WATER WARS - PART 2
A CLEAR AND PRESENT DANGER
(Threats to your SUSTAINABILITY)

PAAWWA CONFERENCE
MAY 8, 2014
BETHLEHEM, PA

DENNIS C. BECK
THREATS TO YOUR SUSTAINABILITY
DENNIS C. BECK

Master’s degree – Environmental Pollution Control
Penn State
PA Rural Water Association Board
Cambria County Conservation District
W. PA Coalition for Abandoned Mine Reclamation
Trout Run Watershed Association
Central Mainline Sewer Authority
Adjunct Faculty – Mt. Aloysius College
ORSANCO

bikerbeck@comcast.net
“WHISKEY IS FOR DRINKING”

“WATER IS FOR FIGHTING”

MARK TWAIN
GOLD IS NO LONGER THE MOST PRECIOUS TREASURE

IT IS WATER!!!!!
BRAHMA CHELLANEY
OCTOBER 8, 2013
THE COMING WATER WARS

BOOK TITLE
“WATER, PEACE AND WAR”
2013
CNN REPORT BY Jason Mike
MARCH 22, 2013
“THE COMING WATER WARS”
PACIFIC INSTITUTE LISTS 225 CONFLICTS IN HISTORY BUT HALF HAVE BEEN IN THE LAST 20 YEARS
NEXT GREAT CONFLICTS

WILL BE BASED ON WHO HAS THE WATER

AND WHO WANTS THE WATER!!!!!!
The Intergovernmental Panel on Climate Change predicts that by 2020 upwards of 1.5 billion people worldwide will be facing water stress, including anywhere from 7 million to 77 million in Latin America.
Elk River - Kanawha County – MCHM
Licorice smell – no significant study done on health effects
10,000 gallons – 300,000 people
WHERE WAS THE WATER COMPANY???
February 2, 2014
Dan River North Carolina
82,000 tons (164,000,00 lbs.) Toxic COAL ASH
Pile was 75 feet long and 5 feet deep in river
Traveled down river and across state line
Kerr Lake, significant buildup on lake bed.
(similar to coal ash spill in 2008 in TN which resulted in “tremendous fish kill”)
Species affected – mussels, fish
Residents warned to avoid prolonged?? contact with parts of the Dan River and do not eat the fish.
April 28, 2014

Alpha Natural Resources (Coal Co.)
Discharge from holding pond
Violated discharge permit on selenium
Arguments were “no specific limit on selenium”

But violated “Water Quality Standards”
VIRGINIA
MAY 1, 2014
CSX TRAIN PULLING OIL TANKERS DERAILED AND OIL CAUGHT ON FIRE IN THE JAMES RIVER
POSSIBLY 50,000 GALLONS OF CRUDE OIL NEXT DAY
COAL CARS PULLED BY CSX IN BOWIE MARYLAND DERAILED AND DUMPED AT LEAST ONE CARLOAD OF COAL
MAY 7, 2014

CALIFORNIA

DISCUSSIONS ON REVERSING THE FLOW OF WATER IN THE AQUADUCT AND PUSH THE WATER UPHILL TO THE CENTRAL VALLEY
LAS VEGAS – AGAIN
GLEN CANYON DAM (LAKE POWELL) VS LAKE MEAD
LAKE POWELL LEAKS WATER DUE TO ROCK STRUCTURE UNDER THE WATER
SHOULD WE FILL LAKE MEAD FIRST THEN WORRY ABOUT LAKE POWELL PARTNERSHIPS WITH CALIFORNIA AND ARIZONA AT RISK
Lake Mead Daily Water Levels: Last 150 Days

Min Elevation: 1093.77 on May 04, 2014  Max Elevation: 1108.96 on February 02, 2014
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<th>DATE MEASURED</th>
<th>ELEVATION</th>
<th>CHANGE</th>
<th>CONTENT</th>
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LAS VEGAS
PASSED A REFERENDUM TO
BUILD A NEW $800 MILLION
PIPELINE AND TAP DEEPER
INTO LAKE MEAD BECAUSE OF
THE LOW LEVELS IN THE LAKE
LAS VEGAS

CITY IN THE DESERT

LAS VEGAS VALLEY HAS SUNK 6 FEET IN 50 YEARS DUE TO GROUNDWATER WITHDRAWAL
PAT MULROY
HEAD OF SOUTHERN NEVADA WATER AUTHORITY
(SNWA)
PROPOSED PIPING MISSISSIPPI FLOOD WATERS TO REPLENISH THE OGALLALA AQUIFER
BUT IT DIDN’T FLOOD THIS YEAR
OFFICIAL FOR LAS VEGAS WATER

ASKED WHY THEY NEED TO EXPAND THE CITY IF THEY DON’T HAVE THE WATER

“IF WE DON’T GROW, THE TOWN WILL DIE”
NORTH LAS VEGAS
MAY 5, 2014

NEXT CITY TO DECLARE BANKRUPTCY
POPULATION HAS DOUBLED SINCE 2000
NOW AT 250,000
GLOBAL WARMING
WE SURE DIDN’T FEEL IT HERE THIS WINTER BUT
CALIFORNIA AND TEXAS ARE FEELING
100 DEGREE TEMPS
NOW WITH FIRE SEASON IN FULL GEAR
APRIL 28 CORPUS CHRISTI HIT
100 DEGREES
OREGON vs CALIFORNIA
KLAMUTH RIVER
REMOVE DAMS
RESTORE SALMON RUNS
WATER FOR FARMERS
WATER FOR TRIBES
RESOLVED
UPDATE – JUNE 11, 2013

Klamuth Tribes and the Feds agreement

ADMIN LAW JUDGE – TRIBES HAVE SENIOR WATER RIGHTS

WATER MASTER – OREGON DEPT. OF H2O RESOURCES WILL CHECK FLOWS AND RESTRICT OR SHUT VALVES TO KEEP FLOWS TO MEET TRIBE AND FEDS KLAMUTH RECLAMATION IRRIGATION PROJECT
BATTLE HAS BEEN ON SINCE 2001
DROUGHT
REMOVAL OF 3 HYDRO DAMS TO RESTORE SALMON RUNS
RANCHERS DISREGARDED LIMITED QUANTITY OF WATER AVAILABLE FOR CATTLE AND OVER STOCKED – NOW FACE WATER RESTRICTIONS AND CAN’T WATER THE HERDS.
WHOSE FAULT????
GEORGIA vs TENNESSEE
GEORGIA WANTS LAND ACCESS TO THE TENNESSEE RIVER

1796 TN admitted to Union - Congress defined the border as the 35th Parallel

Survey hindered by river and Indians - Moved border 1 mile south of the river

If corrected – Memphis would be in MISS

Congress is not going to change it
GEORGIA – ALABAMA – FLORIDA

2/17/2014

COURT FIGHTS OVER ALLOCATION RIGHTS, HYDROELECTRIC POWER, SEAFOOD INDUSTRY IN APALACHOCOLA BAY.
Montana – Flathead River
Confederated Salish and Kootenai Tribes filed for water rights and enter into a “Water Rights Compact” for access to water from the Flathead river for irrigation and water supplies for the reservation..

Ongoing

AWWA Journal  June 2013
SEATTLE
LOTS OF WATER IN THE WINTER
BUT
SUMMER AND FALL –
CEDAR RIVER FLOW DROPS
WINDWARD SIDE VS LEEWARD SIDE
SEATTLE – 140” RAIN
SPOKANE - 10 – 30” RAIN
WYOMING

Too little SOURCE WATER PROTECTION PLANS

SHALE GAS EVERYWHERE

RARE MINERALS MINING

RADIOACTIVE DRILLING WASTE AND FILTER SOCKS

DEEP WELL INJECTIONS OF WASTE WATER

TOO MUCH $
FLORIDA
SALT WATER INTRUSION
DANIA BEACH
POMPANO BEACH
HALLENDALE BEACH
LATANA
LAKE WORTH
HAWAII

DRILLING NEW WELLS TO SUPPLY TOURIST POPULATION

SALT WATER INTRUSION?? IF OVERPUMPED
GALAPAGOS ISLANDS

Isabela – Salt water and Fecal Coliform intrusion

San Christobal – Water in Highlands, but not where the people are??

Santa Cruz – salt water intrusion, irrigation water in short supply

Floreana – depleted its springs due to human population
S. FLORIDA WATER DISTRICT

SPENDING $1.34B

TO BUY 73,000 HECTARE
180,000 ACRES OF EVERGLADES
FOR RESTORATION OF STORAGE CAPACITY

MITIGATE SALT WATER INTRUSION
MAINE

POLAND WATER (NESTLE)
700 MILLION GALLONS/YEAR

ABSOLUTE DOMINION RULE PUMP GROUND WATER REGARDLESS OF IMPACT

NO RESTRICTION ON LARGE WITHDRAWALS
MICHIGAN vs NESTLE’S

250-400 GPM WOULD LOWER STREAM FLOW BY 28% AND POTENTIALLY DROP LAKE MICHIGAN SEVERAL INCHES

Nestle study – no effect on levels – COURT BATTLES STILL ONGOING

REAL TEST CAN THEY EXPORT WATER OUT OF WATERSHED

U.S. SUPREME COURT DECISION
CHAIRMAN OF NESTLE CORP. 
Peter Brabeck-Letmathe

“IF YOU DECIDE TO LIVE IN AN AREA WHERE THERE IS NO WATER, YOU DESERVE TO DIE”

BUT WE WILL SELL YOU WATER AT A 1000% PROFIT

WEB SITE

NESTLE CORP: WATER IS NOT A HUMAN RIGHT
ALASKA
BRISTOL BAY (not bristol palin)
Silver and Molybdenum Mine
PIT – 2 MILES WIDE AND 1700 FEET DEEP HOLDING WASTE WATER FROM THE MINE

PROPOSAL TO SELL WATER FROM SITKA, AK TO ASIA??
FRAC FACTS

December 2010 Indiana County
CHEC (CENTER FOR HEALTHY ENVIRONMENTS AND COMMUNITIES)
WASTEWATER DISCHARGE

BARIUM – \(14X\) OVER STANDARD
STRONTIUM \(746X\) HIGHER
BENZENE – \(2X\) HIGHER
TDS – \(373X\) HIGHER

FOODANDWATERWATCH.ORG
NYTIMES ARTICLE 2011
FRAC WATER TESTED IN PA AND WVA
240 WELLS TESTED
116 HAD RADIATION 100X HIGHER THAN STANDARD
15 HAD RADIATION 10000X HIGHER
PA - HIGHER DEMAND FOR WATER
10 BILLION GAL/DAY WITHDRAWN
BILLIONS NEVER RETURNED TO WATER CYCLE OR RETURNED DEGRADED
COMMONWEALTH NOT COMPENSATED FOR THIS
STATE CONSTITUTION – PA CITIZENS HAVE A RIGHT TO CLEAN WATER
MARCELLUS SHALE COMPANIES PLAN TO DRILL 20,000 WELLS IN DELAWARE RIVER BASIN

5 MILLION GALLONS/WELL
25 % RETURN
3.75 MILLION IN GROUND
75,000,000,000 GALLONS
BRADFORD COUNTY
1142 WELLS DRILLED

5 MILLION GALLONS PER WELL TO FRAC

5.7 BILLION GALLONS

25% FLOWBACK STILL LEAVES

4.3 BILLION UNDERGROUND

INCLUDE 5 CONTIGUOUS COUNTIES

3677 WELLS

13.8 BILLION GALLONS UNDERGROUND
FRACING CHEMICALS

WHAT GOES DOWN
WATER 99.5
SAND - HOLDS CRACKS OPEN
HCl - DISSOLVE MINERALS AND INITIATE CRACKS
AMMONIUM PERSULFATE - DELAYS BREAKDOWN OF GEL
BORATE SALTS – MAINTAIN FLUID VISCOSITY AS TEMPS RISE
GLUTARALDEHYDE - ELIMINATES BACTERIA - DISINFECTANT
CITRIC ACID – PREVENTS PRECIPITATION OF METAL OXIDES
HYDROXYL CELLULOSE – THICKENS WATER TO HOLD SAND
PETROLEUM DISTILLATE – “SLICK” WATER TO MINIMIZE FRICTION
ISOPROPANOL – INCREASE VISCOSITY
ETHYLENE GLYCOL – PREVENTS SCALE

+ 3 MORE ON LIST
## Fracing Chemicals

### What Comes Back Up

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<th>Chemical</th>
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<td>Ethyl Mercaptain</td>
<td>Sodium Chloride</td>
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<tr>
<td>Xylene</td>
<td>Chlorine Dioxide</td>
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<td>Boric Acid</td>
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<tr>
<td>Styrene</td>
<td>Aniline</td>
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<td>Naphthylene</td>
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<td>Bromides</td>
<td>Nickel Sulfate</td>
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<tr>
<td>Benzyl Chloride</td>
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<tr>
<td>Methanol</td>
<td>Ammonia</td>
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<td>+ 57 Others with at least 10 health effects</td>
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Oklahoma earthquakes
Fracing increased dramatically in 2009
SEE CHART FOR RECORD OF QUAKES
OCTOBER 2013 – APRIL 2014
183 QUAKES OF 3.0 OR BETTER
AVERAGE IS 2 PER YEAR
SINCE 2009 20 QUAKES OF 4.0-4.8
NOVEMBER 5, 2011 5.6
DEEP WELL INJECTIONS
US HAS NO CENTRAL CONTROL OVER WATER ISSUES

6 CABINET POSITIONS
20 FEDERAL AGENCIES
13 CONGRESSIONAL COMMITTEES
23 SUB COMMITTEES
5 APPROPRIATION SUB COMMITTEES
Los Angeles Department of Water and Power

Import most water from 200-400 miles north of the city
VALLEYS WHERE CA DEPT. OF WATER AND POWER ARE MINING WATER

USGS REPORTED THAT SOME AREAS HAVE DROPPED 30’ DUE TO GROUNDWATER MINING

(TAKING MORE WATER OUT OF GROUND THAN IS REPLACED)
EAGLE POINT, OREGON
MAN SENTENCED TO 30 DAYS IN JAIL
FOR STEALING WATER FROM THE
MEDFORD WATER DISTRICT.

“COLLECTING RAIN WATER?????”

RAIN BARRELS AND AN “ILLEGAL
POND” DIVERTED WATER FROM THE
CROWFOOT CREEK
COLUMBIA
APRIL 5, 2014
LAST 3 MONTHS EXTREME DROUGHT
THOUSANDS OF WILDLIFE HAVE DIED,
RESERVOIRS DRIED UP
OIL EXPLORATION HAS INFILTRATED
SURFACE WATER AND DESTROYED
WETLANDS STREAMS AND LAGOONS
UNSUSTAINABLE LAND USE FOR
COMMERCIAL CROPS – RICE, AFRICAN PALM
Peruvian Mountains
August 6, 2013

8 people killed in protests over losing water supply to mining company
But plans to redistribute water by rerouting rivers or drilling through the Andes raise questions for which neither politicians nor scientists have easy answers.

How much water can be piped from reservoirs in the Andean highlands or Amazonian cloud forest without damaging those ecosystems?

Who has priority: thirsty cities or food producers? Subsistence farmers or export agribusinesses? Poor rural communities or revenue-generating mines?

Agriculture or Hydroelectricity
MIDDLE EAST

JORDAN RIVER

LEBANON vs ISRAEL vs SYRIA vs WEST BANK
Israel facing Extreme Drought

Report on February 2, 2014

Kinneret (Sea of Galilee) water level dropped 2” in last 5 months of rainy season

Last year, same time – rose 5’

Farmers facing the greatest cuts

Israel has priority as to who gets any water
Israel controls the headwaters of the River Jordan and the aquifers that flow from the highlands of the West Bank.
JUNE 12, 2013

EGYPT VS ETHIOPIA

(NEW YORK TIMES)

ETHIOPIA’S NILE RIVER DAM PROJECT THREATENS WATER FLOW TO EGYPT

EGYPT DISCUSSED WAYS TO BLOW UP THE DAM OR SUPPORT REBEL GROUPS IN ETHIOPIA
EGYPT

HAS ONLY 6-7% ARABLE LAND

ETHIOPIA IS THE SOURCE OF ABOUT 85% OF THE NILE RIVER WATER
CHINA 1999
2 LOCAL GOVERNMENTS WENT TO WAR OVER WATER BETWEEN BEIJING AND SHANGHAI BOMBED WATER CANALS FOR WATER
100 PEOPLE KILLED (THE RIPPLE EFFECT)
CHINA

JULY 8, 2013

50% SURFACE WATER TOO POLLUTED TO USE NOW

NORTH CHINA PLAINS GROUNDWATER – SUPPLYING 18% OF THE WATER TO THE COUNTRY IS ALL CONTAMINATED WITH PESTICIDES, FERTILIZERS, PETROCHEMICAL WASTES, IRRIGATION WASTE WATER

STUDY IN 2006 - GW ALMOST IRREPARABLY CONTAMINATED
COULD THIS HAPPEN TO YOUR STATE??

NOT IF, BUT WHEN!!!!!!

ARE YOU READY????

QUESTIONS?
REFERENCES

Last Oasis – Sandra Postel
Last Call at the Oasis – Karl Weber
The Future of Water – Steve Maxwell
The Ripple Effect – Alex Prud’homme
supremecourt.gov
Farmers Almanac
The New York Times
The Weather Channel
U.S. Geologic Survey
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National Association of Conservation Districts
National Rural Water Association
Johnstown Tribune Democrat
WE&T Magazine
AWWA Journal
Parade Magazine