoining Country 1 Code	COUNTRY1	93	2,C,0	42	2,2,C
Adjoining Country 2 Code	COUNTRY2	95	2,C,0	44	2,2,C
Adjoining Country Names	CNTRY_NAME	97	41,C,0	46	41,41,C
Adjoining Region Abbrev.	REGION	138	9,C,0	87	9,9,C
Adjoining Continent Abbrev.	CONTINENT	147	7,C,0	96	7,7,C

Food Production and Nutrition

Coverage Name: AGRICUL
Layer Type: Polygon and Line

Polygon Attribute Table

		dBASE Columns		INFO Items	
Item Description	**Item Name**	**Begin Column**	**Column Definition**	**Begin Column**	**Item Definition**
Country FIPS Code	COUNTRY	49	2,C,0	17	2,2,C
Country Name	CNTRY_NAME	51	40,C,0	19	40,40,C
World Region Name	REGION	91	21,C,0	59	21,21,C
Continent Name	CONTINENT	112	13,C,0	80	13,13,C
Land/Water Identifier	LAND_OCEAN	125	9,C,0	93	9,9,C
Island Carto. Display Rank	ISLND_RANK	134	1,N,0	102	1,1,I
Statistical Flag	STAT_FLAG	135	1,N,0	103	1,1,I
European Econ. Community	EEC	136	1,N,0	104	1,1,I
Food and Agriculture Org.	FAO	137	1,N,0	105	1,1,I
UN General Assembly	GA	138	1,N,0	106	1,1,I
UN Gen. Assembly (year)	GA_MEMB_YR	139	4,N,0	107	4,4,I
Int. Atomic Energy Agency	IAEA	143	1,N,0	111	1,1,I
Int. Recon. Dev. (World Bank)	IBRD	144	1,N,0	112	1,1,I
Int. Monetary Fund	IMF	145	1,N,0	113	1,1,I
Org. of Petrol. Exp. Countries	OPEC	146	1,N,0	114	1,1,I
United Nations Sec. Council	SC	147	1,N,0	115	1,1,I
UN Ed., Sci. and Cult. Org.	UNESCO	148	1,N,0	116	1,1,I
World Health Organization	WHO	149	1,N,0	117	1,1,I
World Meteorological Orga.	WMO	150	1,N,0	118	1,1,I
World Bank Country Code	WB_CNTRY	151	3,C,0	119	3,3,C
Percent of Agri. Land, 65	P_AGLAND65	154	6,N,2	122	6,6,N,2
Percent of Agri. Land, 70	P_AGLAND70	160	6,N,2	128	6,6,N,2
Percent of Agri. Land, 75	P_AGLAND75	166	6,N,2	134	6,6,N,2
Percent of Agri. Land, 80	P_AGLAND80	172	6,N,2	140	6,6,N,2
Percent of Agri. Land, 85	P_AGLAND85	178	6,N,2	146	6,6,N,2
Percent of Agri. Land, 89	P_AGLAND89	184	6,N,2	152	6,6,N,2
Agri. Population Density, 65	POPDNSAG65	190	13,N,2	158	13,13,N,2
Agri. Population Density, 70	POPDNSAG70	203	13,N,2	171	13,13,N,2
Agri. Population Density, 75	POPDNSAG75	216	13,N,2	184	13,13,N,2
Agri. Population Density, 80	POPDNSAG80	229	13,N,2	197	13,13,N,2
Agri. Population Density, 85	POPDNSAG85	242	13,N,2	210	13,13,N,2
Agri. Population Density, 89	POPDNSAG89	255	13,N,2	223	13,13,N,2
Forest Area (K sq. km), 65	FORESTS65	268	10,N,0	236	10,10,I
Forest Area (K sq. km), 70	FORESTS70	278	10,N,0	246	10,10,I

continued . . .

Food Production and Nutrition (continued)

Polygon Attribute Table (cont.)

Item Description	Item Name	dBASE Columns Begin Column	Column Definition	INFO Items Begin Column	Item Definition
Forest Area (K sq. km), 75	FORESTS75	288	10,N,0	256	10,10,I
Forest Area (K sq. km), 80	FORESTS80	298	10,N,0	266	10,10,I
Forest Area (K sq. km), 85	FORESTS85	308	10,N,0	276	10,10,I
Forest Area (K sq. km), 89	FORESTS89	318	10,N,0	286	10,10,I
Net Deforestation Rate, 65	NETDEFOR65	328	6,N,2	296	6,6,N,2
Net Deforestation Rate, 70	NETDEFOR70	334	6,N,2	302	6,6,N,2
Net Deforestation Rate, 75	NETDEFOR75	340	6,N,2	308	6,6,N,2
Net Deforestation Rate, 80	NETDEFOR80	346	6,N,2	314	6,6,N,2
Net Deforestation Rate, 85	NETDEFOR85	352	6,N,2	320	6,6,N,2
Net Deforestation Rate, 89	NETDEFOR89	358	6,N,2	326	6,6,N,2
Cereal Food Imports, 65	IMPTCERL65	364	10,N,0	332	10,10,I
Cereal Food Imports, 70	IMPTCERL70	374	10,N,0	342	10,10,I
Cereal Food Imports, 75	IMPTCERL75	384	10,N,0	352	10,10,I
Cereal Food Imports, 80	IMPTCERL80	394	10,N,0	362	10,10,I
Cereal Food Imports, 85	IMPTCERL85	404	10,N,0	372	10,10,I
Cereal Food Imports, 89	IMPTCERL89	414	10,N,0	382	10,10,I
Food Aid in Cereals, 70	AIDCERLB70	424	10,N,0	392	10,10,I
Food Aid in Cereals, 75	AIDCERLB75	434	10,N,0	402	10,10,I
Food Aid in Cereals, 80	AIDCERLB80	444	10,N,0	412	10,10,I
Food Aid in Cereals, 85	AIDCERLB85	454	10,N,0	422	10,10,I
Food Aid in Cereals, 89	AIDCERLB89	464	10,N,0	432	10,10,I
Food Production per Capita, 65	FOODPROD65	474	6,N,2	442	6,6,N,2
Food Production per Capita, 70	FOODPROD70	480	6,N,2	448	6,6,N,2
Food Production per Capita, 75	FOODPROD75	486	6,N,2	454	6,6,N,2
Food Production per Capita, 80	FOODPROD80	492	6,N,2	460	6,6,N,2
Food Production per Capita, 85	FOODPROD85	498	6,N,2	466	6,6,N,2
Food Production per Capita, 89	FOODPROD89	504	6,N,2	472	6,6,N,2
% of GDP in Agriculture, 65	P_AGGDPB65	510	6,N,2	478	6,6,N,2
% of GDP in Agriculture, 70	P_AGGDPB70	516	6,N,2	484	6,6,N,2
% of GDP in Agriculture, 75	P_AGGDPB75	522	6,N,2	490	6,6,N,2
% of GDP in Agriculture, 80	P_AGGDPB80	528	6,N,2	496	6,6,N,2
% of GDP in Agriculture, 85	P_AGGDPB85	534	6,N,2	502	6,6,N,2
% of GDP in Agriculture, 89	P_AGGDPB89	540	6,N,2	508	6,6,N,2
Calories per Person (Daily), 65	CAL_CAP65	546	6,N,1	514	6,6,N,1
Calories per Person (Daily), 70	CAL_CAP70	552	6,N,1	520	6,6,N,1
Calories per Person (Daily), 75	CAL_CAP75	558	6,N,1	526	6,6,N,1
Calories per Person (Daily), 80	CAL_CAP80	564	6,N,1	532	6,6,N,1

continued . . .

Food Production and Nutrition (continued)

Polygon Attribute Table (cont.)

		dBASE Columns		INFO Items	
Item Description	**Item Name**	**Begin Column**	**Column Definition**	**Begin Column**	**Item Definition**
Calories per Person (Daily), 85	CAL_CAP85	570	6,N,1	538	6,6,N,1
Calories per Person (Daily), 89	CAL_CAP89	576	6,N,1	544	6,6,N,1
Protein per Person (Daily), 65	PROT_CAP65	582	6,N,1	550	6,6,N,1
Protein per Person (Daily), 70	PROT_CAP70	588	6,N,1	556	6,6,N,1
Protein per Person (Daily), 75	PROT_CAP75	594	6,N,1	562	6,6,N,1
Protein per Person (Daily), 80	PROT_CAP80	600	6,N,1	568	6,6,N,1
Protein per Person (Daily), 85	PROT_CAP85	606	6,N,1	574	6,6,N,1
Protein per Person (Daily), 89	PROT_CAP89	612	6,N,1	580	6,6,N,1

Arc Attribute Table

		dBASE Columns		INFO Items	
Item Description	**Item Name**	**Begin Column**	**Column Definition**	**Begin Column**	**Item Definition**
Boundary Type Code	TYPE	80	1,N,0	29	1,1,I
Boundary Type Name	BND_TYPE	81	10,C,0	30	10,10,C
Int. Boundary Status	BND_STATUS	91	1,N,0	40	1,1,I
Boundary Coincidence	BND_COINC	92	1,N,0	41	1,1,I
Adjoining Country 1 Code	COUNTRY1	93	2,C,0	42	2,2,C
Adjoining Country 2 Code	COUNTRY2	95	2,C,0	44	2,2,C
Adjoining Country Names	CNTRY_NAME	97	41,C,0	46	41,41,C
Adjoining Region Abbrev.	REGION	138	9,C,0	87	9,9,C
Adjoining Continent Abbrev.	CONTINENT	147	7,C,0	96	7,7,C

Health and Vital Statistics

Coverage Name: HEALTH
Layer Type: Polygon and Line

Polygon Attribute Table

		dBASE Columns		INFO Items	
Item Description	**Item Name**	**Begin Column**	**Column Definition**	**Begin Column**	**Item Definition**
Country FIPS Code	COUNTRY	49	2,C,0	17	2,2,C
Country Name	CNTRY_NAME	51	40,C,0	19	40,40,C
World Region Name	REGION	91	21,C,0	59	21,21,C
Continent Name	CONTINENT	112	13,C,0	80	13,13,C
Land/Water Identifier	LAND_OCEAN	125	9,C,0	93	9,9,C
Island Carto. Display Rank	ISLND_RANK	134	1,N,0	102	1,1,I
Statistical Flag	STAT_FLAG	135	1,N,0	103	1,1,I
European Econ. Community	EEC	136	1,N,0	104	1,1,I
Food and Agriculture Org.	FAO	137	1,N,0	105	1,1,I
UN General Assembly	GA	138	1,N,0	106	1,1,I
UN Gen. Assembly (year)	GA_MEMB_YR	139	4,N,0	107	4,4,I
Int. Atomic Energy Agency	IAEA	143	1,N,0	111	1,1,I
Int. Recon. Dev. (World Bank)	IBRD	144	1,N,0	112	1,1,I
Int. Monetary Fund	IMF	145	1,N,0	113	1,1,I
Org. of Petrol. Exp. Countries	OPEC	146	1,N,0	114	1,1,I
United Nations Sec. Council	SC	147	1,N,0	115	1,1,I
UN Ed., Sci. and Cult. Org.	UNESCO	148	1,N,0	116	1,1,I
World Health Organization	WHO	149	1,N,0	117	1,1,I
World Meteorological Orga.	WMO	150	1,N,0	118	1,1,I
World Bank Country Code	WB_CNTRY	151	3,C,0	119	3,3,C
Access to Safe Water, 70	SAFEH2O70	154	6,N,2	122	6,6,N,2
Access to Safe Water, 75	SAFEH2O75	160	6,N,2	128	6,6,N,2
Access to Safe Water, 80	SAFEH2O80	166	6,N,2	134	6,6,N,2
Access to Safe Water, 85	SAFEH2O85	172	6,N,2	140	6,6,N,2
Access to Safe Water, 89	SAFEH2O89	178	6,N,2	146	6,6,N,2
Urban Access to Safe H2O, 70	SAFH2OUB70	184	6,N,2	152	6,6,N,2
Urban Access to Safe H2O, 75	SAFH2OUB75	190	6,N,2	158	6,6,N,2
Urban Access to Safe H2O, 80	SAFH2OUB80	196	6,N,2	164	6,6,N,2
Urban Access to Safe H2O, 85	SAFH2OUB85	202	6,N,2	170	6,6,N,2
Urban Access to Safe H2O, 89	SAFH2OUB89	208	6,N,2	176	6,6,N,2
Rural Access to Safe H2O, 65	SAFH2ORB65	214	6,N,2	182	6,6,N,2
Rural Access to Safe H2O, 70	SAFH2ORB70	220	6,N,2	188	6,6,N,2
Rural Access to Safe H2O, 75	SAFH2ORB75	226	6,N,2	194	6,6,N,2
Rural Access to Safe H2O, 80	SAFH2ORB80	232	6,N,2	200	6,6,N,2

continued . . .

Health and Vital Statistics (continued)

Polygon Attribute Table (cont.)

		dBASE Columns		INFO Items	
Item Description	**Item Name**	**Begin Column**	**Column Definition**	**Begin Column**	**Item Definition**
Rural Access to Safe H2O, 85	SAFH2ORB85	238	6,N,2	206	6,6,N,2
Rural Access to Safe H2O, 89	SAFH2ORB89	244	6,N,2	212	6,6,N,2
Preval. of Malnutrition, 65	P_MLNUTR65	250	6,N,2	218	6,6,N,2
Preval. of Malnutrition, 70	P_MLNUTR70	256	6,N,2	224	6,6,N,2
Preval. of Malnutrition, 75	P_MLNUTR75	262	6,N,2	230	6,6,N,2
Preval. of Malnutrition, 80	P_MLNUTR80	268	6,N,2	236	6,6,N,2
Preval. of Malnutrition, 85	P_MLNUTR85	274	6,N,2	242	6,6,N,2
Preval. of Malnutrition, 89	P_MLNUTR89	280	6,N,2	248	6,6,N,2
% GDP for Medical Care, 70	EXP_MED70	286	6,N,2	254	6,6,N,2
% GDP for Medical Care, 75	EXP_MED75	292	6,N,2	260	6,6,N,2
% GDP for Medical Care, 80	EXP_MED80	298	6,N,2	266	6,6,N,2
% GDP for Medical Care, 85	EXP_MED85	304	6,N,2	272	6,6,N,2
% GDP for Medical Care, 89	EXP_MED89	310	6,N,2	278	6,6,N,2
Doctors per Person, 65	POP_DOCT65	316	10,N,0	284	10,10,I
Doctors per Person, 70	POP_DOCT70	326	10,N,0	294	10,10,I
Doctors per Person, 75	POP_DOCT75	336	10,N,0	304	10,10,I
Doctors per Person, 80	POP_DOCT80	346	10,N,0	314	10,10,I
Doctors per Person, 85	POP_DOCT85	356	10,N,0	324	10,10,I
Doctors per Person, 89	POP_DOCT89	366	10,N,0	334	10,10,I
Nurses per Person, 65	POP_NURS65	376	10,N,0	344	10,10,I
Nurses per Person, 70	POP_NURS70	386	10,N,0	354	10,10,I
Nurses per Person, 75	POP_NURS75	396	10,N,0	364	10,10,I
Nurses per Person, 80	POP_NURS80	406	10,N,0	374	10,10,I
Nurses per Person, 85	POP_NURS85	416	10,N,0	384	10,10,I
Nurses per Person, 89	POP_NURS89	426	10,N,0	394	10,10,I
Hospital Beds per Person, 65	POP_HBED65	436	10,N,0	404	10,10,I
Hospital Beds per Person, 70	POP_HBED70	446	10,N,0	414	10,10,I
Hospital Beds per Person, 75	POP_HBED75	456	10,N,0	424	10,10,I
Hospital Beds per Person, 80	POP_HBED80	466	10,N,0	434	10,10,I
Hospital Beds per Person, 85	POP_HBED85	476	10,N,0	444	10,10,I
Hospital Beds per Person, 89	POP_HBED89	486	10,N,0	454	10,10,I
Crude Birth Rate, 65	BIR_RATE65	496	6,N,1	464	6,6,N,1
Crude Birth Rate, 70	BIR_RATE70	502	6,N,1	470	6,6,N,1
Crude Birth Rate, 75	BIR_RATE75	508	6,N,1	476	6,6,N,1
Crude Birth Rate, 80	BIR_RATE80	514	6,N,1	482	6,6,N,1
Crude Birth Rate, 85	BIR_RATE85	520	6,N,1	488	6,6,N,1

continued . . .

Health and Vital Statistics (continued)

Polygon Attribute Table (cont.)

		dBASE Columns		INFO Items	
Item Description	**Item Name**	**Begin Column**	**Column Definition**	**Begin Column**	**Item Definition**
Crude Birth Rate, 89	BIR_RATE89	526	6,N,1	494	6,6,N,1
Fertility Rate (per Woman), 65	FERTILTY65	532	6,N,2	500	6,6,N,2
Fertility Rate (per Woman), 70	FERTILTY70	538	6,N,2	506	6,6,N,2
Fertility Rate (per Woman), 75	FERTILTY75	544	6,N,2	512	6,6,N,2
Fertility Rate (per Woman), 80	FERTILTY80	550	6,N,2	518	6,6,N,2
Fertility Rate (per Woman), 85	FERTILTY85	556	6,N,2	524	6,6,N,2
Fertility Rate (per Woman), 89	FERTILTY89	562	6,N,2	530	6,6,N,2
Contraception Preval., 70	CONTRCPF70	568	6,N,2	536	6,6,N,2
Contraception Preval., 75	CONTRCPF75	574	6,N,2	542	6,6,N,2
Contraception Preval., 80	CONTRCPF80	580	6,N,2	548	6,6,N,2
Contraception Preval., 85	CONTRCPF85	586	6,N,2	554	6,6,N,2
Contraception Preval., 89	CONTRCPF89	592	6,N,2	560	6,6,N,2
Urban Child/Woman Ratio, 65	CHLD_W_U65	598	6,N,1	566	6,6,N,1
Urban Child/Woman Ratio, 70	CHLD_W_U70	604	6,N,1	572	6,6,N,1
Urban Child/Woman Ratio, 75	CHLD_W_U75	610	6,N,1	578	6,6,N,1
Urban Child/Woman Ratio, 80	CHLD_W_U80	616	6,N,1	584	6,6,N,1
Urban Child/Woman Ratio, 85	CHLD_W_U85	622	6,N,1	590	6,6,N,1
Urban Child/Woman Ratio, 89	CHLD_W_U89	628	6,N,1	596	6,6,N,1
Rural Child/Woman Ratio, 65	CHLD_W_R65	634	6,N,1	602	6,6,N,1
Rural Child/Woman Ratio, 70	CHLD_W_R70	640	6,N,1	608	6,6,N,1
Rural Child/Woman Ratio, 75	CHLD_W_R75	646	6,N,1	614	6,6,N,1
Rural Child/Woman Ratio, 80	CHLD_W_R80	652	6,N,1	620	6,6,N,1
Rural Child/Woman Ratio, 85	CHLD_W_R85	658	6,N,1	626	6,6,N,1
Rural Child/Woman Ratio, 89	CHLD_W_R89	664	6,N,1	632	6,6,N,1
Crude Death Rate, 65	DTH_RATE65	670	6,N,1	638	6,6,N,1
Crude Death Rate, 70	DTH_RATE70	676	6,N,1	644	6,6,N,1
Crude Death Rate, 75	DTH_RATE75	682	6,N,1	650	6,6,N,1
Crude Death Rate, 80	DTH_RATE80	688	6,N,1	656	6,6,N,1
Crude Death Rate, 85	DTH_RATE85	694	6,N,1	662	6,6,N,1
Crude Death Rate, 89	DTH_RATE89	700	6,N,1	668	6,6,N,1
Infant Mortality Rate, 65	INF_DTH65	706	6,N,2	674	6,6,N,2
Infant Mortality Rate, 70	INF_DTH70	712	6,N,2	680	6,6,N,2
Infant Mortality Rate, 75	INF_DTH75	718	6,N,2	686	6,6,N,2
Infant Mortality Rate, 80	INF_DTH80	724	6,N,2	692	6,6,N,2
Infant Mortality Rate, 85	INF_DTH85	730	6,N,2	698	6,6,N,2
Infant Mortality Rate, 89	INF_DTH89	736	6,N,2	704	6,6,N,2

continued . . .

Health and Vital Statistics (continued)

Polygon Attribute Table (cont.)

		dBASE Columns		INFO Items	
Item Description	Item Name	Begin Column	Column Definition	Begin Column	Item Definition
Under 5 Death Rate, 85	DTHUND5_85	742	6,N,2	710	6,6,N,2
Under 5 Death Rate, 89	DTHUND5_89	748	6,N,2	716	6,6,N,2
Life Expectancy (at birth), 65	LIFE_EXP65	754	6,N,2	722	6,6,N,2
Life Expectancy (at birth), 70	LIFE_EXP70	760	6,N,2	728	6,6,N,2
Life Expectancy (at birth), 75	LIFE_EXP75	766	6,N,2	734	6,6,N,2
Life Expectancy (at birth), 80	LIFE_EXP80	772	6,N,2	740	6,6,N,2
Life Expectancy (at birth), 85	LIFE_EXP85	778	6,N,2	746	6,6,N,2
Life Expectancy (at birth), 89	LIFE_EXP89	784	6,N,2	752	6,6,N,2
Life Expectancy (Females), 65	LIFEXP_F65	790	6,N,2	758	6,6,N,2
Life Expectancy (Females), 70	LIFEXP_F70	796	6,N,2	764	6,6,N,2
Life Expectancy (Females), 75	LIFEXP_F75	802	6,N,2	770	6,6,N,2
Life Expectancy (Females), 80	LIFEXP_F80	808	6,N,2	776	6,6,N,2
Life Expectancy (Females), 85	LIFEXP_F85	814	6,N,2	782	6,6,N,2
Life Expectancy (Females), 89	LIFEXP_F89	820	6,N,2	788	6,6,N,2

Arc Attribute Table

		dBASE Columns		INFO Items	
Item Description	Item Name	Begin Column	Column Definition	Begin Column	Item Definition
Boundary Type Code	TYPE	80	1,N,0	29	1,1,I
Boundary Type Name	BND_TYPE	81	10,C,0	30	10,10,C
Int. Boundary Status	BND_STATUS	91	1,N,0	40	1,1,I
Boundary Coincidence	BND_COINC	92	1,N,0	41	1,1,I
Adjoining Country 1 Code	COUNTRY1	93	2,C,0	42	2,2,C
Adjoining Country 2 Code	COUNTRY2	95	2,C,0	44	2,2,C
Adjoining Country Names	CNTRY_NAME	97	41,C,0	46	41,41,C
Adjoining Region Abbrev.	REGION	138	9,C,0	87	9,9,C
Adjoining Continent Abbrev.	CONTINENT	147	7,C,0	96	7,7,C

Labor Force Characteristics

Coverage Names: LABOR
Layer Type: Polygon and Line

Polygon Attribute Table

		dBASE Columns		INFO Items	
		Begin	Column	Begin	Item
Item Description	**Item Name**	**Column**	**Definition**	**Column**	**Definition**
Country FIPS Code	COUNTRY	49	2,C,0	17	2,2,C
Country Name	CNTRY_NAME	51	40,C,0	19	40,40,C
World Region Name	REGION	91	21,C,0	59	21,21,C
Continent Name	CONTINENT	112	13,C,0	80	13,13,C
Land/Water Identifier	LAND_OCEAN	125	9,C,0	93	9,9,C
Island Carto. Display Rank	ISLND_RANK	134	1,N,0	102	1,1,I
Statistical Flag	STAT_FLAG	135	1,N,0	103	1,1,I
European Econ. Community	EEC	136	1,N,0	104	1,1,I
Food and Agriculture Org.	FAO	137	1,N,0	105	1,1,I
UN General Assembly	GA	138	1,N,0	106	1,1,I
UN Gen. Assembly (year)	GA_MEMB_YR	139	4,N,0	107	4,4,I
Int. Atomic Energy Agency	IAEA	143	1,N,0	111	1,1,I
Int. Recon. Dev. (World Bank)	IBRD	144	1,N,0	112	1,1,I
Int. Monetary Fund	IMF	145	1,N,0	113	1,1,I
Org. of Petrol. Exp. Countries	OPEC	146	1,N,0	114	1,1,I
United Nations Sec. Council	SC	147	1,N,0	115	1,1,I
UN Ed., Sci. and Cult. Org.	UNESCO	148	1,N,0	116	1,1,I
World Health Organization	WHO	149	1,N,0	117	1,1,I
World Meteorological Orga.	WMO	150	1,N,0	118	1,1,I
World Bank Country Code	WB_CNTRY	151	3,C,0	119	3,3,C
Total Labor Force, 65	LABORFOR65	154	10,N,0	122	10,10,I
Total Labor Force, 70	LABORFOR70	164	10,N,0	132	10,10,I
Total Labor Force, 75	LABORFOR75	174	10,N,0	142	10,10,I
Total Labor Force, 80	LABORFOR80	184	10,N,0	152	10,10,I
Total Labor Force, 85	LABORFOR85	194	10,N,0	162	10,10,I
Total Labor Force, 89	LABORFOR89	204	10,N,0	172	10,10,I
% of Labor Force in Agri., 65	P_AGRIC65	214	13,N,6	182	4,8,F,2
% of Labor Force in Agri., 70	P_AGRIC70	227	13,N,6	186	4,8,F,2
% of Labor Force in Agri., 75	P_AGRIC75	240	13,N,6	190	4,8,F,2
% of Labor Force in Agri., 80	P_AGRIC80	253	13,N,6	194	4,8,F,2
% of Labor Force in Agri., 85	P_AGRIC85	266	13,N,6	198	4,8,F,2
% of Labor Force in Agri., 89	P_AGRIC89	279	13,N,6	202	4,8,F,2
% Labor Force in Indust., 65	P_INDUS65	292	13,N,6	206	4,8,F,2
% Labor Force in Indust., 70	P_INDUS70	305	13,N,6	210	4,8,F,2

continued . . .

Labor Force Characteristics (continued)

Polygon Attribute Table (cont.)

		dBASE Columns		INFO Items	
Item Description	Item Name	Begin Column	Column Definition	Begin Column	Item Definition
% Labor Force in Indust., 75	P_INDUS75	318	13,N,6	214	4,8,F,2
% Labor Force in Indust., 80	P_INDUS80	331	13,N,6	218	4,8,F,2
% Labor Force in Indust., 85	P_INDUS85	344	13,N,6	222	4,8,F,2
% Labor Force in Indust., 89	P_INDUS89	357	13,N,6	226	4,8,F,2
% of Labor Force, Female, 65	P_FEMALE65	370	6,N,2	230	6,6,N,2
% of Labor Force, Female, 70	P_FEMALE70	376	6,N,2	236	6,6,N,2
% of Labor Force, Female, 75	P_FEMALE75	382	6,N,2	242	6,6,N,2
% of Labor Force, Female, 80	P_FEMALE80	388	6,N,2	248	6,6,N,2
% of Labor Force, Female, 85	P_FEMALE85	394	6,N,2	254	6,6,N,2
% of Labor Force, Female, 89	P_FEMALE89	400	6,N,2	260	6,6,N,2
Urban Female/Male Ratios, 65	FEM_URB65	406	6,N,1	266	6,6,N,1
Urban Female/Male Ratios, 70	FEM_URB70	412	6,N,1	272	6,6,N,1
Urban Female/Male Ratios, 75	FEM_URB75	418	6,N,1	278	6,6,N,1
Urban Female/Male Ratios, 80	FEM_URB80	424	6,N,1	284	6,6,N,1
Urban Female/Male Ratios, 85	FEM_URB85	430	6,N,1	290	6,6,N,1
Urban Female/Male Ratios, 89	FEM_URB89	436	6,N,1	296	6,6,N,1
Rural Female/Male Ratios, 65	FEM_RUR65	442	6,N,1	302	6,6,N,1
Rural Female/Male Ratios, 70	FEM_RUR70	448	6,N,1	308	6,6,N,1
Rural Female/Male Ratios, 75	FEM_RUR75	454	6,N,1	314	6,6,N,1
Rural Female/Male Ratios, 80	FEM_RUR80	460	6,N,1	320	6,6,N,1
Rural Female/Male Ratios, 85	FEM_RUR85	466	6,N,1	326	6,6,N,1
Rural Female/Male Ratios, 89	FEM_RUR89	472	6,N,1	332	6,6,N,1
Labor Participation Rate, 65	PARTICIP65	478	6,N,2	338	6,6,N,2
Labor Participation Rate, 70	PARTICIP70	484	6,N,2	344	6,6,N,2
Labor Participation Rate, 75	PARTICIP75	490	6,N,2	350	6,6,N,2
Labor Participation Rate, 80	PARTICIP80	496	6,N,2	356	6,6,N,2
Labor Participation Rate, 85	PARTICIP85	502	6,N,2	362	6,6,N,2
Labor Participation Rate, 89	PARTICIP89	508	6,N,2	368	6,6,N,2
Female Labor Part. Rate, 65	PARTCP_F65	514	6,N,2	374	6,6,N,2
Female Labor Part. Rate, 70	PARTCP_F70	520	6,N,2	380	6,6,N,2
Female Labor Part. Rate, 75	PARTCP_F75	526	6,N,2	386	6,6,N,2
Female Labor Part. Rate, 80	PARTCP_F80	532	6,N,2	392	6,6,N,2
Female Labor Part. Rate, 85	PARTCP_F85	538	6,N,2	398	6,6,N,2
Female Labor Part. Rate, 89	PARTCP_F89	544	6,N,2	404	6,6,N,2

Labor Force Characteristics (continued)

Arc Attribute Table

		dBASE Columns		INFO Items	
		Begin Column	**Column Definition**	**Begin Column**	**Item Definition**
Item Description	**Item Name**				
Boundary Type Code	TYPE	80	1,N,0	29	1,1,I
Boundary Type Name	BND_TYPE	81	10,C,0	30	10,10,C
Int. Boundary Status	BND_STATUS	91	1,N,0	40	1,1,I
Boundary Coincidence	BND_COINC	92	1,N,0	41	1,1,I
Adjoining Country 1 Code	COUNTRY1	93	2,C,0	42	2,2,C
Adjoining Country 2 Code	COUNTRY2	95	2,C,0	44	2,2,C
Adjoining Country Names	CNTRY_NAME	97	41,C,0	46	41,41,C
Adjoining Region Abbrev.	REGION	138	9,C,0	87	9,9,C
Adjoining Continent Abbrev.	CONTINENT	147	7,C,0	96	7,7,C

Natural Resources and the Environment

Coverage Names: WRI_3M
Layer Type: Polygon and Line

Polygon Attribute Table

		dBASE Columns		INFO Items	
Item Description	**Item Name**	**Begin Column**	**Column Definition**	**Begin Column**	**Item Definition**
Country FIPS Code	COUNTRY	49	2,C,0	17	2,2,C
Country Name	CNTRY_NAME	51	40,C,0	19	40,40,C
World Region Name	REGION	91	21,C,0	59	21,21,C
Continent Name	CONTINENT	112	13,C,0	80	13,13,C
Land/Water Identifier	LAND_OCEAN	125	9,C,0	93	9,9,C
Island Carto. Display Rank	ISLND_RANK	134	1,N,0	102	1,1,I
Statistical Flag	STAT_FLAG	135	1,N,0	103	1,1,I
European Econ. Community	EEC	136	1,N,0	104	1,1,I
Food and Agriculture Org.	FAO	137	1,N,0	105	1,1,I
UN General Assembly	GA	138	1,N,0	106	1,1,I
UN Gen. Assembly (year)	GA_MEMB_YR	139	4,N,0	107	4,4,I
Int. Atomic Energy Agency	IAEA	143	1,N,0	111	1,1,I
Int. Recon. Dev. (World Bank)	IBRD	144	1,N,0	112	1,1,I
Int. Monetary Fund	IMF	145	1,N,0	113	1,1,I
Org. of Petrol. Exp. Countries	OPEC	146	1,N,0	114	1,1,I
United Nations Sec. Council	SC	147	1,N,0	115	1,1,I
UN Ed., Sci. and Cult. Org.	UNESCO	148	1,N,0	116	1,1,I
World Health Organization	WHO	149	1,N,0	117	1,1,I
World Meteorological Orga.	WMO	150	1,N,0	118	1,1,I
World Res. Inst. Country Code	WRI_CNTRY	151	2,C,0	119	2,2,C
Agri. percentage of GDP	P_AGGDPR88	153	10,N,2	121	10,10,N,2
Indust. percentage of GDP	P_INDGDP88	163	10,N,2	131	10,10,N,2
Services, % of GDP	P_SERGDP88	173	10,N,2	141	10,10,N,2
Govt. Expenditure % of GDP	P_GVTGDP89	183	10,N,2	151	10,10,N,2
Govt. Expenditure per Capita	GVT_CAP89	193	10,N,2	161	10,10,N,2
Govt. Expenditure for Defense	GVDEFENS89	203	10,N,2	171	10,10,N,2
Govt. Expend. for Education	GVEDUCAT89	213	10,N,2	181	10,10,N,2
Govt. Expenditure for Health	GVHEALTH89	223	10,N,2	191	10,10,N,2
Gov. Exp. SocS/Welf./Houses	GVWLFHSE89	233	10,N,2	201	10,10,N,2
Govt. Exp. Recrea/Cult/Relig	GVRECCLR89	243	10,N,2	211	10,10,N,2
Gov. Exp. Agr/For./Fish/Hunt	GVAGFORF89	253	10,N,2	221	10,10,N,2
Gov. Exp. for Trans./Comm.	GVTRNCOM89	263	10,N,2	231	10,10,N,2
Availabil. Safe Urban Water	SAFH2OUR88	273	10,N,2	241	10,10,N,2
Availabil. Safe Rural Water	SAFH2ORR88	283	10,N,2	251	10,10,N,2

continued . . .

Natural Resources and the Environment (continued)

Polygon Attribute Table (cont.)

		dBASE Columns		INFO Items	
Item Description	Item Name	Begin Column	Column Definition	Begin Column	Item Definition
Available Urban Sanitation	SANITATU80	293	10,N,2	261	10,10,N,2
Available Rural Sanitation	SANITATR80	303	10,N,2	271	10,10,N,2
Available Health Services	HLTHSERV88	313	10,N,2	281	10,10,N,2
% Females Finishing Prim Schl	PRIMRY_F89	323	10,N,2	291	10,10,N,2
% Male Finishing Primary Schl	PRIMRY_M89	333	10,N,2	301	10,10,N,2
% Fem. with Some Second Schl	POSTSECF89	343	10,N,2	311	10,10,N,2
% Male with Some Second Schl	POSTSECM89	353	10,N,2	321	10,10,N,2
% Oral Rehydro/Diarrhea Use	ORTUSE_R88	363	10,N,2	331	10,10,N,2
% TB Immunized (age 1 year)	IMMUN_TB90	373	10,N,2	341	10,10,N,2
% DPT Immunized (age 1 year)	IM_DPT90	383	10,N,2	351	10,10,N,2
% Polio Immunized (age 1 year)	IM_POLIO90	393	10,N,2	361	10,10,N,2
% Measles Immun. (age 1 year)	IM_MEASL90	403	10,N,2	371	10,10,N,2
Couples Using Birth Control	CONTRCEP89	413	10,N,2	381	10,10,N,2
Percent of Wilderness Area	WILDERNS88	423	10,N,2	391	10,10,N,2
Persons per Household	HHLDSIZR86	433	10,N,2	401	10,10,N,2
Non-Electric Households	HHWOELEC82	443	10,N,2	411	10,10,N,2
Total Roads per 1K sq. km	TOTROADS89	453	10,N,2	421	10,10,N,2
Paved Roads per 1K sq. km	PAVEDRDS89	463	10,N,2	431	10,10,N,2
Number of Public Airports	AIRPORTS89	473	10,N,2	441	10,10,N,2
Amount of Cropland	CROPLAND89	483	10,N,2	451	10,10,N,2
Annual Fertilizer Use	FERTILZE89	493	10,N,2	461	10,10,N,2
Cereal Food Aid Received	AIDCERLR89	503	10,N,2	471	10,10,N,2
Land with "No Soil Limits"	NOSOILCN89	513	10,N,2	481	10,10,N,2
Total Closed Forest Area	CLOSEFOR80	523	10,N,2	491	10,10,N,2
Total Open Forest Area	OPENFOR80	533	10,N,2	501	10,10,N,2
Total Forest Plantation Area	PLANTATN80	543	10,N,2	511	10,10,N,2
Total Other Wooded Area	OTHWOODS80	553	10,N,2	521	10,10,N,2
Annual Deforest/Closed Forest	DEFORCLO85	563	10,N,2	531	10,10,N,2
% Deforested/Closed Forest	P_DEFCLO85	573	10,N,2	541	10,10,N,2
Annual Deforest/Total Forest	DEFORTOT85	583	10,N,2	551	10,10,N,2
% Deforested/Total Forest	P_DEFTOT85	593	10,N,2	561	10,10,N,2
Most Recent Deforested Est.	ESTDEFOR89	603	10,N,2	571	10,10,N,2
Reforestation Area	REFOREST85	613	10,N,2	581	10,10,N,2
Managed Closed Forest Area	MANGCLOF80	623	10,N,2	591	10,10,N,2
Protected Closed Forest Area	PROTCLOF80	633	10,N,2	601	10,10,N,2
% National Land Protected	P_PROTLN90	643	10,N,2	611	10,10,N,2
No. Marine/Coastal Protected	PRMARINE90	653	10,N,2	621	10,10,N,2

continued . . .

Natural Resources and the Environment (continued)

Polygon Attribute Table (cont.)

		dBASE Columns		INFO Items	
Item Description	**Item Name**	**Begin Column**	**Column Definition**	**Begin Column**	**Item Definition**
Area Marine/Coastal Protected	PRMARN_A90	663	10,N,2	631	10,10,N,2
No. of Biosphere Reserves	BIORESRV90	673	10,N,2	641	10,10,N,2
Area of Biosphere Reserves	BIORES_A90	683	10,N,2	651	10,10,N,2
No. Intnl. Significant Wetlands	WETLANDS90	693	10,N,2	661	10,10,N,2
Area. Intnl. Signif. Wetlands	WETLND_A90	703	10,N,2	671	10,10,N,2
No. Known Mammal Species	MAMLSPEC90	713	10,N,2	681	10,10,N,2
No. Endangered Mam. Species	MAMLTHRT89	723	10,N,2	691	10,10,N,2
No. of Known Bird Spec.	BIRDSPEC89	733	10,N,2	701	10,10,N,2
No. Endangered Bird Spec.	BIRDTHRT89	743	10,N,2	711	10,10,N,2
No. of Known Reptile Spec.	REPTSPEC89	753	10,N,2	721	10,10,N,2
No. Endangered Reptile Spec.	REPTTHRT89	763	10,N,2	731	10,10,N,2
No. of Known Amphib. Spec.	AMPHSPEC89	773	10,N,2	741	10,10,N,2
No. Endang Amphibian Spec	AMPHTHRT89	783	10,N,2	751	10,10,N,2
No. Known Fresh. Fish Spec	FFSHSPEC89	793	10,N,2	761	10,10,N,2
No. Endanger Fresh. Fish Sp.	FFSHTHRT89	803	10,N,2	771	10,10,N,2
Number of Known Plant Tax	PLANTAXA91	813	10,N,2	781	10,10,N,2
Percentage of Endemic Flora	P_ENDMFL91	823	10,N,2	791	10,10,N,2
Number Endang. Plant Taxa.	PLANTHRT91	833	10,N,2	801	10,10,N,2
No. Threatened Plants/1k Taxa.	PLTHR_1K91	843	10,N,2	811	10,10,N,2
Threat Plant Taxa/1K sq. km	PLTHR_KM91	853	10,N,2	821	10,10,N,2
Energy Production/Solid Fuel	PROD_SOL89	863	10,N,2	831	10,10,N,2
Energy Product./Liquid Fuel	PROD_LIQ89	873	10,N,2	841	10,10,N,2
Energy Product./Gaseous Fuel	PROD_GAS89	883	10,N,2	851	10,10,N,2
Energy Prod./Geotherm./Wind	PRDGEOWN89	893	10,N,2	861	10,10,N,2
Energy Production/Hydro	PRDHYDRO89	903	10,N,2	871	10,10,N,2
Energy Production/Nuclear	PRDNUCLR89	913	10,N,2	881	10,10,N,2
Energy Production/Total	PROD_TOT89	923	10,N,2	891	10,10,N,2
Total Energy Consumption	CONS_TOT89	933	10,N,2	901	10,10,N,2
Enrg. Consump. Cons. 87$	CONS_87_89	943	10,N,2	911	10,10,N,2
Energy Imports/% of Consump.	ENRG_IMP89	953	10,N,2	921	10,10,N,2
Traditional Fuels Consumption	TRFLCONS89	963	10,N,2	931	10,10,N,2
Trad. Fuels/% of Total Required	P_TRFUEL89	973	10,N,2	941	10,10,N,2
Indust. Energy Inten. (joules/$)	ENRINTIN89	983	10,N,2	951	10,10,N,2
Agri. Energy Inten. (joules/$)	ENRINTAG89	993	10,N,2	961	10,10,N,2
Annual Urban Waste per Capita	MUNWASTE89	1003	10,N,2	971	10,10,N,2
Avg. Annual Marine Catch	MRNCATCH89	1013	10,N,2	981	10,10,N,2
Total Aquaculture Production	AQCULTPR89	1023	10,N,2	991	10,10,N,2

continued . . .

Natural Resources and the Environment (continued)

Polygon Attribute Table (cont.)

		dBASE Columns		INFO Items	
Item Description	**Item Name**	**Begin Column**	**Column Definition**	**Begin Column**	**Item Definition**
Fish % Food Supply/per Capita	FOODFISH88	1033	10,N,2	1001	10,10,N,2
Ind. CO2 Emis. - Sol. Fuels	CO2_SOL89	1043	10,N,2	1011	10,10,N,2
CO2 Emissions - Liquid Fuels	CO2_LIQ89	1053	10,N,2	1021	10,10,N,2
Ind. CO2 Emis. - Gas Fuels	CO2_GAS89	1063	10,N,2	1031	10,10,N,2
CO2 Emissions - Gas Flarings	CO2GASFL89	1073	10,N,2	1041	10,10,N,2
CO2 Emissions - Cement Mfg.	CO2CEMNT89	1083	10,N,2	1051	10,10,N,2
Ind. CO2 Emissions - Total	CO2_TOT70	1093	10,N,2	1061	10,10,N,2
Ind. CO2 Emissions - per Cap.	CO2_CAP89	1103	10,N,2	1071	10,10,N,2
CO2 Emissions - Deforestation	CO2DEFOR89	1113	10,N,2	1081	10,10,N,2
Total Methane Emissions	METHANE89	1123	10,N,2	1091	10,10,N,2
Total CFC Emissions	CFC89	1133	10,N,2	1101	10,10,N,2
Sulphur Dioxide Emissions	SO2_89	1143	10,N,2	1111	10,10,N,2

Arc Attribute Table

		dBASE Columns		INFO Items	
Item Description	**Item Name**	**Begin Column**	**Column Definition**	**Begin Column**	**Item Definition**
Boundary Type Code	TYPE	80	1,N,0	29	1,1,I
Boundary Type Name	BND_TYPE	81	10,C,0	30	10,10,C
Int. Boundary Status	BND_STATUS	91	1,N,0	40	1,1,I
Boundary Coincidence	BND_COINC	92	1,N,0	41	1,1,I
Adjoining Country 1 Code	COUNTRY1	93	2,C,0	42	2,2,C
Adjoining Country 2 Code	COUNTRY2	95	2,C,0	44	2,2,C
Adjoining Country Names	CNTRY_NAME	97	41,C,0	46	41,41,C
Adjoining Region Abbrev.	REGION	138	9,C,0	87	9,9,C
Adjoining Continent Abbrev.	CONTINENT	147	7,C,0	96	7,7,C

Population Characteristics

Coverage Name: POP_GEO
Layer Type: Polygon and Line

Polygon Attribute Table

Item Description	Item Name	dBASE Columns Begin Column	dBASE Columns Column Definition	INFO Items Begin Column	INFO Items Item Definition
Country FIPS Code	COUNTRY	49	2,C,0	17	2,2,C
Country Name	CNTRY_NAME	51	40,C,0	19	40,40,C
World Region Name	REGION	91	21,C,0	59	21,21,C
Continent Name	CONTINENT	112	13,C,0	80	13,13,C
Land/Water Identifier	LAND_OCEAN	125	9,C,0	93	9,9,C
Island Carto. Display Rank	ISLND_RANK	134	1,N,0	102	1,1,I
Statistical Flag	STAT_FLAG	135	1,N,0	103	1,1,I
European Econ. Community	EEC	136	1,N,0	104	1,1,I
Food and Agriculture Org.	FAO	137	1,N,0	105	1,1,I
UN General Assembly	GA	138	1,N,0	106	1,1,I
UN Gen. Assembly (year)	GA_MEMB_YR	139	4,N,0	107	4,4,I
Int. Atomic Energy Agency	IAEA	143	1,N,0	111	1,1,I
Int. Recon. Dev. (World Bank)	IBRD	144	1,N,0	112	1,1,I
Int. Monetary Fund	IMF	145	1,N,0	113	1,1,I
Org. of Petrol. Exp. Countries	OPEC	146	1,N,0	114	1,1,I
United Nations Sec. Council	SC	147	1,N,0	115	1,1,I
UN Ed., Sci. and Cult. Org.	UNESCO	148	1,N,0	116	1,1,I
World Health Organization	WHO	149	1,N,0	117	1,1,I
World Meteorological Orga.	WMO	150	1,N,0	118	1,1,I
World Bank Country Code	WB_CNTRY	151	3,C,0	119	3,3,C
Total Population, 65	TOTPOP65	154	13,N,0	122	13,13,I
Total Population, 70	TOTPOP70	167	13,N,0	135	13,13,I
Total Population, 75	TOTPOP75	180	13,N,0	148	13,13,I
Total Population, 80	TOTPOP80	193	13,N,0	161	13,13,I
Total Population, 85	TOTPOP85	206	13,N,0	174	13,13,I
Total Population, 89	TOTPOP89	219	13,N,0	187	13,13,I
% Pop. Ages 0 to 14 Yrs., 65	P_0_14_65	232	6,N,2	200	6,6,N,2
% Pop. Ages 0 to 14 Yrs., 70	P_0_14_70	238	6,N,2	206	6,6,N,2
% Pop. Ages 0 to 14 Yrs., 75	P_0_14_75	244	6,N,2	212	6,6,N,2
% Pop. Ages 0 to 14 Yrs., 80	P_0_14_80	250	6,N,2	218	6,6,N,2
% Pop. Ages 0 to 14 Yrs., 85	P_0_14_85	256	6,N,2	224	6,6,N,2
% Pop. Ages 0 to 14 Yrs., 89	P_0_14_89	262	6,N,2	230	6,6,N,2
% Pop. Ages 15 to 64 Yrs., 65	P_15_64_65	268	6,N,2	236	6,6,N,2
% Pop. Ages 15 to 64 Yrs., 70	P_15_64_70	274	6,N,2	242	6,6,N,2

continued . . .

Population Characteristics (continued)

Polygon Attribute Table (cont.)

		dBASE Columns		INFO Items	
Item Description	**Item Name**	**Begin Column**	**Column Definition**	**Begin Column**	**Item Definition**
% Pop. Ages 15 to 64 Yrs., 75	P_15_64_75	280	6,N,2	248	6,6,N,2
% Pop. Ages 15 to 64 Yrs., 80	P_15_64_80	286	6,N,2	254	6,6,N,2
% Pop. Ages 15 to 64 Yrs., 85	P_15_64_85	292	6,N,2	260	6,6,N,2
% Pop. Ages 15 to 64 Yrs., 89	P_15_64_89	298	6,N,2	266	6,6,N,2
Age Dependency Ratio, 65	AGERATIO65	304	6,N,2	272	6,6,N,2
Age Dependency Ratio, 70	AGERATIO70	310	6,N,2	278	6,6,N,2
Age Dependency Ratio, 75	AGERATIO75	316	6,N,2	284	6,6,N,2
Age Dependency Ratio, 80	AGERATIO80	322	6,N,2	290	6,6,N,2
Age Dependency Ratio, 85	AGERATIO85	328	6,N,2	296	6,6,N,2
Age Dependency Ratio, 89	AGERATIO89	334	6,N,2	302	6,6,N,2
Urban Population (percent), 65	P_URBAN65	340	6,N,2	308	6,6,N,2
Urban Population (percent), 70	P_URBAN70	346	6,N,2	314	6,6,N,2
Urban Population (percent), 75	P_URBAN75	352	6,N,2	320	6,6,N,2
Urban Population (percent), 80	P_URBAN80	358	6,N,2	326	6,6,N,2
Urban Population (percent), 85	P_URBAN85	364	6,N,2	332	6,6,N,2
Urban Population (percent), 89	P_URBAN89	370	6,N,2	338	6,6,N,2
Female/100 Males (Urban), 65	FEM_URB65	376	6,N,1	344	6,6,N,1
Female/100 Males (Urban), 70	FEM_URB70	382	6,N,1	350	6,6,N,1
Female/100 Males (Urban), 75	FEM_URB75	388	6,N,1	356	6,6,N,1
Female/100 Males (Urban), 80	FEM_URB80	394	6,N,1	362	6,6,N,1
Female/100 Males (Urban), 85	FEM_URB85	400	6,N,1	368	6,6,N,1
Female/100 Males (Urban), 89	FEM_URB89	406	6,N,1	374	6,6,N,1
Female/100 Males (Rural), 65	FEM_RUR65	412	6,N,1	380	6,6,N,1
Female/100 Males (Rural), 70	FEM_RUR70	418	6,N,1	386	6,6,N,1
Female/100 Males (Rural), 75	FEM_RUR75	424	6,N,1	392	6,6,N,1
Female/100 Males (Rural), 80	FEM_RUR80	430	6,N,1	398	6,6,N,1
Female/100 Males (Rural), 85	FEM_RUR85	436	6,N,1	404	6,6,N,1
Female/100 Males (Rural), 89	FEM_RUR89	442	6,N,1	410	6,6,N,1
Annual Pop. Growth Rate, 65	GRW_RATE65	448	6,N,2	416	6,6,N,2
Annual Pop. Growth Rate, 70	GRW_RATE70	454	6,N,2	422	6,6,N,2
Annual Pop. Growth Rate, 75	GRW_RATE75	460	6,N,2	428	6,6,N,2
Annual Pop. Growth Rate, 80	GRW_RATE80	466	6,N,2	434	6,6,N,2
Annual Pop. Growth Rate, 85	GRW_RATE85	472	6,N,2	440	6,6,N,2
Annual Pop. Growth Rate, 89	GRW_RATE89	478	6,N,2	446	6,6,N,2
Urban Pop. Growth Rate, 65	URBGRWRT65	484	6,N,2	452	6,6,N,2
Urban Pop. Growth Rate, 70	URBGRWRT70	490	6,N,2	458	6,6,N,2
Urban Pop. Growth Rate, 75	URBGRWRT75	496	6,N,2	464	6,6,N,2

continued . . .

Population Characteristics (continued)

Polygon Attribute Table (cont.)

| | | dBASE Columns | | INFO Items | |
| | | Begin Column | Column Definition | Begin Column | Item Definition |
Item Description	Item Name				
Urban Pop. Growth Rate, 80	URBGRWRT80	502	6,N,2	470	6,6,N,2
Urban Pop. Growth Rate, 85	URBGRWRT85	508	6,N,2	476	6,6,N,2
Urban Pop. Growth Rate, 89	URBGRWRT89	514	6,N,2	482	6,6,N,2
Urb./Rural Grwth. Different, 65	U_R_DIFF65	520	6,N,1	488	6,6,N,1
Urb./Rural Grwth. Different, 70	U_R_DIFF70	526	6,N,1	494	6,6,N,1
Urb./Rural Grwth. Different, 75	U_R_DIFF75	532	6,N,1	500	6,6,N,1
Urb./Rural Grwth. Different, 80	U_R_DIFF80	538	6,N,1	506	6,6,N,1
Urb./Rural Grwth. Different, 85	U_R_DIFF85	544	6,N,1	512	6,6,N,1
Urb./Rural Grwth. Different, 89	U_R_DIFF89	550	6,N,1	518	6,6,N,1
Project Year 2000 Population	POP2000_89	556	13,N,0	524	13,13,I
Stationary Population Size	STATPOP89	569	13,N,0	537	13,13,I
Total Land Area, 65	LANDAREA65	582	10,N,0	550	10,10,I
Total Land Area, 70	LANDAREA70	592	10,N,0	560	10,10,I
Total Land Area, 75	LANDAREA75	602	10,N,0	570	10,10,I
Total Land Area, 80	LANDAREA80	612	10,N,0	580	10,10,I
Total Land Area, 85	LANDAREA85	622	10,N,0	590	10,10,I
Total Land Area, 89	LANDAREA89	632	10,N,0	600	10,10,I
Pop. Density (sq. km), 65	POPDNSTY65	642	13,N,2	610	13,13,N,2
Pop. Density (sq. km), 70	POPDNSTY70	655	13,N,2	623	13,13,N,2
Pop. Density (sq. km), 75	POPDNSTY75	668	13,N,2	636	13,13,N,2
Pop. Density (sq. km), 80	POPDNSTY80	681	13,N,2	649	13,13,N,2
Pop. Density (sq. km), 85	POPDNSTY85	694	13,N,2	662	13,13,N,2
Pop. Density (sq. km), 89	POPDNSTY89	707	13,N,2	675	13,13,N,2
Average Household Size, 65	HHLDSIZE65	720	6,N,2	688	6,6,N,2
Average Household Size, 70	HHLDSIZE70	726	6,N,2	694	6,6,N,2
Average Household Size, 75	HHLDSIZE75	732	6,N,2	700	6,6,N,2
Average Household Size, 80	HHLDSIZE80	738	6,N,2	706	6,6,N,2
Average Household Size, 85	HHLDSIZE85	744	6,N,2	712	6,6,N,2
Average Household Size, 89	HHLDSIZE89	750	6,N,2	718	6,6,N,2
Avg. Urban Household Size, 65	HHLDSIZE_U65	756	6,N,2	724	6,6,N,2
Avg. Urban Household Size, 70	HHLDSIZE_U70	762	6,N,2	730	6,6,N,2
Avg. Urban Household Size, 75	HHLDSIZE_U75	768	6,N,2	736	6,6,N,2
Avg. Urban Household Size, 80	HHLDSIZE_U80	774	6,N,2	742	6,6,N,2
Avg. Urban Household Size, 85	HHLDSIZE_U85	780	6,N,2	748	6,6,N,2
Avg. Urban Household Size, 89	HHLDSIZE_U89	786	6,N,2	754	6,6,N,2

Population Characteristics (continued)

Arc Attribute Table

		dBASE Columns		INFO Items	
Item Description	**Item Name**	**Begin Column**	**Column Definition**	**Begin Column**	**Item Definition**
Boundary Type Code	TYPE	80	1,N,0	29	1,1,I
Boundary Type Name	BND_TYPE	81	10,C,0	30	10,10,C
Int. Boundary Status	BND_STATUS	91	1,N,0	40	1,1,I
Boundary Coincidence	BND_COINC	92	1,N,0	41	1,1,I
Adjoining Country 1 Code	COUNTRY1	93	2,C,0	42	2,2,C
Adjoining Country 2 Code	COUNTRY2	95	2,C,0	44	2,2,C
Adjoining Country Names	CNTRY_NAME	97	41,C,0	46	41,41,C
Adjoining Region Abbrev.	REGION	138	9,C,0	87	9,9,C
Adjoining Continent Abbrev.	CONTINENT	147	7,C,0	96	7,7,C

Country Boundaries

Coverage Name: CTRY25M
Layer Type: Polygon and Line

Polygon Attribute Table

		dBASE Columns		INFO Items	
Item Description	Item Name	Begin Column	Column Definition	Begin Column	Item Definition
Country FIPS Code	COUNTRY	49	2,C,0	17	2,2,C
Country Name	CNTRY_NAME	51	40,C,0	19	40,40,C
World Region Name	REGION	91	21,C,0	59	21,21,C
Continent Name	CONTINENT	112	13,C,0	80	13,13,C
Land/Water Identifier	LAND_OCEAN	125	9,C,0	93	9,9,C
Island Carto. Display Rank	ISLND_RANK	134	1,N,0	102	1,1,I
Statistical Flag	STAT_FLAG	135	1,N,0	103	1,1,I
European Econ. Community	EEC	136	1,N,0	104	1,1,I
Food and Agriculture Org.	FAO	137	1,N,0	105	1,1,I
UN General Assembly	GA	138	1,N,0	106	1,1,I
UN Gen. Assembly (year)	GA_MEMB_YR	139	4,N,0	107	4,4,I
Int. Atomic Energy Agency	IAEA	143	1,N,0	111	1,1,I
Int. Recon. Dev. (World Bank)	IBRD	144	1,N,0	112	1,1,I
Internat. Monetary Fund	IMF	145	1,N,0	113	1,1,I
Org. of Petrol. Exp. Countries	OPEC	146	1,N,0	114	1,1,I
United Nations Sec. Council	SC	147	1,N,0	115	1,1,I
UN Ed., Sci. and Cult. Org.	UNESCO	148	1,N,0	116	1,1,I
World Health Organization	WHO	149	1,N,0	117	1,1,I
World Meteorological Orga.	WMO	150	1,N,0	118	1,1,I

Annotation: Country names

Arc Attribute Table

		dBASE Columns		INFO Items	
Item Description	Item Name	Begin Column	Column Definition	Begin Column	Item Definition
Boundary Type Code	TYPE	80	1,N,0	29	1,1,I
Boundary Type Name	BND_TYPE	81	10,C,0	30	10,10,C
Int. Boundary Status	BND_STATUS	91	1,N,0	40	1,1,I
Adjoining Country 1 Code	COUNTRY1	92	2,C,0	41	2,2,C
Adjoining Country 2 Code	COUNTRY2	94	2,C,0	43	2,2,C
Adjoining Country Names	CNTRY_NAME	96	41,C,0	45	41,41,C
Adjoining Region Abbrev.	REGION	137	9,C,0	86	9,9,C
Adjoining Continent Abbrev.	CONTINENT	146	7,C,0	95	7,7,C

Latitude/Longitude Grid

Coverage Names: LTLG20, LTLG_BR
Layer Type: Line

Arc Attribute Table

		dBASE Columns		INFO Items	
Item Description	**Item Name**	**Begin Column**	**Column Definition**	**Begin Column**	**Item Definition**
Latitude	LATITUDE	80	4,C,0	29	4,4,C
Longitude	LONGITUDE	84	4,C,0	33	4,4,C
Land/Water Indicator	LAND_WATER	88	1,N,0	37	1,1,I

Major Cities

Coverage Name: CITY25M, CITY_BR (Note that some attributes in the table below are not present in CITY_BR, so the begin columns will not be the same.)
Layer Type: Point

Point Attribute Table

		dBASE Columns		INFO Items	
Item Description	**Item Name**	**Begin Column**	**Column Definition**	**Begin Column**	**Item Definition**
City Name (English)	NAME	49	40,C,0	17	40,40,C
Capital City Flag	CAPITAL	89	1,N,0	57	1,1,I
Major City Flag	MAJ_CITY	90	1,N,0	58	1,1,I
Country FIPS Code	COUNTRY	91	2,C,0	59	2,2,C
Country Name	CNTRY_NAME	93	40,C,0	61	40,40,C
World Region Name	REGION	133	21,C,0	101	21,21,C
Continent Name	CONTINENT	154	13,C,0	122	13,13,C
City Name (Native)	LOCAL_NAME	167	40,C,0	135	40,40,C
Diacritical Mark Flag	DIACR_FLAG	207	1,N,0	175	1,1,I

Annotation: City names

Map Elements

Coverage Name: SC_25M
Layer Type: Polygon and line

Polygon Attribute Table

		dBASE Columns		INFO Items	
Item Description	**Item Name**	**Begin Column**	**Column Definition**	**Begin Column**	**Item Definition**
Fill Area Code	FILL	49	2,N,0	17	1,1,I

Annotation: Includes labels for scale bar and display title.

Arc Attribute Table

		dBASE Columns		INFO Items	
Item Description	**Item Name**	**Begin Column**	**Column Definition**	**Begin Column**	**Item Definition**
All items are ARC/INFO generated.					

Rivers and Water Bodies

Coverage Name: RIV25M
Layer Type: Polygon and Line

Polygon Attribute Table

		dBASE Columns		INFO Items	
Item Description	**Item Name**	**Begin Column**	**Column Definition**	**Begin Column**	**Item Definition**
Water Feature Type Code	TYPE	49	1,N,0	17	1,1,I
Water Feature Type Name	WATER_TYPE	50	20,C,0	18	20,20,C
Country FIPS Code	COUNTRY	70	2,C,0	38	2,2,C
Country Name	CNTRY_NAME	72	40,C,0	40	40,40,C
World Region Name	REGION	112	21,C,0	80	21,21,C
Continent Name	CONTINENT	133	13,C,0	101	13,13,C

Rivers and Water Bodies (continued)

Arc Attribute Table

		dBASE Columns		INFO Items	
Item Description	**Item Name**	**Begin Column**	**Column Definition**	**Begin Column**	**Item Definition**
River Feature Type Code	TYPE	80	1,N,0	29	1,1,I
River Feature Type Name	RIVER_TYPE	81	20,C,0	30	20,20,C
Adjoining Country 1 Code	COUNTRY1	101	2,C,0	50	2,2,C
Adjoining Country 2 Code	COUNTRY2	103	2,C,0	52	2,2,C
Adjoining Country Names	CNTRY_NAME	105	41,C,0	54	41,41,C
Adjoining Region Abbrev.	REGION	146	9,C,0	95	9,9,C
Adjoining Continent Abbrev.	CONTINENT	155	7,C,0	104	7,7,C

Selected Statistical Attributes

Coverage Name: STAT25M, STAT_BR (Note: For the STAT_BR coverage, column and item definitions are correct in the polygon attribute table below, but begin columns will not correspond due to some deleted attributes.)

Layer Type: Polygon and Line

Polygon Attribute Table

		dBASE Columns		INFO Items	
Item Description	**Item Name**	**Begin Column**	**Column Definition**	**Begin Column**	**Item Definition**
Country FIPS Code	COUNTRY	49	2,C,0	17	2,2,C
Country Name	CNTRY_NAME	51	40,C,0	19	40,40,C
World Region Name	REGION	91	21,C,0	59	21,21,C
Continent Name	CONTINENT	112	13,C,0	80	13,13,C
Land/Water Identifier	LAND_OCEAN	125	9,C,0	93	9,9,C
Island Carto. Display Rank	ISLND_RANK	134	1,N,0	102	1,1,I
Statistical Flag	STAT_FLAG	135	1,N,0	103	1,1,I
European Econ. Community	EEC	136	1,N,0	104	1,1,I
Food and Agriculture Org.	FAO	137	1,N,0	105	1,1,I
UN General Assembly	GA	138	1,N,0	106	1,1,I
UN Gen. Assembly (year)	GA_MEMB_YR	139	4,N,0	107	4,4,I
Int. Atomic Energy Agency	IAEA	143	1,N,0	111	1,1,I
Int. Recon. Dev. (World Bank)	IBRD	144	1,N,0	112	1,1,I
International Monetary Fund	IMF	145	1,N,0	113	1,1,I

continued . . .

Selected Statistical Attributes (continued)

Polygon Attribute Table (cont.)

Item Description	Item Name	dBASE Columns		INFO Items	
		Begin Column	Column Definition	Begin Column	Item Definition
Org. of Petrol. Exp. Countries	OPEC	146	1,N,0	114	1,1,I
United Nations Sec. Council	SC	147	1,N,0	115	1,1,I
UN Ed., Sci. and Cult. Org.	UNESCO	148	1,N,0	116	1,1,I
World Health Organization	WHO	149	1,N,0	117	1,1,I
World Meteorological Orga.	WMO	150	1,N,0	118	1,1,I
World Bank Country Code	WB_CNTRY	151	3,C,0	119	3,3,C
Total Population, 89	TOTPOP89	154	13,N,0	122	13,13,I
% Pop. Ages 0 to 14 Years	P_0_14_89	167	6,N,2	135	6,6,N,2
% Pop. Ages 15 to 64 Years	P_15_64_89	173	6,N,2	141	6,6,N,2
Annual Pop. Growth Rate	GRW_RATE89	179	6,N,2	147	6,6,N,2
Urban Pop. Growth Rate	URBGRWRT89	185	6,N,2	153	6,6,N,2
Urban/Rural Grwth Different	U_R_DIFF89	191	6,N,1	159	6,6,N,1
Projected Year 2000 Pop.	POP2000_89	197	13,N,0	165	13,13,I
Total Land Area	LANDAREA85	210	10,N,0	178	10,10,I
Population Density (sq. km)	POPDNSTY85	220	13,N,2	188	13,13,N,2
Crude Birth Rate	BIR_RATE89	233	6,N,1	201	6,6,N,1
Crude Death Rate	DTH_RATE89	239	6,N,1	207	6,6,N,1
Infant Mortality Rate	INF_DTH89	245	6,N,2	213	6,6,N,2
Life Expectancy (at birth)	LIFE_EXP89	251	6,N,2	219	6,6,N,2
Access to Safe Water	SAFEH2O85	257	6,N,2	225	6,6,N,2
% GDP for Medical Care	EXP_MED85	263	6,N,2	231	6,6,N,2
Doctors per Person, 80	POP_DOCT80	269	10,N,0	237	10,10,I
Hospital Beds per Person	POP_HBED80	279	10,N,0	247	10,10,I
Percent of Agri. Land	P_AGLAND85	289	6,N,2	257	6,6,N,2
Agri. Population Density	POPDNSAG85	295	13,N,2	263	13,13,N,2
Forest Area (K sq. km)	FORESTS85	308	10,N,0	276	10,10,I
Net Deforestation Rate	NETDEFOR85	318	6,N,2	286	6,6,N,2
Food Production per Capita	FOODPROD89	324	6,N,2	292	6,6,N,2
Calories per Person (Daily)	CAL_CAP85	330	6,N,1	298	6,6,N,1
Protein per Person (Daily)	PROT_CAP85	336	6,N,1	304	6,6,N,1
Total Labor Force, 1989	LABORFOR89	342	10,N,0	310	10,10,I
% of Labor Force in Agri.	P_AGRIC80	352	13,N,6	320	4,8,F,2
% of Labor Force, Female	P_FEMALE89	365	6,N,2	324	6,6,N,2
Labor Participation Rate	PARTICIP89	371	6,N,2	330	6,6,N,2
Female Labor Part. Rate	PARTCP_F89	377	6,N,2	336	6,6,N,2
GNP per Capita	GNP_CAP89	383	5,N,0	342	5,5,I
Percent of GDP for Food	EXPFOODS85	388	6,N,2	347	6,6,N,2

continued . . .

Selected Statistical Attributes (continued)

Polygon Attribute Table (cont.)

		dBASE Columns		INFO Items	
Item Description	Item Name	Begin Column	Column Definition	Begin Column	Item Definition
Energy Consum. per Capita	ENRG_CAP85	394	8,N,2	353	8,8,N,2
Persons per Passenger Car	POP_CAR80	402	6,N,1	361	6,6,N,1
Persons per Telephone	POP_TELE80	408	6,N,1	367	6,6,N,1
Percent GDP for Education	EXPEDUC85	414	6,N,2	373	6,6,N,2
% Children in Primary School	P_PRIMRY85	420	6,N,2	379	6,6,N,2
% Children in Secondary School	P_SECNDY85	426	6,N,2	385	6,6,N,2
% Science & Eng. Students	P_SCIENG85	432	6,N,2	391	6,6,N,2
Primary Pupil/Teacher Ratio	PUPTCH_P85	438	3,N,0	397	3,3,I
% of Illiterate Persons	ILLITER85	441	6,N,2	400	6,6,N,2
Agri. as a Percentage of GDP	P_AGGDPR88	447	10,N,2	406	10,10,N,2
Industry, Percentage of GDP	P_INDGDP88	457	10,N,2	416	10,10,N,2
Services % of GDP	P_SERGDP88	467	10,N,2	426	10,10,N,2
Govt. Expenditure % of GDP	P_GVTGDP89	477	10,N,2	436	10,10,N,2
Availabil. Safe Urban Water	SAFH2OUR88	487	10,N,2	446	10,10,N,2
Availabil. Safe Rural Water	SAFH2ORR88	497	10,N,2	456	10,10,N,2
% DPT Immunized (age 1 year)	IM_DPT90	507	10,N,2	466	10,10,N,2
% Measles Immun. (age 1 year)	IM_MEASL90	517	10,N,2	476	10,10,N,2
Couples Using Birth Control	CONTRCEP89	527	10,N,2	486	10,10,N,2
Percent of Wilderness Area	WILDERNS88	537	10,N,2	496	10,10,N,2
Persons per Household	HHLDSIZR86	547	10,N,2	506	10,10,N,2
Households Without Electricity	HHWOELEC82	557	10,N,2	516	10,10,N,2
Agriculture, % of GDP	CROPLAND89	567	10,N,2	526	10,10,N,2
Industry, % of GDP	NOSOILCN89	577	10,N,2	536	10,10,N,2
Services, % of GDP	DEFORTOT85	587	10,N,2	546	10,10,N,2
Govt. Expenditure % of GDP	P_PROTLN90	597	10,N,2	556	10,10,N,2
No. Known Mammal Species	MAMLSPEC90	607	10,N,2	566	10,10,N,2
No. Endangered Mammal Spec.	MAMLTHRT89	617	10,N,2	576	10,10,N,2
Number Endangered Plant Taxa	PLANTHRT91	627	10,N,2	586	10,10,N,2
No. Threat. Plants/1K Taxa.	PLTHR_1K91	637	10,N,2	596	10,10,N,2
Threat Plant Taxa/1K sq. km	PLTHR_KM91	647	10,N,2	606	10,10,N,2
Enrg. Consump. Const. 87$	CONS_87_89	657	10,N,2	616	10,10,N,2
Energy Imports/% of Consump.	ENRG_IMP89	667	10,N,2	626	10,10,N,2
Trad. Fuels/% of Total Required	P_TRFUEL89	677	10,N,2	636	10,10,N,2
Annual Urban Waste per Capita	MUNWASTE89	687	10,N,2	646	10,10,N,2
Fish % Food Supply/per Capita	FOODFISH88	697	10,N,2	656	10,10,N,2
Ind. CO2 Emissions - per Capita	CO2_CAP89	707	10,N,2	666	10,10,N,2
CO2 Emissions - Deforestation	CO2DEFOR89	717	10,N,2	676	10,10,N,2
Total Methane Emissions	METHANE89	727	10,N,2	686	10,10,N,2
Total CFC Emissions	CFC89	737	10,N,2	696	10,10,N,2

Selected Statistical Attributes (continued)

Arc Attribute Table

		dBASE Columns		INFO Items	
Item Description	Item Name	Begin Column	Column Definition	Begin Column	Item Definition
Boundary Type Code	TYPE	80	1,N,0	29	1,1,I
Boundary Type Name	BND_TYPE	81	10,C,0	30	10,10,C
Int. Boundary Status	BND_STATUS	91	1,N,0	40	1,1,I
Adjoining Country 1 Code	COUNTRY1	92	2,C,0	41	2,2,C
Adjoining Country 2 Code	COUNTRY2	94	2,C,0	43	2,2,C
Adjoining Country Names	CNTRY_NAME	96	41,C,0	45	41,41,C
Adjoining Region Abbrev.	REGION	137	9,C,0	86	9,9,C
Adjoining Continent Abbrev.	CONTINENT	146	7,C,0	95	7,7,C

Browse Map statistical attribute coverages

Coverage Names: ECONIND, EDU_LIT, AGRICUL, HEALTH, LABOR, WRI_BR, POP_GEO

Please refer to the ArcWorld 1:3M attribute tables for column and item definitions in these coverages. Note that the begin columns will not be the same because some attributes have been omitted from the Browse Map statistical attribute coverages.

Appendix C

Continent, region, and country codes

Federal Information Processing Standards (FIPS) codes are standard international codes that have been developed to facilitate the transfer of information between systems, to reduce data coding error, and to reduce waste in data storage by eliminating duplication. The codes were developed by the National Computer Systems Laboratory at the National Institute of Standards and Technology.

The following lists provide the codes used in the ArcWorld database. Continent and region codes were developed by ESRI. The country codes are the FIPS codes that are outlined in FIPS publication 10-3, except that codes beginning with X were developed by ESRI to identify disputed areas.

Codes
for continents

AFR	-	Africa	AUS	-	Australia	OCN	-	Oceania
ANT	-	Antarctica	EUR	-	Europe	S_A	-	South America
ASA	-	Asia	N_A	-	North America			

Codes
for regions

ANTA	-	Antarctica	SU_E	-	European (former USSR)	S_AM	-	South America
SU_A	-	Asian (former USSR)	MELA	-	Melanesia	SE_A	-	Southeastern Asia
A_NZ	-	Australia/New Zealand	MICR	-	Micronesia	S_AF	-	Southern Africa
CARB	-	Caribbean	M_AF	-	Middle Africa	S_AS	-	Southern Asia
C_AM	-	Central America	N_AF	-	Northern Africa	S_EU	-	Southern Europe
E_AF	-	Eastern Africa	N_AM	-	Northern America	W_AF	-	Western Africa
E_AS	-	Eastern Asia	N_EU	-	Northern Europe	W_AS	-	Western Asia
E_EU	-	Eastern Europe	POLY	-	Polynesia	W_EU	-	Western Europe

FIPS codes
for countries

AF	-	Afghanistan	BM	-	Burma	XO	-	Egypt (administered by Sudan)
AL	-	Albania	BY	-	Burundi			
AG	-	Algeria	BO	-	Byelarus	ES	-	El Salvador
AQ	-	American Samoa	CB	-	Cambodia	EK	-	Equatorial Guinea
AN	-	Andorra	CM	-	Cameroon	EN	-	Estonia
AO	-	Angola	CA	-	Canada	ET	-	Ethiopia
AV	-	Anguilla	CV	-	Cape Verde	FA	-	Falkland Islands (Islas Malvinas)
AY	-	Antarctica	CJ	-	Cayman Islands			
AC	-	Antigua and Barbuda	CT	-	Central African Republic	FO	-	Faroe Islands
AR	-	Argentina				FM	-	Federated States of Micronesia
AM	-	Armenia	CD	-	Chad			
AS	-	Australia	XM	-	Chad (claimed by Libya)	FJ	-	Fiji
AU	-	Austria				FI	-	Finland
AJ	-	Azerbaijan	CI	-	Chile	FR	-	France
BF	-	Bahamas, The	CH	-	China	FG	-	French Guiana
BA	-	Bahrain	XG	-	Chinese Control Claimed by India	FP	-	French Polynesia
FQ	-	Baker Island				FS	-	French Southern and Antarctic Lands
BG	-	Bangladesh	CK	-	Cocos (Keeling) Islands			
BB	-	Barbados				GB	-	Gabon
BE	-	Belgium	CO	-	Colombia	GA	-	Gambia, The
BH	-	Belize	CN	-	Comoros	GZ	-	Gaza Strip
BN	-	Benin	CF	-	Congo	GG	-	Georgia
BD	-	Bermuda	CW	-	Cook Islands	GM	-	Germany
BT	-	Bhutan	CS	-	Costa Rica	GH	-	Ghana
BL	-	Bolivia	CU	-	Cuba	GO	-	Glorioso Islands
BC	-	Botswana	CY	-	Cyprus	GR	-	Greece
BV	-	Bouvet Island	CZ	-	Czechoslovakia	GL	-	Greenland
BR	-	Brazil	DA	-	Denmark	GJ	-	Grenada
IO	-	British Indian Ocean Territory	DJ	-	Djibouti	GP	-	Guadeloupe
			DO	-	Dominica	GQ	-	Guam
VI	-	British Virgin Islands	DR	-	Dominican Republic	GT	-	Guatemala
BX	-	Brunei	EC	-	Ecuador	GK	-	Guernsey
BU	-	Bulgaria	EG	-	Egypt	GV	-	Guinea
UV	-	Burkina Faso				PU	-	Guinea–Bissau

Code	Country	Code	Country	Code	Country
GY	Guyana	MV	Maldives	SE	Seychelles
HA	Haiti	ML	Mali	SL	Sierra Leone
HM	Heard Island and McDonald Islands	MT	Malta	SN	Singapore
		IM	Man, Isle of	BP	Solomon Islands
HO	Honduras	MB	Martinique	SO	Somalia
HK	Hong Kong	MR	Mauritania	SF	South Africa
HQ	Howland Island	MP	Mauritius	SP	Spain
HU	Hungary	MF	Mayotte	PG	Spratly Islands
IC	Iceland	MX	Mexico	CE	Sri Lanka
IN	India	MQ	Midway Islands	SH	St. Helena
XL	India (claimed by China)	MD	Moldova	SC	St. Kitts and Nevis
		MN	Monaco	ST	St. Lucia
XH	Indian control (claimed by China)	MG	Mongolia	SB	St. Pierre and Miquelon
		MH	Montserrat		
XI	Indian control (claimed by China)	MO	Morocco	VC	St. Vincent and the Grenadines
		MZ	Mozambique		
XJ	Indian control (claimed by China)	WA	Namibia	SU	Sudan
		NR	Nauru	XN	Sudan (administered by Egypt)
XK	Indian control (claimed by China)	NP	Nepal	XS	Sudan (administered by Kenya)
		NL	Netherlands		
ID	Indonesia	NA	Netherlands Antilles	XU	Sudan (administered by Kenya)
IR	Iran	NC	New Caledonia		
IZ	Iraq	NZ	New Zealand		
IY	Iraq–Saudi Arabia neutral zone	NU	Nicaragua	NS	Suriname
		NG	Niger	SV	Svalbard
EI	Ireland	NI	Nigeria	WZ	Swaziland
IS	Israel	NE	Niue	SW	Sweden
IT	Italy	NF	Norfolk Island	SZ	Switzerland
IV	Ivory Coast	CQ	Northern Mariana Islands	SY	Syria
JM	Jamaica			TW	Taiwan
JN	Jan Mayen	NO	Norway	TI	Tajikistan
JA	Japan	XA	Occupied by Israel	TZ	Tanzania, United Republic of
DQ	Jarvis Island	XB	Occupied by Israel		
JE	Jersey	XC	Occupied by Israel	TH	Thailand
JQ	Johnston Atoll	XD	Occupied by Israel	TO	Togo
JO	Jordan	XE	Occupied by Israel	TL	Tokelau
JU	Juan De Nova Island	MU	Oman	TN	Tonga
KZ	Kazakhstan	PK	Pakistan	TD	Trinidad and Tobago
KE	Kenya	PM	Panama	TS	Tunisia
KR	Kiribati	PP	Papua New Guinea	TU	Turkey
KN	Korea, Democratic People's Republic of	PF	Paracel Islands	TX	Turkmenistan
		PA	Paraguay	TK	Turks and Caicos Islands
KS	Korea, Republic of	PE	Peru		
KU	Kuwait	RP	Philippines	TV	Tuvalu
KG	Kyrgyzstan	PC	Pitcairn Islands	UG	Uganda
LA	Laos	PL	Poland	UI	Ukraine
LG	Latvia	PO	Portugal	TC	United Arab Emirates
LE	Lebanon	RQ	Puerto Rico	UK	United Kingdom
LT	Lesotho	QA	Qatar	US	United States
LI	Liberia	RE	Reunion	UY	Uruguay
LY	Libya	RO	Romania	UZ	Uzbekistan
LS	Liechtenstein	RS	Russia	NH	Vanuatu
LH	Lithuania	RW	Rwanda	VE	Venezuela
LU	Luxembourg	SM	San Marino	VM	Vietnam
MC	Macau	TP	Sao Tome and Principe	VQ	Virgin Islands
MA	Madagascar			WQ	Wake Island
MI	Malawi	SA	Saudi Arabia	WF	Wallis and Futuna
MY	Malaysia	SG	Senegal	WE	West Bank

WI	-	Western Sahara	YO	-	Yugoslavia	ZI	-	Zimbabwe
WS	-	Western Samoa	CG	-	Zaire			
YM	-	Yemen	ZA	-	Zambia			

Territorial assignments in the country statistical attribute layers

The attributes COUNTRY and CNTRY_NAME contain the codes and names listed above. This list uniquely identifies individual territories, such as disputed territories. In the attributes WB_CNTRY and WRI_CNTRY, however, ESRI has assigned these territories to a particular country in order to enhance the visual appearance of data displays. These assignments are as follows:

Country code (COUNTRY)	Description (CNTRY_NAME)	Country assigned for statistical attributes (WB_CNTRY and WRI_CNTRY)
XA	Occupied by Israel	Israel
XB	Occupied by Israel	Israel
XC	Occupied by Israel	Israel
XD	Occupied by Israel	Israel
XE	Occupied by Israel	Israel
XG	Chinese Control Claimed by India	China
XH	Indian Control, Claimed by China	India
XI	Indian Control, Claimed by China	India
XJ	Indian Control, Claimed by China	India
XK	Indian Control, Claimed by China	India
XL	India, Claimed by China	India
XM	Chad, Claimed by Libya	Chad
XN	Sudan, Administered by Egypt	Sudan
XO	Egypt, Administered by Sudan	Egypt
XS	Sudan, Administered by Kenya	Sudan
XU	Sudan, Administered by Kenya	Sudan

Also, some additional territories are uniquely identified in the FIPS 10-3 scheme, but assigned to a different country by the World Bank, as follows:

Country code (COUNTRY)	Description (CNTRY_NAME)	Country assigned for statistical attributes (WB_CNTRY and WRI_CNTRY)
BV	Bouvet Island	Norway
GO	Glorioso Islands	Reunion
GZ	Gaza Strip	Israel
JN	Jan Mayan	Norway
JU	Juan de Nova Island	Reunion
SV	Svalbard	Norway

Statistical data for the West Bank are reported with either Israel or Jordan and vary on an attribute-by-attribute basis. Because of this inconsistency the West Bank could not be assigned to one of the two countries. See Chapter 6 for more information on the assignment of codes for the STAT_FLAG item.

Appendix D

Incomplete coverage areas

This appendix lists major countries that do not contain features in the ArcWorld 1:3M database for roads, railroads, or internal administrative divisions. The reason for the absence of data in these countries may either be because data were not collected about these features, or because these features do not actually exist.

Major countries without internal administrative division data

Armenia	Dominican Republic	Kuwait	Papua New Guinea
Austria	Equatorial Guinea	Latvia	Puerto Rico
Bahrain	Estonia	Lithuania	Qatar
Bangladesh	Greece	Moldavia	Rwanda
Bhutan	Haiti	Mongolia	Swaziland
Brunei	Iceland	Nepal	Switzerland
Burundi	Indonesia	New Zealand	Taiwan
Denmark			

Major countries without railroad data

Bahrain	Cyprus	Laos	Rwanda
Belize	Equatorial Guinea	Libya	Somalia
Bhutan	French Guiana	Niger	United Arab
Brunei	Gambia, The	Oman	Emirates
Burundi	Guinea–Bissau	Papua New Guinea	Yemen
Cent. African Republic	Iceland	Puerto Rico	
Chad	Kuwait	Qatar	

Major countries without road data

Argentina	Dominican Republic	New Zealand	United States
Australia	Haiti	Papua New Guinea	Uruguay
Canada	Iceland	Paraguay	
Cuba	Japan	Puerto Rico	

Appendix E

Bibliography

Source data

The following publications contain further information about the data sources for this database:

Anderson, D. E., J. L. Angel, and A. J. Gorny, *World Data Bank II: Content, Structure and Application*, 1977, Harvard University, First International Symposium on Topological Data Structures of GIS, Cambridge, MA.

Social Indicators of Development 1990, A World Bank Publication, The John Hopkins University Press, Baltimore, Maryland.

Standard Index Chart. March 1988. ONC Index SIC-3, Edition 4 (Stock Number SICXX03). Available from DMA Combat Support Center, ATTN: PMSR, Washington, D.C. 20315-0020.

STARS World Bank Data on Diskette, 1990–91: User's Guide. Washington, D. C.: prepared by the International Economics Department of the World Bank.

World Resources 1992-93: A Guide to the Global Environment—Toward Sustainable Development. A Report by The World Resources Institute in collaboration with The United Nations Environment Programme and The United Nations Development Programme, 1992, Oxford University Press, New York, New York.

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Reference data

The following printed publications were used as technical reference materials or to verify the accuracy and consistency of the database:

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USSR Energy Atlas. 1985. Central Intelligence Agency.

Webster's New Geographical Dictionary. 1988. Springfield, Massachusetts: Merriam-Webster Inc.

World Almanac and Book of Facts. 1988. New York: Pharos Books.

World Fact Book 1989. 1989. Central Intelligence Agency.

Further reading

All materials listed below are available from ESRI Book Sales, 380 New York Street, Redlands, California 92373. Telephone: (714) 793-2853.

Aronoff, S., ed. 1989. *Geographic Information Systems: A Management Perspective.* Ottawa: WDL Publications.

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Goodchild, M., and S. Gopal, eds. 1989. *Accuracy of Spatial Databases.* New York: Taylor & Francis. [Detailed treatment of error and accuracy, particularly of modeling uncertainty and reliability, testing accuracy, and the practical implications for use of spatial data.]

Huxhold, W. E. 1991. *Introduction to Urban Geographic Information Systems.*   New York: Oxford University Press. [Basic concepts and applications of GIS in local government. Useful for students and practitioners.]

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Tomlin, D. 1990. *Geographic Information Systems and Cartographic Modelling.* Englewood Cliffs, N.J.: Prentice Hall.

Appendix F

Sources of other data

Additional data or information can be obtained from the sources listed below:

ArcData

The *ArcData*^{SM} *Catalog*, published by ESRI, is a handy reference to high-quality database products distributed in ARC/INFO-compatible format. It includes database products published by ESRI and those offered by premier data publishers under the auspices of the ArcData publishing program. The Landsat satellite imagery indexed in the ArcWorld database can be obtained through the ArcData program. To obtain a copy of this valuable data guide, contact the ESRI Regional Office nearest you or call the ESRI Marketing Department in Redlands, California, at 714-793-2853.

DMA Operational Navigation Charts

The Defense Mapping Agency (DMA) Operational Navigation Charts (ONCs) indexed in the ArcWorld 1:3M database can be purchased in the United States and foreign countries from agents for the sale of Defense Mapping Agency aeronautical charts and publications. They can also be purchased by writing to the DMA Combat Support Center, ATTN: PMSR, Washington, D.C. 20315-0020.

Copies of the DMA Public Sale Catalog and additional information on DMA products may be obtained from the DMA Customer Assistance Office at: DMA Combat Support Center, ATTN: PMA, Washington D.C., 20315-0010 (telephone 301-227-2495).

The World Bank data

Social Indicators of Development data are available in hard copy and in the *STARS* diskette version from The World Bank. Inquiries should be addressed to World Bank Publications, P.O. Box 7247, Philadelphia, PA 19101-9630.

World Resources Institute data

The World Resources 1992-1993 database can be acquired from the World Resources Institute, 1790 New York Avenue, Washington, D.C. 20006.

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