



Prof. Dr. Ulrich Menzel

Grenzübergreifende Probleme in Flussystemen

Ringvorlesung "Analyse von Umweltproblemen" im WS 2011/12
Braunschweig, den 25. Januar 2012

Grenzübergreifende Probleme in Flussystemen

Die “Transboundary Freshwater Dispute Database”, die vom “Institute for Water and Watershed” der Oregon State University aufgebaut und laufend erweitert wird, ist ein Instrument zur Dokumentation, Analyse und Bewertung von Problemen, die aus grenzüberschreitenden Flussystemen entstehen!

<http://www.transboundarywaters.orst.edu/>

Das Grundproblem ist, dass in vielen Fällen die Grenzen von Flussystemen nicht mit den staatlichen Grenzen übereinstimmen

Grenzübergreifende Probleme in Flussystemen

<http://www.transboundarywaters.orst.edu/>



Oregon State
UNIVERSITY

College of Science



PROGRAM IN WATER CONFLICT MANAGEMENT AND TRANSFORMATION

www.transboundarywaters.orst.edu

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The Program in Water Conflict Management and Transformation (PWCMT)

The program is aimed at supporting water conflict prevention and resolution in Oregon, across the United States and internationally through a four-fold approach:

(1) [The Certificate in Water Conflict Management and Transformation](#);

(2) [The Transboundary Freshwater Dispute Database](#) (circled in red)

(3) [The Universities Partnership for Transboundary Waters](#); and

(4) [Collaborative Facilitations and Skills-Building Workshops](#).

This Program is being designed to fill the niche as a broader, more integrative approach that explicitly integrates human, policy, and scientific dimensions of water resources within the framework of governance and sustainability, and focuses training and research on all facets of water conflict transformation. The PWCMT serves as a training, resource and information hub for students, citizens, officials, and business leaders in Oregon, across the United States and internationally, facilitating dialogue on critical water issues across diverse values and perspectives.

[Learn more](#) about the Program in Water Conflict Management and Transformation.

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[http://www.transboundarywaters.orst.edu/**database/**](http://www.transboundarywaters.orst.edu/database/)



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The Transboundary Freshwater Dispute Database
(TFDD) is used to aid in the assessment of the process of water conflict prevention and resolution, over the years we have developed this Transboundary Freshwater Dispute Database, a project of the Oregon State University Department of Geosciences, in collaboration with the Northwest Alliance for Computational Science and Engineering.

The TFDD is comprised of six databases

TABULAR



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Brief summaries of the processes of conflict resolution for 14 case studies of transboundary dispute resolution are offered here for comparative purposes.

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Transboundary Freshwater Dispute Database (TFDD)

Die TFDD besteht aus Datensätzen mit Bezug zu grenzübergreifenden Süßwasservorkommen:

- Raumbezogene Daten von über 270 internationalen Flusseinzugsgebieten
- Volltext-Datenbank über nahezu 450 internationale, süßwasserbezogene Abkommen über den Zeitraum von 1820 bis 2007
- Datensatz über etwa 6400 internationale Wasser-Ereignisse von Kooperation und Konflikt von 1948 bis 2008 und deren Klassifikation nach Intensität von Kooperation und Konflikt
- Datenbanken zu Fallstudien und bibliographischen Angaben

Transboundary Freshwater Dispute Database

- Transboundary Freshwater Spatial Database -

Daten über 270 internationale Becken in Afrika, Asien, Europa, Nordamerika, Südamerika (noch nicht abgeschlossen)

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the life's work of Dr. Thomas Naff

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Transboundary Freshwater Dispute Database

- Transboundary Freshwater Spatial Database: Afrika -



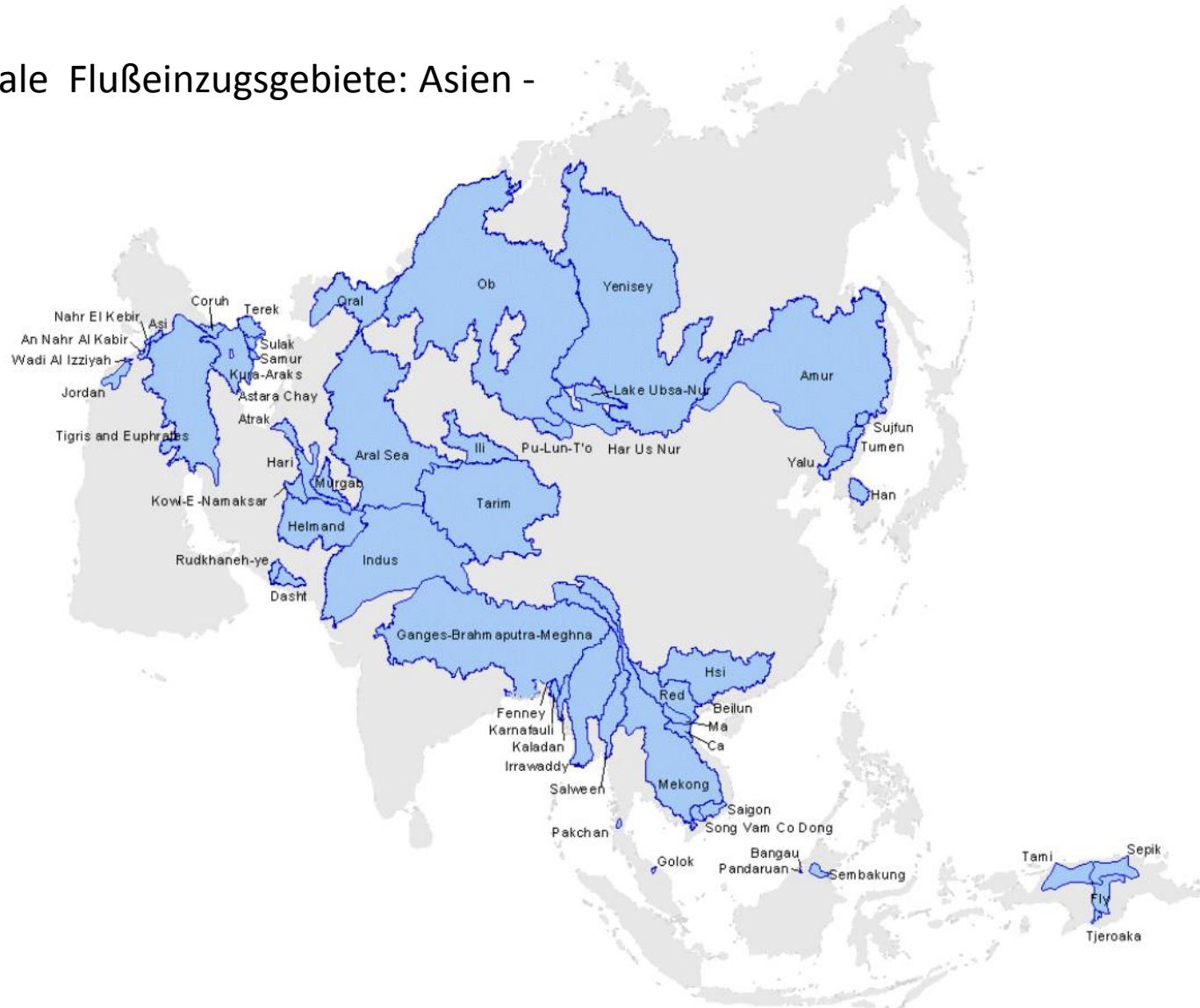
Transboundary Freshwater Dispute Database

- Afrika: Internationales Flusseinzugsgebietsregister -

| Name Becken | Fläche des Beckens in km ² | Land | Fläche des Landes innerhalb des Beckens in km ² | Anteil des Beckens, der auf das Land entfällt in Prozent |
|-----------------|---------------------------------------|-------------------|--|--|
| Akpa | 4,900 | Kamerun | 3,000 | 61.65 |
| | | Nigeria | 1,900 | 38.17 |
| Atui | 32,600 | Mauritanien | 20,500 | 62.91 |
| | | West-Sahara | 11,200 | 34.24 |
| Awash | 154,900 | Äthiopien | 143,700 | 92.74 |
| | | Djibouti | 11,000 | 7.09 |
| | | Somalia | 300 | 0.16 |
| Baraka | 66,200 | Eritrea | 41,500 | 62.57 |
| | | Sudan | 24,800 | 37.43 |
| Benito/ Ntem | 45,100 | Kamerun | 18,900 | 41.87 |
| | | Äquatorial-Guinea | 15,400 | 34.11 |
| | | Gabun | 10,800 | 23.86 |
| Bia | 11,100 | Ghana | 6,400 | 57.58 |
| | | Elfenbeinküste | 4,500 | 40.28 |

Transboundary Freshwater Dispute Database

- Internationale Flusseinzugsgebiete: Asien -



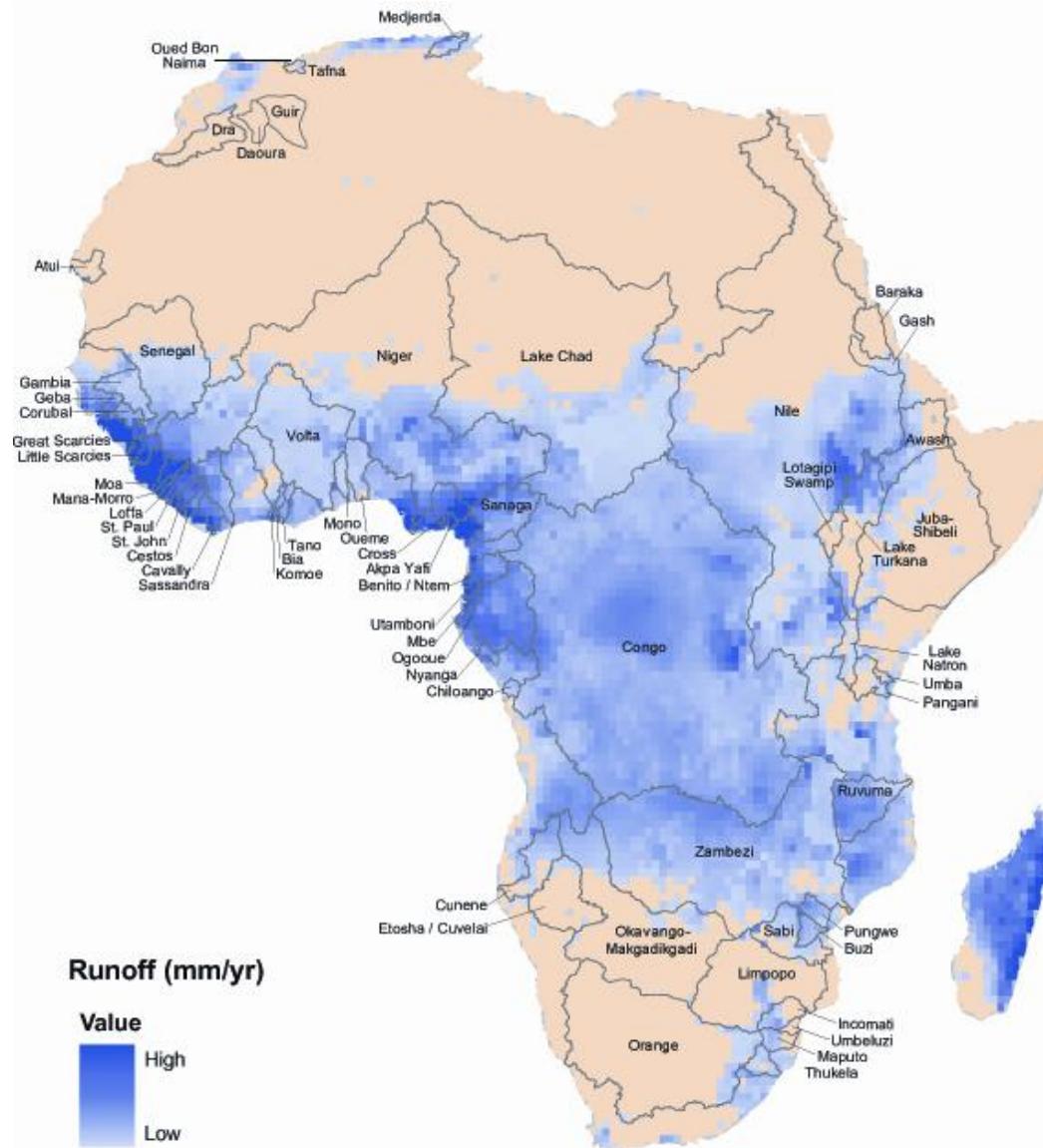
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- Internationale
Flußeinzugsgebiete:
Südamerika -



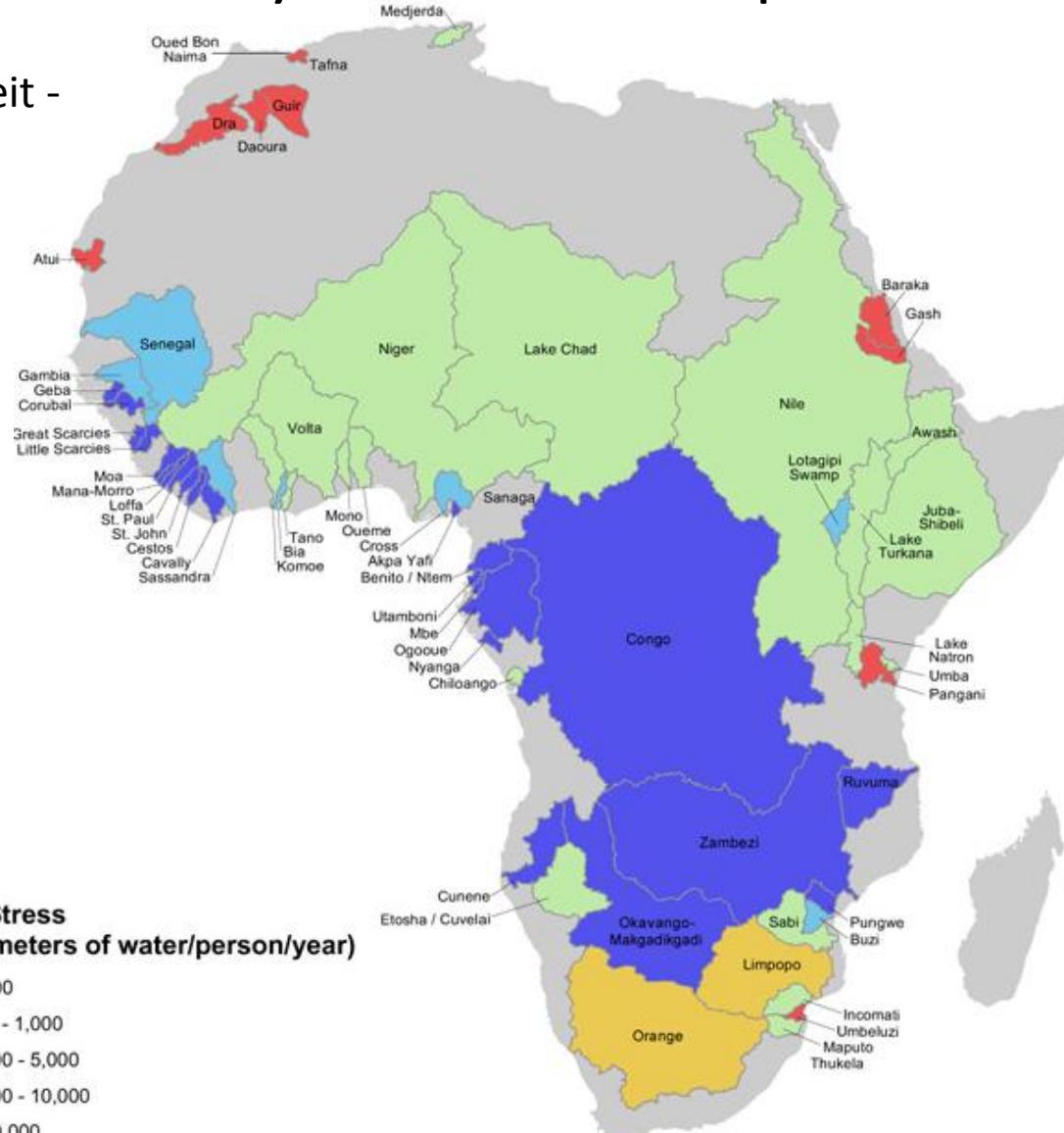
Transboundary Freshwater Dispute Database

- Abfluß -



Transboundary Freshwater Dispute Database

- Wasserknappheit -



Water Stress
(cubic meters of water/person/year)

- < 500
- 500 - 1,000
- 1,000 - 5,000
- 5,000 - 10,000
- > 10,000

Transboundary Freshwater Dispute Database

- International Freshwater Treaties Database -

Volltext-Datenbank über nahezu 450 internationale, süßwasser-bezogene Abkommen über den Zeitraum von 1820 bis 2007

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Transboundary Freshwater Dispute Database

International Freshwater Treaties Database – Eine Auswahl an Verträgen

| Date | Name | Signatories | Issue Area | Treaty Basin |
|------------|---|--|---|--|
| 1820-03-28 | Treaty of Limits Between France and the Netherlands concluded at Courtray | France, Netherlands | Border issues | Lys, Semoy, Meuse |
| 1994-09-16 | Agreement between the governments of the Republic of Angola, the Republic of Botswana, and the Republic of Namibia on the establishment of a permanent Okavango River Basin Water Commission (OKACOM) | Angola, Botswana, Namibia | Water quantity | Okavango |
| 1994-09-20 | Agreement between Lebanon and Syria on the distribution of water of Al-Asi River rising in Lebanon | Lebanon, Syria | Water quantity | Orontes, Al-Asi |
| 1994-10-26 | Treaty of peace between the state of Israel and the Hashemite Kingdom of Jordan, done at Arava/Araba crossing point | Israel, Jordan, Lebanon, Syria | Water quantity | Araba/Arava groundwater , Yarmuk, Jordan |
| 1995-04-05 | Agreement on the cooperation for the sustainable development of the Mekong River Basin | Cambodia (Kampuchea), Laos, P.D. Republic of, Thailand, Vietnam | Water quantity, Flood control/ relief | Mekong |
| 1996-02-12 | Treaty between His Majesty's government of Nepal and the government of India concerning the integrated development of the Mahakali River including Sarada Barrage, Tanakpur Barrage, and Pancheshwar Project | India, Nepal | Water quantity, Hydro-power/ Hydro-electricity, Flood control/ relief | Mahakali |
| 1996-12-12 | Treaty between the government of the Republic of India and the government of the People's Republic of Bangladesh on sharing of the Ganga/Ganges waters at Farakka | Bangladesh, India | Water quantity | Ganges |
| 1997-05-06 | Complementary settlement to the agreement of cooperation between the government of the Eastern Republic of Uruguay and the government of the Federal Republic of Brazil for the use of natural resources and the development of the Cuareim river basin | Brazil, Uruguay | Water quantity | Cuareim |

Transboundary Freshwater Dispute Database

Beispiel: Bilaterales Abkommen, Gesetz Nr. 15 bezüglich der Aufteilung des Wassers des Al-Asi (Orontes-Wassers) zwischen Syrien und Libanon

| |
|---|
| Treaty Basin: Al-Asi, Orontes |
| Date: September 20, 1994 |
| Signatories: Lebanon, Syria |
| Parties: Bilateral |
| Principal Issue Area: Water Quantity |
| Allocations: Annual Lebanese share is 80 mcm when amount of water in Lebanon is 400 mcm or greater. When the annual quantity of water is <400 mcm, the year will be considered a rainless year and the Lebanese share will be reduced by 20%. |
| Non-water Linkages: Not Available |
| Monitoring: Yes |
| Enforcement: No |
| Conflict Resolution: Not Available |
| Additonal Comments: The parties consider the water of the Orontes river that originate in Lebanon as being of common interest. |

Transboundary Freshwater Dispute Database

- Überblick über internationale Süßwasser-Verträge -

- ca. 450 Verträge und Institutionen, die die Nutzung internationaler Wasserläufe jenseits der Schifffahrt betreffen
- Nur 50% der internationalen Becken sind abgedeckt
- Erster Überblick basierend auf 145 Verträgen:
 - 86% sind bilateral, nur 14% multilateral
 - 39% über Wasserkraft
 - 37% über Wasserverteilung
 - 54% mit Überwachungsmaßnahmen
 - 30% mit finanzieller Kompensation
 - ...

Transboundary Freshwater Dispute Database

- International Water Event Database -

Datensatz aus schätzungsweise 6400 internationalen Wasser-Events (wasserbezogene Ereignisse von Kooperation und Konflikt) von 1948 bis 2008, klassifiziert durch eine Intensitätsskala



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Transboundary Freshwater Dispute Database

- Basins-at-Risk Water Event Intensity Scale (BAR-Scale) -

- 
- 7 Formale Kriegserklärung**
 - 6 Kriegshandlungen mit Todesfällen, Vertreibung oder hohen strategischen Kosten**
 - 5 Militärische Zwischenfälle**
 - 4 Feindliche Aktivitäten**
 - 3 Wirtschaftskriege** (z.B. einseitige Verfolgung von Wasser-Projekten gegen den Protest eines anderen Landes; Reduzierung des Wasserabflusses in ein anderes Land; Kündigung eines Wasser-Abkommens)
 - 2 Starke offizielle verbale Äußerungen, die Feindseligkeit in der Interaktion bekunden**
 - 1 Schwache verbale Äußerungen, die Unstimmigkeit in der Interaktion bekunden (inoffiziell und offiziell), diplomatische Zeichen des Protests einschließend**

Transboundary Freshwater Dispute Database

- Basins-at-Risk Water Event Intensity Scale (BAR-Scale) -

0 Neutrale oder nichtsignifikante zwischenstaatliche Handlungen

- 
- 1 Geringer offizieller Austausch, Gespräche oder politische Absichtserklärungen**
 - 2 Offizielle Unterstützung von Zielen, Wertvorstellungen oder Wasser- Regimen**
 - 3 Abkommen oder Unterstützung nicht-strategischer Art, um kooperative Arbeitsgruppen aufzubauen**
 - 4 Nicht-militärische, wirtschaftliche, technologische oder industrielle Abkommen, gemeinsame, kooperative Handlungen zwischen Staaten, die nicht den Charakter von Verträgen haben (z.B. Kooperationsprojekte zur Verwaltung von Wasserscheiden, Bewässerung)**
 - 5 Militärische, wirtschaftliche oder strategische Unterstützung**
 - 6 Größere regionale oder internationale strategische Allianz (z.B. internationaler Süßwasser-Vertrag)**
 - 7 Freiwilliger Zusammenschluss zu einer Nation**

Transboundary Freshwater Dispute Database

Beispiel: Euphrat-Tigris-Ereignisse 1998-1999

| Countries | BAR-Scale | Issue Type | Date | Event Summary |
|-------------------|-----------|--|-------------|---|
| Iraq-Syria | 3.0 | water use | Jun 22 1998 | Irqi irrigation Minister al-Ahmad said negotiations between Iraq & Syria on using Euphrates water, which springs from Turkey territory & passes through Syria before entering the Arab Gulf, are continuing.... |
| Syria-Turkey | -1.0 | water issue (from other issues --> quantity & quality) | Jul 2 1998 | Doors for dialogue were opened to normalize relations between Turkey & Syria with a visit of 'Umran, Syria undersecretary of the Foreign Ministry, but no course was opened for Cem, Turkey Foreign Minister (visit to Damascus). 'Umran identified the PKK as ... |
| Syria-Turkey | -1.0 | water sharing | Aug 16 1998 | Syria Foreign Minister Shara said in order to resume negotiation with Israel, these should re-start from where they left off. In an interview with Lebanon tv network Sunday on the water problem with Turkey, Shara said the main problem lies in the fact that... |
| Iraq-Syria-Turkey | -3.0 | water sharing | Oct 4 1998 | Negotiations reached a deadlock because major points of disagreement - including Kurdistan Workers' Party, sharing Euphrates & Tigris water, & Turkey-Israel military alliance - remained without answers by either side... |
| Syria-Turkey | -1.0 | water committees | Oct 6 1998 | Syria Embassy in Ankara has said that escalation of tension between Turkey & Syria is caused by Turkey-Israel military cooperation, which it claims is a military pact, & by Turkey's boycott of negotiation committee on water & other issues... |
| Syria-Turkey | -1.0 | water issue | Oct 6 1998 | Virtue Party leader Kutan said that developments concerning Syria have constituted hottest issue on Turkey's agenda lately, adding: Syria has been extending moral & logistic support to Workers Party of Kurd. (PKK) terrorism for 14 years... |
| Syria-Turkey | 1.0 | water allocation | Apr 3 1999 | Turkey President Demirel expressed hope that Turkey will emerge stable from 4/18 elections. Replying to reporters' questions in Qatar on whether talks will be held with Syria on water issue, Demirel said Turkey is always open to negotiations... |
| Jordan-Turkey | 1.0 | water supply | Jul 15 1999 | Turkey Ambassador to Jordan, Topur, said he doesn't expect the issue of supplying Jordan with water from Turkey to come under discussion during present visit by President Demirel. However, he voiced Turkey's readiness to pursue dialogue on the subject... |
| Syria-Turkey | 1.0 | water | Jul 17 1999 | Turkey Foreign Minister Cem was careful to reassure Arab states that relations between Turkey & Israel will not be at their expense. On Turkey-Syria relations, Cem noted that these relations have witnessed tangible improvements... |
| Iraq-Turkey | 2.0 | water sharing | Nov 8 1999 | Iraq has asked Turkey to grant it a proper share of water from the Degla & Euphrates Rivers... |