

APPENDIX 2 CHANGES TO TFDD BASIN COVERAGES³⁵

DATA CAVEATS TO TFDD BASINS VERSION II, 2000

Below are the changes made to the basins coverage since the TFDD register was first published in 1999/2000.

Each basin was corrected using the U.S.G.S. Eros Data Center Hydro1k dataset. The Hydro1k data set was derived topographically and includes both basin (polygon) and stream (arc) coverages of the globe. The Hydro1k stream networks were the standard for accuracy of the TFDD basins. Dissolving the hydro1k basin polygons into six levels of sub-basin polygons and then choosing those sub-polygons that better defined the boundaries allowed us to redefine questionable basins yet still retain the association with the Hydro1k dataset. The correction procedure was run for each continent. In cases where the Hydro 1k did not provide enough information to correct the basin, discrepancies between the basin boundaries and the stream networks were resolved using *National Geographic's Atlas of the World* (7th ed.).

The basins that were changed and the Hydro1k levels used to redefine their boundaries are as follows: Asia-level 2, Ob, Amur; level 3, Indus, Hsi, Red, Karnafauli, Fenney; level 4, Oral, Saigon; level 5, Sulak, Samur; level 6, Asi; Africa-level 2, Dra; level 3, Benito; level 5, Medjerda; level 6, Atui, Tano, Umbeluzi; South America-level 6, Amacuro, Essequibo, Tumbes, Zarumilla; Europe-level 6, Gauja, L_Prespa, Lielupe, Venta; level 5, Vardar, Po, Parnu; North America- level 5, Negro; level 4, Alesek. The Ntem basin of Africa was merged with the Benito based on the NGS map and is now called the Benito-Ntem basin.

Adding new basins is an ongoing process that evolves as information and data is made available. Three recent additions are the Skagit River basin that crosses the border of the United States and Canada, the Wiedau River basin that makes up a portion of the border between Denmark and Germany, and the Glama basin of Norway that shares approximately 1% of its tributaries with Sweden. The basin total is now at 263.

Afghanistan has been added as riparian to the Aral Sea basin.

The Kura-Araks, Samur, Sulak, and Terek basins, which were listed under Europe, are now listed under Asia. They appear on both the Asia and Europe maps.

Basin-Name changes since 1999-2000 TFDD:

- St. John change to St. John (North America)
- Saint John changed to Saint John (Africa)
- Rio Grande changed to Rio Grande (North America)
- Rio Grande changed to Rio Grande (South America)

³⁵ The update of the Transboundary Freshwater Dispute Database (TFDD) basin coverages and the creation of the historical basin coverages was conducted by Greg Fiske, who provided much, but not all, of the material for this Appendix.

- Merauke changed to Tjeroaka-Wanggoe

DATA CAVEATS TO BAR TEMPORAL GIS

The historical international basins of the BAR project are broken into 9 time sections. Each year segment represents all changes in polity and political boundaries from the year indicated by its name to the day before the beginning of the following time year(s) segment. For example Time segment 55 represents all polity and boundary changes between the time 1/1/55 to 12/31/71.

Data Caveats to BAR Temporal GIS: Countries

The major political boundary changes occurred between the years of 1990 and 1993. They are depicted as accurately as possible within their respective time segment coverage name. Each nation is represented by its BAR Country Code (CCode). The spatial political boundary changes are as follows: 1972 East Pakistan separated from Pakistan and formed Bangladesh, therefore, changing CCode PAK for the Bangladesh area to BGD; 1990 German Democratic Republic (East Germany) and German Federal Republic (West Germany) united, therefore dissolving CCodes GDR and GFR to create DEU (Germany); 1990 Yemen Arab Republic (North Yemen) and Yemen People's Republic (South Yemen) united, therefore dissolving CCodes YAR and YPR to create YEM (Yemen); 1991 The breakup of the former Soviet Union, creating the CCodes ARM, AZE, BLR, GEO, KAZ, KGZ, MDA, RUS, TJK, TKM, UKR, UZB; 1992 The breakup of the former Yugoslavia, creating the CCodes BIH, HRV, MKD, SVN, YUG; 1992 The breakup of Czechoslovakia, creating CCodes CZE and SVK; 1993 Eritrea became an independent nation, created CCode ERI. See Appendix 10 for a listing of CCodes and country names.

Africa Boundary Changes Not Incorporated into Temporal GIS

The historical country coverage used by BAR missed a number of territorial changes in Africa. These territorial changes are therefore not accounted for in the BAR historical basin coverages. It should be noted, however, that the number of events for Africa during the earlier years of the BAR study are few, limiting the impact of these missing boundary changes.

The missing boundary changes mostly relate to decolonization, especially 1948-1960, as well as some scattered border conflicts and realignment of country alliances.

The majority of the missing changes are detailed below. Likely others will be found as information becomes available.

French West Africa and French Equatorial Africa formed a block of contiguous French colonial administrative units. In the BAR historical GIS coverages, these administrative units are not considered as one block under French colonial rule, but as the separate entities they then became at the time of their independence, which actually occurred some time after the year in which the BAR study begins (1948). In the change from French colonial rule to independent nations, the administrative unit boundaries became, with few exceptions, the national boundaries.

Tunisia (1956), Algeria (1962), Morocco (1956), Mauritania (1960), Senegal (1960), Gambia (1960), Mali (1960), Guinea (1958), Ivory Coast (1960), Volta (1960), Togo (1960), Dahomey (1960), Niger (1960), Chad (1960), Cameroon (1960), Central African Republic (1960), Gabon (1960), and Congo-Brazzaville (1960).

Also in that region of Africa were Spanish Morocco (1956), which merged with Morocco, and Spanish Sahara (1975), now referred to as Western Sahara and currently in dispute between Mauritania, Morocco, and local guerrilla fighters. Western Sahara is correctly considered as a separate territorial unit from 1948 on, but Spanish Sahara is not included in the pre-1956 GIS country coverages. We do not, however, have any water events for that region from that time period.

A second large set of contiguous colonial administrative units was that of the British, which ran north to south across the length of the African continent. These units became the following countries in the late 1950's and early 1960's. Although all these regions were under British rule until their independence, the BAR historical GIS considers them as separate spatial entities from 1948.

Egypt (1956), Sudan (1956), Uganda (1962), Kenya (1963), Tanzania (1961), Malawi* (1964), Zambia* (1964), Rhodesia* (1965), Botswana (1966), Namibia (1990 -- from South African Mandate), Swaziland (1968), Lesotho (1966).

*Southern Rhodesia (Zimbabwe), Northern Rhodesia (Zambia), and Nyasaland (Malawi) were a set of federated states and gained independence in 1964. Rhodesia unilaterally declared independence in 1965.

In 1952, Eritrea, which was under Italian colonial rule, became part of Ethiopia.

In 1966, Biafra announced secession from Nigeria. A civil war ensued until 1970, when Biafra essentially ceased to exist.

The Belgian Congo is treated as three separate territorial units from 1948, even though the countries concerned did not gain independence until the 1960's. These countries are Congo-Kinshasa (1960), Rwanda (1962), and Burundi (1962).

Sources:

Central Intelligence Agency. 2000. *World Factbook 2000*. USA: U.S. Central Intelligence Agency, <http://www.odci.gov/cia/publications/factbook/index.html>.
 Kasule, Samuel. 1998. *The History Atlas of Africa*. USA: Macmillan.
 NcEvedy, Colin. 1980. *Atlas of African History*. NY: Facts on File.

Data Caveats to BAR Temporal GIS: Basins

Based on the changes in country boundaries described above (excluding the above African boundary changes, which were not incorporated at the time of this publication), the following basin changes (deviation from the 2000 international basin coverage) were made for each time segment:

For 1946 to 1989, the inclusion of the Weser basin between East and West Germany and the Tiban basin shared by North and South Yemen; from 1946 to the present, the addition of basins labeled: BANN, BNGU, BRTA, CSTL, DNPR, DONX, DUGV, ELNK, ERNE, FANE, FLYR, FOYL, GUJA, KGNK, KRKA, LLUP, MIUS, NRTV, NRVA, ORAL, PNDR, PRNU, REZV, SALC, SAMR, SRTA, SULK, VENT, VLKA, VOLG. See Table A2.1.

TEMPORAL CHANGES TO BASIN COVERAGE

Table A2.1 indicates those basins that were either added or subtracted from the complete list of basins due to the status of the political boundaries during the respective year. Traveling through time from 1948 to the present, the dates that each basin began and ended its existence are also indicated.

Table A2.1: Temporal Changes to Basin Coverage

Basin Name	BCODE	Added	Removed
Bann	BANN	1992	n/a
Bangau	BNGU	1992	n/a
Barta	BRTA	1992	n/a
Castletown	CSTL	1992	n/a
Dnieper	DNPR	1992	n/a
Don	DONX	1992	n/a
Daugava	DUGV	1992	n/a

Table A2.1: Temporal Changes to Basin Coverage (cont.)

Basin Name	BCODE	Added	Removed
Elancik	ELNK	1992	n/a
Erne	ERNE	1992	n/a
Fane	FANE	1992	n/a
Flurry	FLRY	1992	n/a
Foyle	FOYL	1992	n/a
Gauja	GUJA	1992	n/a
Kogilnik	KGNK	1992	n/a
Krka	KRKA	1992	n/a
Lielupe	LLUP	1992	n/a
Mius	MIUS	1992	n/a
Neretva	NRTV	1992	n/a
Narva	NRVA	1992	n/a
Oral	ORAL	1992	n/a
Pandaruan	PNDR	1992	n/a
Parnu	PRNU	1992	n/a
Rezvaya	REZV	1992	n/a
Salaca	SALC	1992	n/a
Samur	SAMR	1992	n/a
Sarata	SRTA	1992	n/a
Sulak	SULK	1992	n/a
Venta	VENT	1992	n/a
Velaka	VLKA	1992	n/a
Volga	VOLG	1992	n/a
Weser	WESR	1946	1989
Tiban	TIBN	1946	1989