

## APPENDIX 7 LIST OF GIS AND OTHER DATA LAYERS

**Table A7.1: BAR Data Layers**

<b>Category</b>	<b>GIS Layer</b>	<b>Coverage</b>	<b>Data Source</b>
GeoPolitical	International Boundaries	Global	ESRI
GeoPolitical	Intra-national Administrative Boundaries	Global	ESRI
Biophysical	International Basins	Global	TFDD
Biophysical	Area of International Basins for 1999, total & by country	Global	TFDD
Biophysical	International Basins from 1950 to current	Global	TFDD
GeoPolitical	Intersection of Basins with Countries	Global	TFDD
GeoPolitical	International River Treaties	Global	TFDD
GeoPolitical	Basin Tributary Names	Global	TFDD
Biophysical	Riparian Position of Basin Countries	Global	TFDD
GeoPolitical	Water Conflict-Coop. Events 1948-1999	Global	COPDAB, GEDS, FBIS/WNC, Lexis-Nexus, TFDD
GeoPolitical	Additional Event Data (historical records, other sources)	Global	TFDD
GeoPolitical	Degree of democratization, by year from 1800	Global	Polity Data Archives
GeoPolitical	Date of change in government regime, by year	Global	Polity Data Archives
SocioEconomic	Gridded Population of the World	Global	Dobson, et al. LandScan 2000
SocioEconomic	Population by basin by year	Global	Dobson, et al. LandScan 2000, TFDD
SocioEconomic	Population by country by year	Global	Dobson, et al. LandScan 2000, TFDD
SocioEconomic	List and Location of Ethnic Minority Groups	Global	GEDS
SocioEconomic	Human Poverty Index	Global	UNDP

**Table A7.1: BAR Data Layers (cont.)**

<b>Category</b>	<b>GIS Layer</b>	<b>Coverage</b>	<b>Data Source</b>
SocioEconomic	Human Development Index	Global	UNDP
SocioEconomic	Future Major Dams or Water Development Projects	Global	TFDD
SocioEconomic	Major Dams or Development Projects by basin and year	Global	ICOLD, TFDD
SocioEconomic	Roads and Railways	Global	ESRI
SocioEconomic	Major Cities	Global	ESRI
SocioEconomic	Utilities, Electricity Grids	Global	ESRI
SocioEconomic	Hydroelectric Capacity and Production by Country, 1996	Global	WRI
SocioEconomic	Hydroelectric Production as Fraction of Total Energy Produced, by Country	Global	WRI
SocioEconomic	Commercial Electricity Production—Total, by Country and Year	Global	WRI
SocioEconomic	Commercial Electricity Production—Hydroelectric, by Country and Year	Global	WRI
SocioEconomic	Electricity Imports and Exports	Global	WRI
SocioEconomic	Desalination Capacity by Country, January 1, 1996	Global	WRI
SocioEconomic	Water Stress Index by country and by basin	Global	Fekete, et al., TFDD
SocioEconomic	Social Water Stress Index - 1975-1999, by basin & country	Global	Fekete, et al., Ohlsson, TFDD
SocioEconomic	Gross National Product	Global	WRI
SocioEconomic	Gross National Product Per Capita	Global	WRI
SocioEconomic	Mean Rate of Population Growth by Country	Global	WRI
SocioEconomic	Labor Force -- Percent in Agriculture	Global	WRI
SocioEconomic	Total Urban Population	Global	WRI
SocioEconomic	Urban Population Percent	Global	WRI
SocioEconomic	Urban Population Growth Rates	Global	WRI
SocioEconomic	Total Rural Population	Global	WRI
SocioEconomic	Rural Population Growth Rates	Global	WRI
SocioEconomic	Rural Population With Access to Safe Water	Global	WRI

**Table A7.1: BAR Data Layers (cont.)**

<b>Category</b>	<b>GIS Layer</b>	<b>Coverage</b>	<b>Data Source</b>
SocioEconomic	Urban Population With Access to Safe Water	Global	WRI
SocioEconomic	Population With Access to Safe Water: Urban and Rural	Global	WRI
SocioEconomic	Urban Population With Access to Adequate Sanitation	Global	WRI
SocioEconomic	Rural Population with Access to Adequate Sanitation	Global	WRI
SocioEconomic	Population With Access to Adequate Sanitation: Urban and Rural	Global	WRI
SocioEconomic	Total Forest Deforestation	Global	WRI
SocioEconomic	Total Freshwater Catch by Country	Global	WRI
SocioEconomic	Aquaculture Production – Freshwater Fish	Global	WRI
SocioEconomic	Technical Disasters by Country - Oil spill/Chemical Fires...	Global	USAID-CRED
Biophysical	Natural Disasters by Country - Flood/Drought...	Global	USAID-CRED
Biophysical	Renewable Freshwater Supply by Basin and by Country	Global	Gleick, Peter. The World's Water, 1998, Fekete, et al., TFDD
SocioEconomic	Freshwater Withdrawal by Country and Sector	Global	Gleick, Peter. The World's Water, 1998
Biophysical	USGS Land Use/Land Cover	Global	USGS
Biophysical	Global Assessment of Human Induced Soil Degradation	Global	UNEP/GRID – EROS Data Cntr.
Biophysical	Global Vegetation, Intensity of Cultivation	Global	UNEP/GRID – EROS Data Cntr.
Biophysical	Global Map of Irrigated Areas	Global	Petra Döll
SocioEconomic	Irrigated Area by Basin and by Country	Global	TFDD
Biophysical	Water pollution, runoff, sediment load (selected rivers)	80 Rivers	UNEP/GEMS
GeoPolitical	State of Water Management by Country	Limited	Gleick, Peter. The World's Water, 1998
SocioEconomic	Sources and Uses of Surface/Groundwater Resources	Global	Gleick, Peter. The World's Water, 1998
Biophysical	Wetlands of International Importance – Number/Area	Global	WRI
SocioEconomic	Distribution of Gross Domestic Product— Agric/Ind/Services/Manufact	Global	WRI

**Table A7.1: BAR Data Layers (cont.)**

<b>Category</b>	<b>GIS Layer</b>	<b>Coverage</b>	<b>Data Source</b>
SocioEconomic	Total Fertilizer Consumption	Global	WRI
Biophysical	Arable Land	Global	WRI
Biophysical	Land in Permanent Crops	Global	WRI
SocioEconomic	Fertilizer Production	Global	WRI
SocioEconomic	Fertilizer Imports	Global	WRI
SocioEconomic	Fertilizer Exports	Global	WRI
SocioEconomic	Annual fertilizer use	Global	WRI
SocioEconomic	Grain Fed to Livestock as % of Total Grain Consumption	Global	WRI
SocioEconomic	Labor Force -- Percent in Industry, Percent in Services	Global	WRI
SocioEconomic	Total Economically Active Population	Global	WRI
SocioEconomic	Number of Cholera Cases and Deaths from Cholera	Limited	Gleick, Peter. The World's Water, 1998
Biophysical	Land Area by Country	Global	WRI
Biophysical	Arable and Permanent Cropland	Global	WRI
SocioEconomic	Population Density by Country	Global	WRI
Biophysical	Permanent Pasture	Global	WRI
Biophysical	Forest and Woodland	Global	WRI
Biophysical	All Other Land	Global	WRI
Biophysical	Domesticated Land as a Percent of Land Area	Global	WRI
Biophysical	Natural Forest Extent and Change	Global	WRI
Biophysical	Extent of Plantations and Change	Global	WRI
Biophysical	Extent of Total Forest	Global	WRI
Biophysical	Hydrologic Network (Rivers)	Global	USGS-EROS-HYDRO1k, ESRI
Biophysical	River length	Global	ESRI, TFDD
Biophysical	Climatic Data (Temp, Precip)	Global	IPCC
Biophysical	Climatic Zones of basins	Global	UNFAO, TFDD
Biophysical	Digital Elevation Models	Global	USGS-EROS-GTOPO30
Biophysical	Slope in basin by percent area	Global	USGS-EROS-GTOPO30/LandScan,

**Table A7.1: BAR Data Layers (cont.)**

Category	GIS Layer	Coverage	Data Source
Biophysical	Global Soil Texture	Global	TFDD
Biophysical	River Discharge	Global	UNEP/GRID – EROS Data Cntr.
Biophysical	Flooding since 1995	Global	Vörösmarty, et al.
Biophysical	Annual river flows	Global	Dartmouth Flood Observatory
Biophysical	Freshwater Fish Species Information	Global	Fekete, et al., TFDD
GeoPolitical	Protected Areas	Global	WRI

TABLE ABBREVIATIONS

COPDAB: Azar, Edward E. *Conflict and Peace Data Bank (COPDAB), 1948-1978*. [Computer file]. 3rd release. College Park, MD: University of Maryland, Center for International Development and Conflict Management [producer], 1993. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 1993.

Dartmouth Flood Observatory: Dartmouth Flood Observatory – NASA supported. <http://www.dartmouth.edu/artsci/geog/floods/>.

Dobson, et al. *LandScan 2000*: Jerome E Dobson, Edward A. Bright, Phillip R. Coleman, Richard C. Durfee, and Brian A. Worley. *LandScan: A Global Population Database for Estimating Populations and Risk*. Photogrammetric Engineering & Remote Sensing Vol. 66 No.7 July 2000, pp 849-857.

Döll, P. and Siebert, S. (1999): A Digital Global Map of Irrigated Areas. Report A9901, Center for Environmental Systems Research, University of Kassel, 23 pp. + appendix.

ESRI: Environmental Systems Research Institute, <http://www.esri.com/>.

FBIS: Foreign Broadcast Information Service, US Central Intelligence Agency.

Fekete, et al. : Fekete, Balazs. Vorosmarty, Charles J. Grabs, Wolfgang. Global, Composite Runoff Fields Based on Observed River Discharge and Simulated Water Balances. February 4, 2000.

GEDS: Davies, John L. The Global Event-Data System: Coders' Manual, Center for International Development and Conflict Management and Department of Government and Politics, University of Maryland, College Park MD, August 1998 Revision, <http://geds.umd.edu/geds/>.

Gleick, Peter. *The World's Water*, 1998: The World's Water: The Biennial Report on Freshwater Resources, Peter H. Gleick (Island Press, Washington, D.C., 1998).

ICOLD: International Commission on Large Dams, *World Register of Dams*, 1998.

IPCC: Intergovernmental Panel on Climate Change; Leemans, Rik and Wolfgang P. Cramer, 1991. The IIASA Database for Mean Monthly Values of Temperature, Precipitation and Cloudiness of a Global Terrestrial Grid. IIASA, Laxenburg, Austria, RR-91-18, 62 pages. <http://ipcc-ddc.cru.uea.ac.uk/>.

Ohlsson, Leif. 1999. *Environment, scarcity, and conflict: a study of Malthusian concerns*. Goteborg, Switzerland, Department of Peace and Development Research, Goteborg University.

Polity Data Archives: McLaughlin, Sara; Scott Gates, Håvard Hegre, Ranveig Gissinger, and Nils Petter Gleditsch. 1998. "Polity 3D: The timing of polity changes" *Journal of Conflict Resolution*, April 1998.  
<http://www.colorado.edu/IBS/GAD/spacetime/data/Polity.html>.

UNDP: United Nations Development Programme, *Human Development Report*,  
<http://www.undp.org/hdro/indicators.html#developing>.

UNEP/GEMS: United Nations Environment Programme/Global Environment Monitoring System; Fraser, A. S., M. Meybeck, and E. D. Ongley. 1996. *Annotated Digital Atlas of Global Water Quality (computerized)*. UNEP GEMS/Water Collaborating Centre, Canada. Global Environment Monitoring System (GEMS/Water); <http://www.cciw.ca/gems/intro.html>.

UNEP/GRID – EROS: <http://grid2.cr.usgs.gov/>; <http://edcwww.cr.usgs.gov/>.

UNFAO: United Nations Food and Agriculture Programme; FAO's Environment and Natural Resources Service (SDRN) global climate maps series. - FAO-SDRN Agrometeorology Group - 1997. <http://www.fao.org/sd/eidirect/CLIMATE/EIsp0001.htm>.

USAID-CRED: US Agency for International Development, Office of US Foreign Disaster Assistance (OFDA) & the WHO Collaborative Center for Research on the Epidemiology of Disasters (CRED); EM-DAT: The OFDA/CRED International Disaster Database - [www.md.ucl.ac.be/cred](http://www.md.ucl.ac.be/cred) - Université Catholique de Louvain - Brussels – Belgium.

USGS-EROS-GTOPO30: US Geological Service – EROS Data Center, <http://edcdaac.usgs.gov/gtopo30/gtopo30.html>

USGS-EROS-HYDRO1k: US Geological Service – EROS Data Center, <http://edcdaac.usgs.gov/gtopo30/hydro/>.

Vörösmarty, et al.: Vörösmarty, C.J., B. Fekete, and B.A. Tucker. 1998. River Discharge Database, Version 1.1 (RivDIS v1.0 supplement). Available through the Institute for the Study of Earth, Oceans, and Space / University of New Hampshire, Durham NH (USA) at <http://pyramid.unh.edu/csrc/hydro/>. Vörösmarty, C.J., B. Fekete, and B.A. Tucker. 1996. River Discharge Database, Version 1.0 (RivDIS v1.0), Volumes 0 through 6. A contribution to IHP-V Theme 1. Technical Documents in Hydrology Series. UNESCO, Paris.

WNC: World News Connection, US Central Intelligence Agency.

WRI: World Resources 1998-1999 Database, World Resources Institute, 1998