

SDIMI 2013

SUSTAINABLE DEVELOPMENT IN THE MINERALS INDUSTRY

The Challenge of Water



Efthimios O. Vidalis

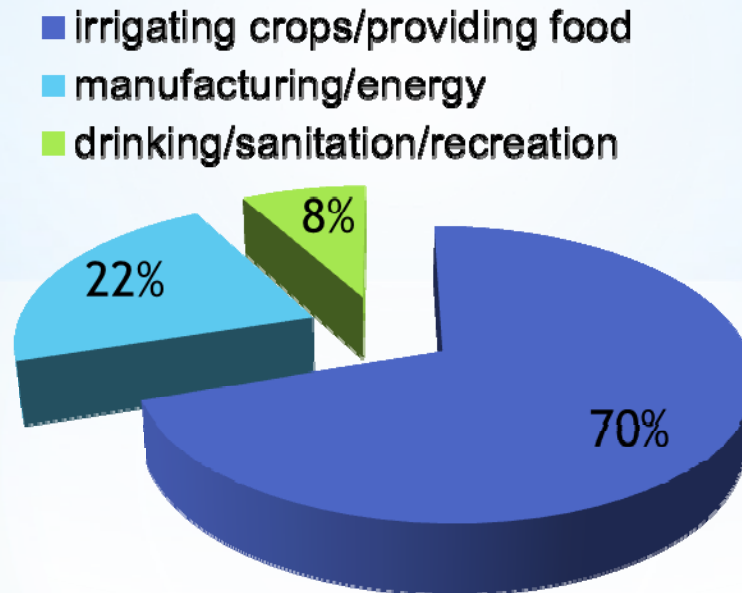
Chairman - SEV Business Council for Sustainable Development

Some key water statistics

70% of the earth's surface is covered by Water

of the Water on the planet 97% is saline/undrinkable
of the remainder 3% is considered Fresh water
of which only 1% is Potable/drinkable

Freshwater use



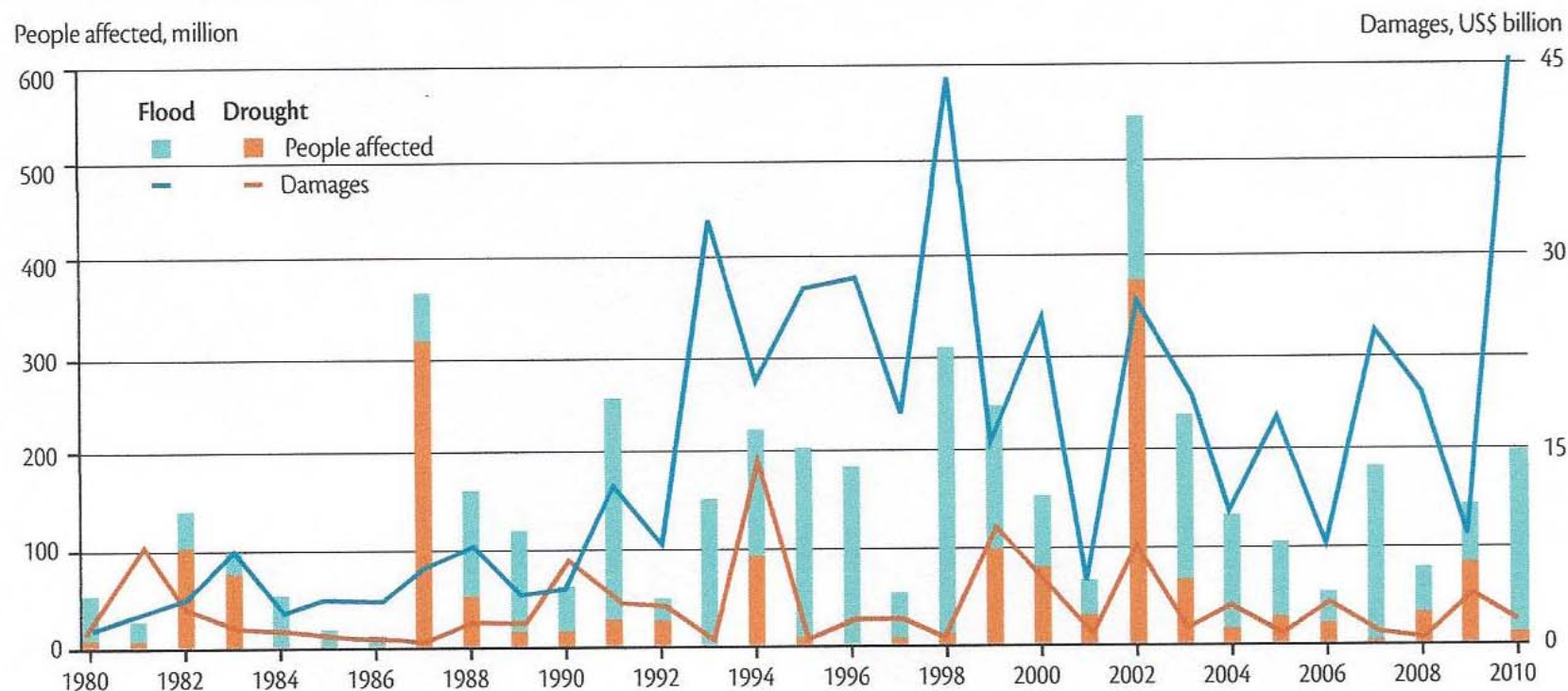
Water scarcity – The impending crisis

- More than 2 billion people currently live in **water-stressed areas** - figure expected to rise substantially.
- Global **water withdrawals** (from groundwater and surface water) have tripled over the last 50 years. Agricultural, industrial, and domestic water withdrawals have all steadily increased.
- Between the 1980s and the 2000s, the number of **flood disasters and drought disasters** increased 230 percent and 38 percent respectively.
- **Freshwater and marine water quality** are compromised.
- Groundwater around the world is threatened by pollution from agricultural, industrial, extractive and urban areas.
- The rapid growth of atmospheric CO₂ concentrations is associated with similarly rapid increases in **ocean acidification**.



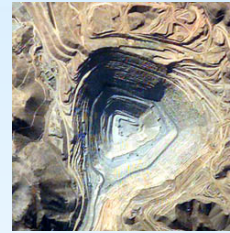
The impact of floods & droughts

People affected by and damages associated with floods and droughts, 1980–2010



Note: The costs of the large floods in Thailand and Pakistan in 2011 are not included here.

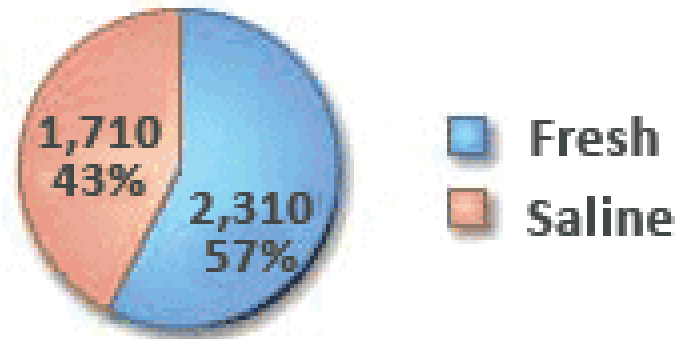
Source: EM-DAT: The OFDA/CRED International Disaster Database.
Université Catholique de Louvain, Brussels. (GEO-5 p. 107)



The Extractive Industry & Water

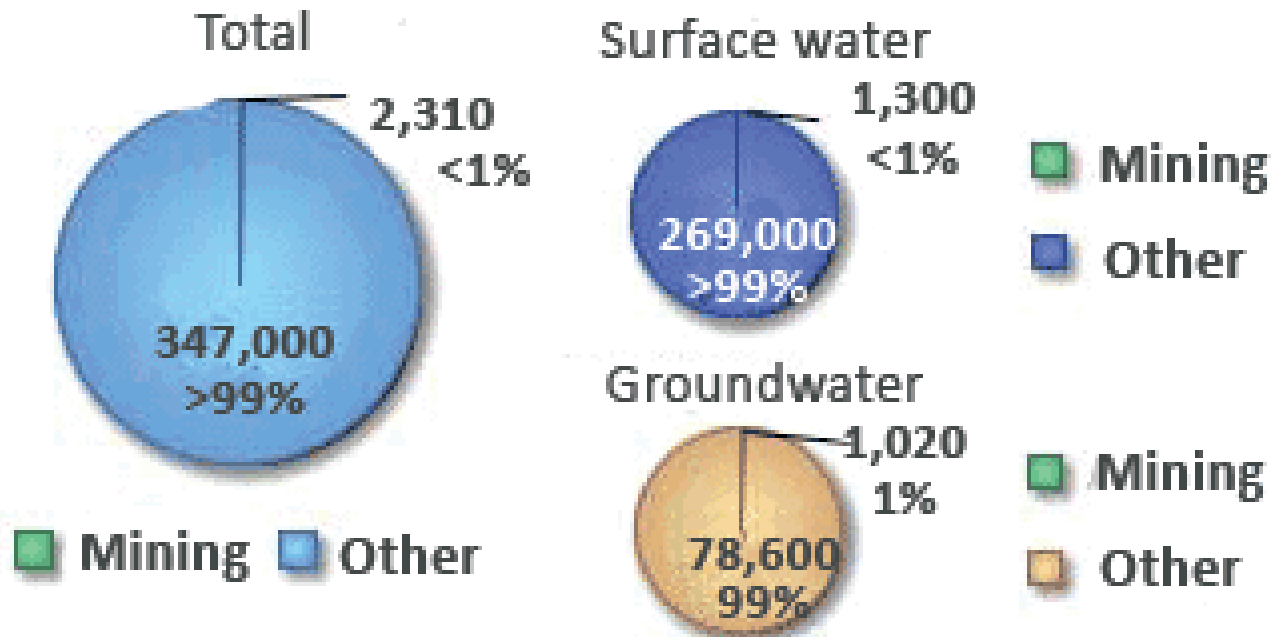


Mining Water withdrawals in the USA



Mining uses
1% of total water
withdrawals in the
US.

Mining freshwater withdrawals in the USA



Sierra Nevada – Water cannons (1870)



The extracting industry and Water

Water availability

Mining and oil and gas operations are vulnerable to drought and changes in local water availability. Mining typically relies on large amounts of water – for both open pit and underground extraction, as well as processing and refining – particularly for precious metals, diamonds, copper, and nickel. This water demand is likely to increase in coming years as many major commodities face declining ore grades. Reduced water availability in a region can constrain or stop production, increase competition with local communities and other industry sectors for water supplies, increase costs for pre-use and post-use water treatment, and spur regulators to either charge more for water or require mining operations to provide their own water supplies. Similarly, water scarcity and/or the need to create new freshwater supplies can increase the operational costs of and significantly constrain oil and gas exploration, oil refining, oil sands extraction and refining, natural gas extraction, and potential oil shale production.

Operational Implications

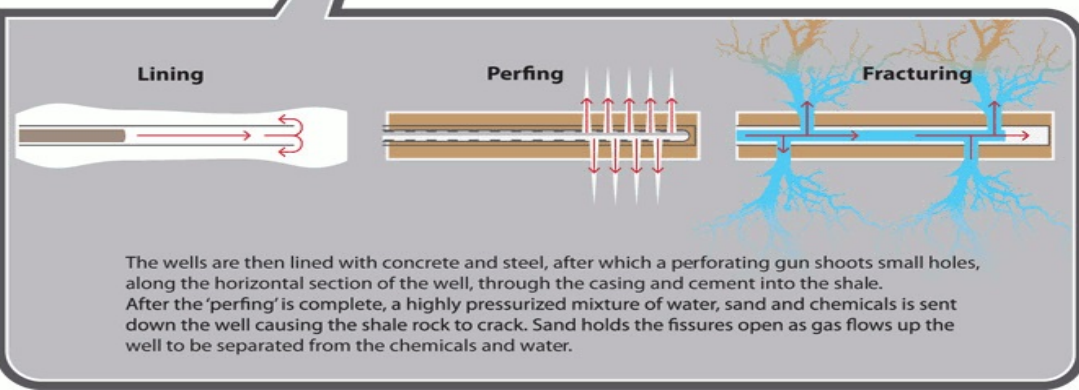
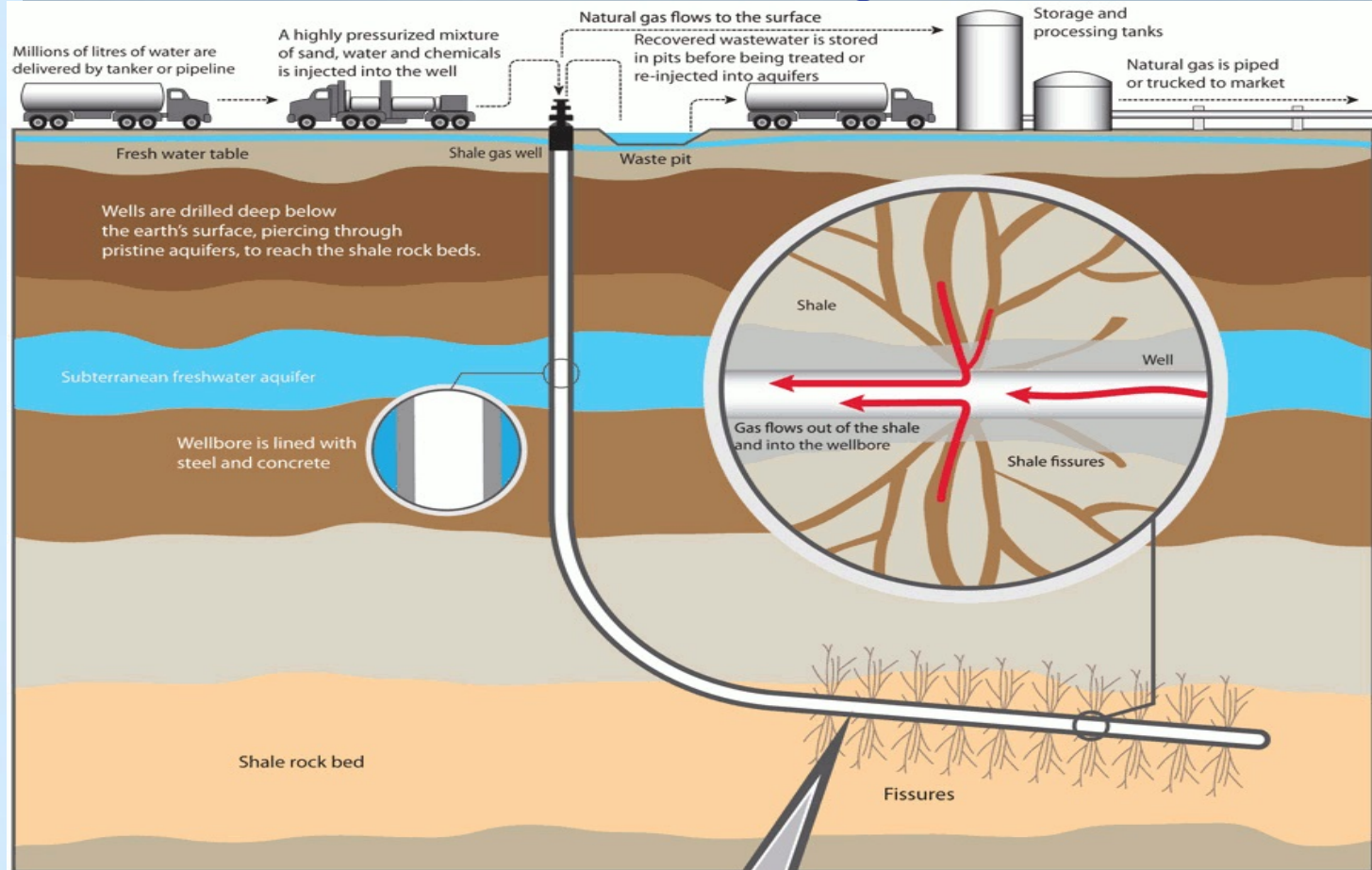
- Business continuity
- Access to resources
- Availability of water
- Decommissioning
- Workforce

Policy Implications

- **Water quality**



Fracking



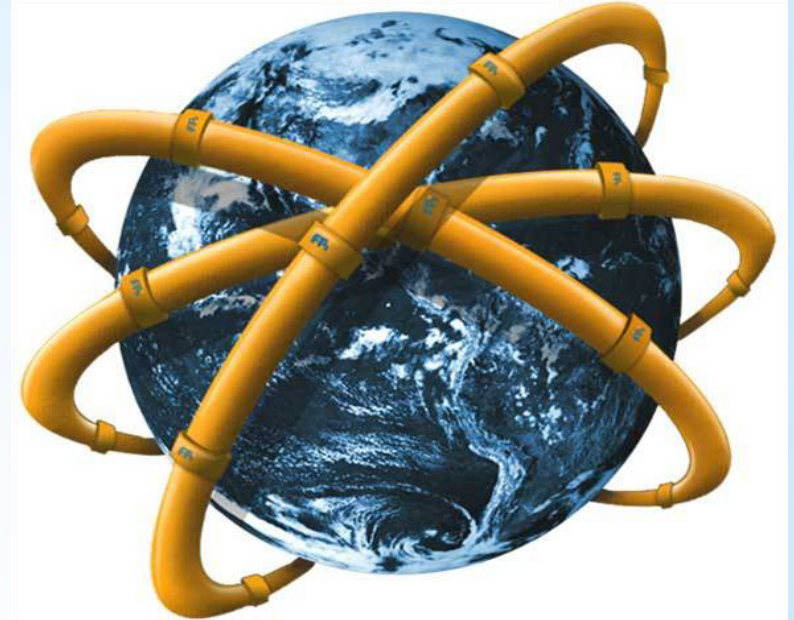
Policy Implications

- Water quality
- **Water availability**

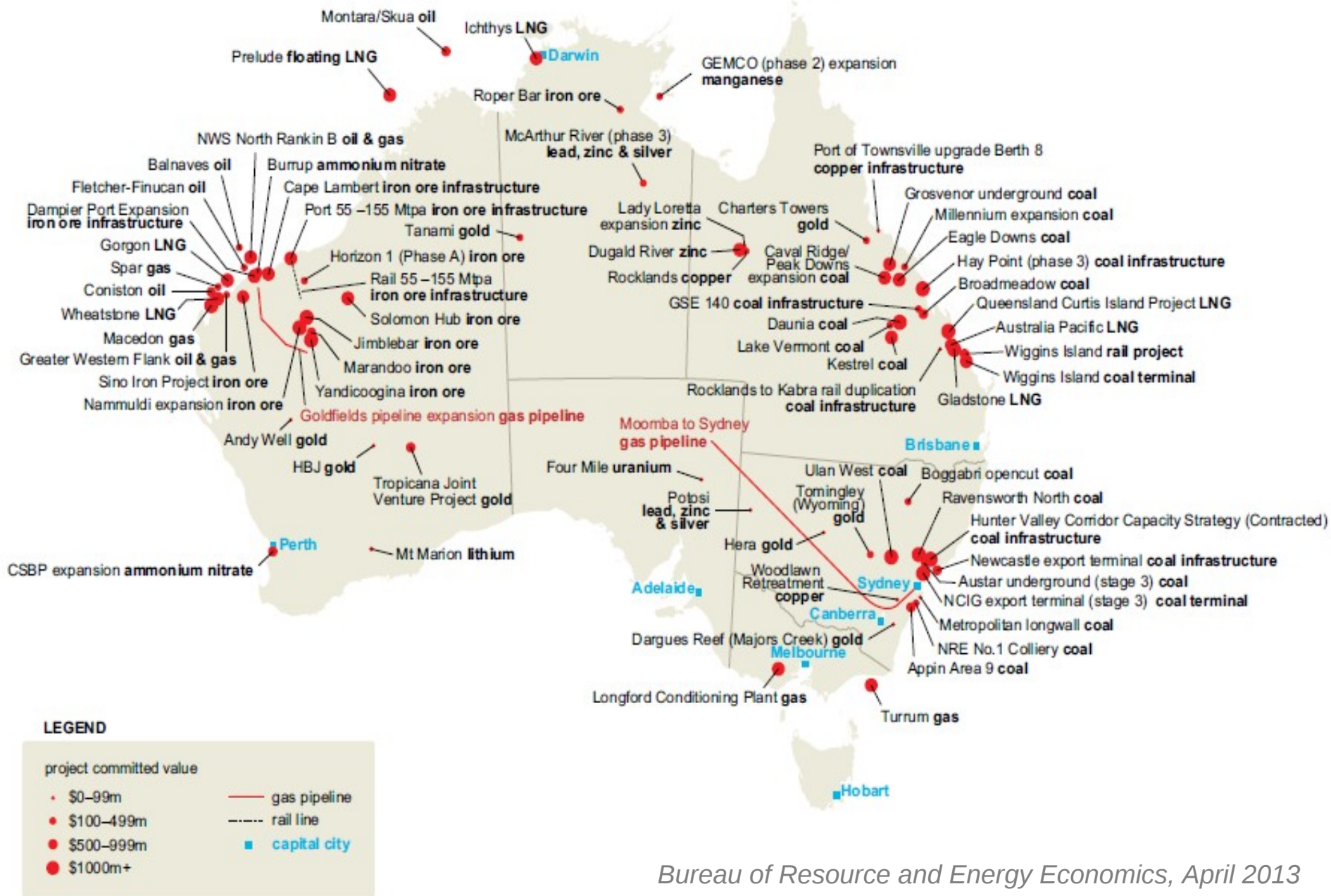


Slurry pipelines

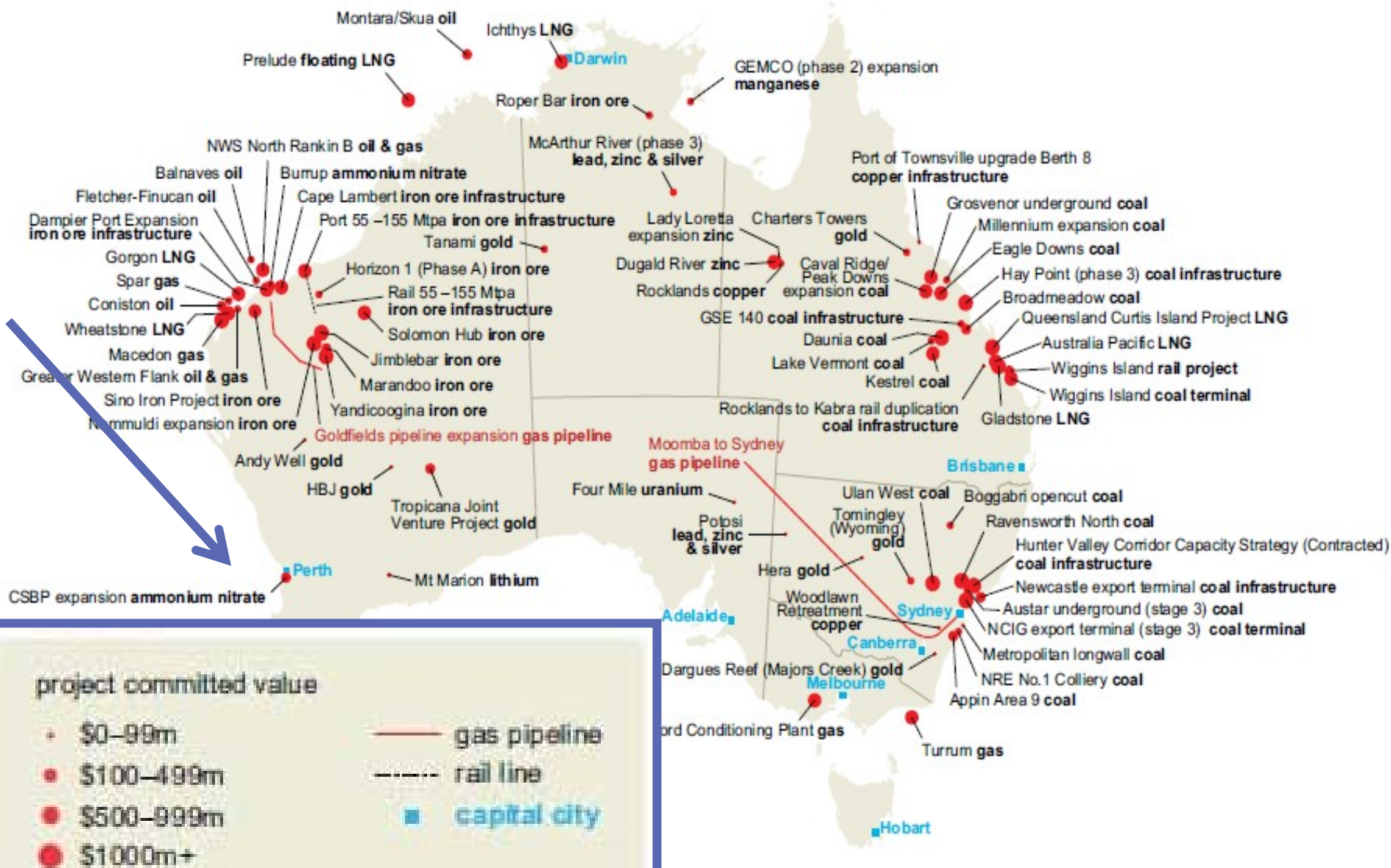
- ✓ economic advantage over railroad
- ✓ much less noise disturbance to the environment
- ✓ remove silts from deposits behind dams in man-made lakes



Committed resource projects in Australia



Committed resource projects in Australia



Upstream Development projected for Queensland by 2030



~25,000

~25,000 coal seam gas wells



~100 Field Compression Stations



~24 Central Processing Plants



~12 Water Treatment Plants

~2000 km of transportation pipe!!



Policy Implications

- Water quality
- **Water availability**



Reputational Implications for the extractives



followed by bio diversity and climate change

Water Use and scarcity as a reputational issue

The biggest user of water is the food industry (agriculture alone accounts for 70% of freshwater use)

The food processing industry and particularly the beverage industry and its bottling plants, have some of the highest withdrawal numbers around.

FOR THIS INDUSTRY, WATER IS THE no. 1 REPUTATIONAL ISSUE

“Food and beverage companies that take steps to improve their water efficiency (both in agricultural supply chains and in processing plants and other facilities) and to engage with local farmers, communities, and NGOs to address local and watershed-level water challenges may see reputational benefits, in addition to operational savings and competitive Advantages”

The example of Coca Cola Hellenic

Coca Cola's number 2 bottler,
operating in **28 countries**
with **revenue** of 7 Billion Euros and
EBITDA of 840 million euros



Operational water use
26,6 billion liters in 2012

Water policy – Our approach



As a beverage manufacturer, our business is about hydrating and refreshing consumers. Around half of the water we use goes into our beverages; the other half is used in manufacturing and cleaning processes, after which it is cleaned and returned safely to the environment.

Since water stewardship is critical to our ability to grow, we have a comprehensive strategy which focuses on:

- Ensuring the sustainability of our water extraction
- Minimizing our water use
- Ensuring 100% of our wastewater is treated
- Addressing water use in our supply chain by working with others
- Protecting the local watersheds in which we operate
- Promoting awareness of water issues in our communities

In 2011, we reached a major milestone: 100% of our wastewater across all 28 countries of operation is now treated to levels that support aquatic life.

Our strategy is underpinned by the CEO Water Mandate, of which we are a founding member, and ISO 14001 certification, which all bottling plants will achieve within 2012.

Treating 100% of wastewater

In 2011, we met our longstanding goal to ensure that all Company wastewater is treated to levels that support aquatic life. Since wastewater infrastructure is inadequate in many countries of operation, we had to construct 44 on-site treatment plants.

Our new wastewater treatment plants in FYROM and Armenia were the first such systems in the country. To promote wastewater management, we demonstrate the technology to local businesses, government and others

The COD load of our wastewater is now 76% lower than in 2003. Wastewater volume has also fallen by 12% as volume production grew by 75%. As a result, our water footprint has shrunk by 61% since 2004.

Our water footprint

The total water footprint of Coca-Cola Hellenic includes freshwater used in our operations and throughout our supply chain. Using the Water Footprint Network methodology, we calculated this footprint to be 966 billion litres in 2012. Our operational water footprint is calculated to be 61% smaller than in 2004.

Water policy

Promoting sustainable watersheds

Our water stewardship activities extend well beyond our operations and value chain. In 26 countries, we have built long-term partnerships with NGOs, government and UN agencies to benefit local ecosystems and communities.

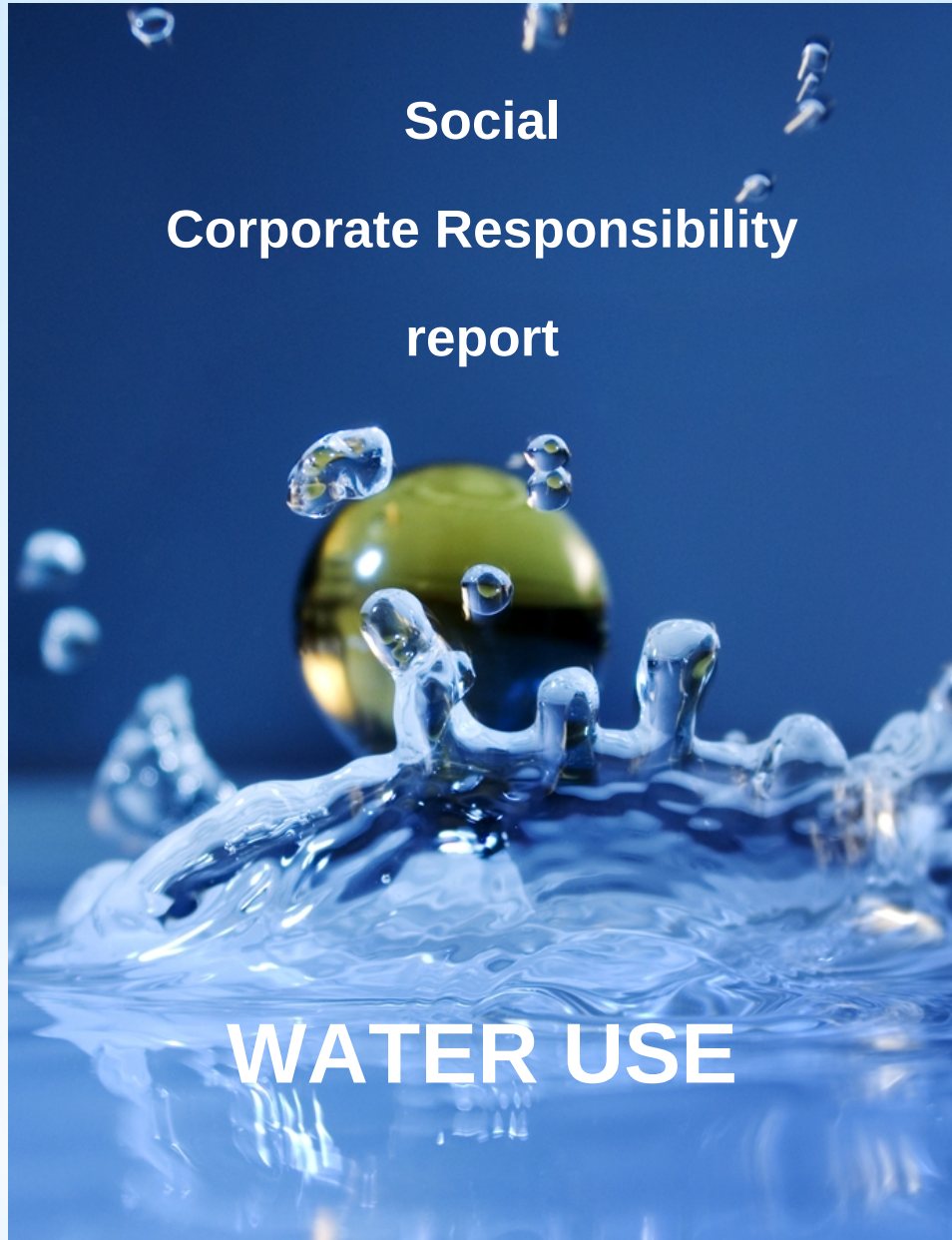
Since 2005, we have partnered with the International Commission for the Protection of the Danube River (ICPDR), conducting conservation, advocacy, awareness and education in 11 countries. We now have partnerships to conserve and promote the following rivers, water bodies and watersheds: Danube Basin, Danube River, Tisza River, Vistula River, Volga River, Sava River, Vrbas River, Yelnya Bog, Lake Baikal, in addition to beaches and sea shores in Greece, Ireland, the Baltics.



HOW DO WE RESPOND TO THIS CHALLENGE

**Social
Corporate Responsibility
report**

WATER USE



There are good opportunities to act...

MILOS example

- Since 2007 Milos has complemented its water supply for domestic use from a desalination station combined with renewable energy sources (about 500.000 lt/year) and does not need to “import” **water**.
- The biological cleaning station at Milos has been working since 2009 and has a capacity of processing about 18 m³ per hour. This supplements water supply with 60-70.000 m³ of **useful grey water**.
- and the big dream was/is **geothermal energy** which can be a **great source of energy** including desalination of water.

The mineral industry

Manage your own & be proactive

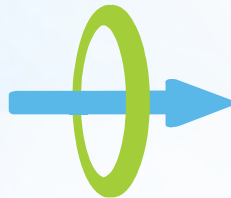


Inhouse



- Minimize/eliminate environmental impact on water be it the sea, or fresh surface or ground water.
- Optimize water use, Recycling, reuse .
- Demonstrate accountability and care.

With the Local Community...



Take a proactive lead role to:

- Locate new sources of water, new approaches new technologies.
- Waste treatment and Re-circulation.

Water resolution for SDIMI 2013

- ✓ water resolution as an addition to the social corporate responsibility report of our companies
- ✓ BE specific about it: initiatives, actions, figures, water footprint of your business
- ✓ SDIMI Conference Report on water



Adopting a proactive leadership role in the interaction with your local community

Thank you !

SDIMI 2013
Efthimios O. Vidalis