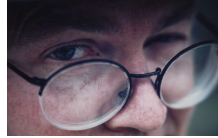


FRACK EU: UNCONVENTIONAL INTRIGUE IN POLAND



A Preliminary Investigation of the Fracking Assault on Poland



Conceived, researched, written,
edited, produced and financed
by Will Koop,
Coordinator,
B.C. Tap Water Alliance,
(www.bctwa.org/FrackingBC.html)
Vancouver, British Columbia

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15. THE LAST CHAPTER: WHAT IS THE FATE OF POLAND'S WATER?

On the variety of issues facing Poland on the fracking front, probably the most pressing and disconcerting relate to issues of fresh water, particularly groundwater. The American multinationals setting up shop in Poland in the early stages, in 2009, were very much aware of the highly sensitive nature of Poland's groundwater sources, for two main reasons:



- public opposition in other western EU States, and in the United States, was making it difficult for their hopes in Poland, seeing that the shale deposits in Poland were the largest in the EU;
- Poland had recently passed legislation protecting its groundwater sources.

“The industry needs to make a concerted effort to explain to locals exactly what will happen in their area when shale drilling occurs.”

The difficult and obvious question for foreign and Poland's state-based petroleum companies was how were they going to handle or 'manage' these problems, especially since many hydrogeologists in Poland and in neighbouring EU states were intent on protecting their own and transboundary groundwater sources, sentiments dearly shared and cherished by

the people. For the petroleum companies to accomplish their goal to drill thousands of wells in Poland, the state would have to become like Texas, or Oklahoma, or Alberta. That's why people like Mike Smith from the IOGCC, and the regulators from Alberta and British Columbia were sent into Poland, so that Poland could sing its own new discordant song, and not to a national/EU song. State employees and departments, laws and regulations, all would have to change to make way for the new frack order. The highly experienced American and Canadian companies knew what had to be changed - some of the legal firms were showing up - everything would be in place so that Poland and its people would ultimately be liable for any environmental or other damages.

**“The fact that Poland's resources are government owned makes it easier. You really only have to deal with organizations, not individuals.”
- Paweł Poprawa**

The very sorts of propaganda slogans, remedies for change and deflections were being introduced en masse, through promotional agencies and outfits such as Cleantech Poland, as seen from the four images here. ¹

¹ Cleantech, *Shale Gas Investment Guide/Poland*, Summer 2011. Schlumberger sponsored the “invite only” evening event on the release of the Guide on May 27, 2011 in downtown Warsaw. Poprawa, referenced in the image above, is with the Ministry of Environment's geology department.

These are messages that could go public, along with facts about gas exploration and production. What chemicals are being released into the watershed? What are the environmental consequences? How might our drinking water be affected? In contrast to parts of the UK, Germany and France - Poland stands ready to embrace shale gas. Further, the environmental message has yet to be crafted.

It will take more than a savvy PR campaign to craft such a message. It will take meaningful and long-standing cooperation. There are a few environmental NGOs, such as World Wildlife Fund (WWF) and Greenpeace. In Poland, their operations are professional. Though without the power and clout of their counterparts in the west, the largest Polish environmental NGOs command the respect of politicians and are invited to discussions, which is all the more reason to go after their support.

What did “pro-fracking”² Polish Prime Minister Donald Tusk announce just a few days after his re-election on October 10, 2011? He was making quick strides to initiate the integration of Poland’s Ministry of Environment with its Ministry of Commerce to thrust Poland into a new darkness - American and Canadian style. Once such transitional measures are enacted, changes in ministerial mandates are reorganized to suit the new flavour of choice: the same devious strategy that petro state governments like Alberta have done to subdue its own watchdog ministries over the environment. The price for the promise of wealth is the sacrifice of its ministerial and the public’s integrity: Poland as petro state.

15-(1). The Krakow Declaration

It was cosmic!

IAH 38TH CONGRESS
Over 500 hydrogeologists gather in Krakow

About three weeks after the Global Shale Gas Initiative conference in Washington, D.C., the 38th Congress of the International Association of Hydrogeologists (IAH) convened in Krakow, Poland on September 12-17, 2010.³ Of the 520 participants from 70 countries, 190 were from Poland, 37 from Germany, 22 from Austria, 22 from Spain, 21 from France, and 18 from the United Kingdom.



Was the world listening to the voices of 600 scientists when they signed the *Krakow Declaration*? The fracking fraternity was undoubtedly dreading the implications.

² *Pro-Fracking Agenda for Poland in EU Presidency*, Petroleum Economist, July 7, 2011.

³ <http://home.agh.edu.pl/~iah2010/extab/index.html>



We, 600 Scientists gathered for the XXXVIII Congress of the International Association of Hydrogeologists (IAH), having deliberated for 5 days on over 300 scientific studies on water quality from all over the world, agree and view with concern that the global deterioration in water quality, the degradation of lands, and the consequent impact on human health as well as on human and environmental security should be a world wide concern and will require increased global efforts to assess the current situation and identify appropriate measures.

Considering the above, we make the Krakow Declaration on the Protection of Groundwater Quality which calls the attention of Governments, UN Agencies and other Multi- and Bilateral Agencies, and seeks to ensure that their policies on water resources management on national and regional levels should recognize

- *the important role of groundwater in water quality management,*
- *that maintaining good water quality in aquifers is the fastest way for achieving the MDGs, by providing cost effective, safe drinking water supplies to more than half of the world's population,*
- *that there is intrinsic water chemistry of some aquifers, that can affect human health, if not properly identified and addressed,*
- *that poorly planned land based activities can cause difficult to reverse deterioration of groundwater quality, and that land management policies have to be developed to minimise risks to long term water quality.*

This recognition would

- *prevent groundwater contamination and groundwater quality deterioration in a less cost-intensive manner than later high cost remediation,*
- *allow pro active measures to be taken that will maintain quality and natural functions of aquifers,*
- *allow incorporation of the principles of ecohydrology as a promising approach for increasing the resilience of groundwater dependent ecosystems in the face of increasing climate variability.*

In relation to the above,

We call upon UN Member States to take note of, and strive to, implement the UN General Assembly Resolution on the Law of Transboundary Aquifers (A/Res/63/124) and the provisions made therein, in particular those regarding groundwater quality.

We call upon donor agencies, such as the Global Environment Facility (GEF), other multilateral agencies, such as the World Bank and bilateral cooperation agencies, to give more attention and increased financial support to sound management of groundwater quality.

We strongly support the mandate of UNESCO and its International Hydrological Programme (IHP) to facilitate Member States in setting up sustainable groundwater management strategies with particular attention to groundwater quality, and call upon the newly approved UNESCO-IHP Section on Groundwater Resources Management to take a lead on this, through UNESCO's global network of water related centres.

We request Poland, as host country of the IAH Congress, and its IHP National Committee, to support efforts to set up world wide campaigns on promoting groundwater quality sustainability.

A very powerful declaration. But what does it all mean, and what specifically does it mean for Poland under its new Donald Tusk administration with its ties to the U.S.-Poland Business Council?

The world's hydrogeologists may not have specifically included the "f" word in their global declaration, but they most certainly implied it. After all, "fracking" (hydraulic fracturing) is the big topic around the world, and water has been a huge topic and policy framework in the EU.

15-(2). Groundwater Protection and Monitoring



According to Leslaw Skrzypczyk and Andrzej Sadurski at the Polish Geological Institute, who co-presented at the 38th IAH national conference in Krakow, Poland has the "first national hydrogeological survey in Europe and possibly in the world:"⁴

*Poland joined the European Union in May 2004. Intensive preparations had been underway since 2000, i.e. since the **EU Framework Water Directive** came into force. Taking into account the necessity to introduce considerable changes in water management, water resources protection, water status reporting and actions undertaken in connection with this, an idea was put forward to organise Polish hydrogeology within a national service institution.*

***The Polish Hydrogeological Survey (PHS)** has been operating for 9 years and was established based on the **Water Law Act of 2001**. As far as I know, it is the first national hydrogeological survey in Europe and possibly in the world. The fact that the duties of the state as regards groundwaters are delegated to a unit established specifically for this purpose shows on one hand that hydrogeology is highly ranked in the field of Earth sciences, and on the other it reveals the significance of groundwater resources for society, the economy and the protection of groundwater-dependent terrestrial ecosystems. After 9 years of the PHS being in operation we are entitled to draw conclusions regarding the scope of responsibilities and the method of their implementation in practice, and to assess the effectiveness of the largest hydrogeological organisation in the country.*



*At this point it ought to be mentioned that the term 'hydrogeology' meaning the branch of science devoted to groundwaters has been in use in Poland for 120 years. For 60 years Polish academic institutions have been promoting graduates in the field of hydrogeology. **Approximately 2000 people currently work in design and consulting offices, in administration and in academic centres in the specialised branch that is hydrogeology and engineering geology. This branch has solved a series of problems connected with detailed cartography of the country, mining excavation dewatering,***

⁴ Abstract number 545, *Polish Hydrogeological Survey - Challenges and Achievements*.

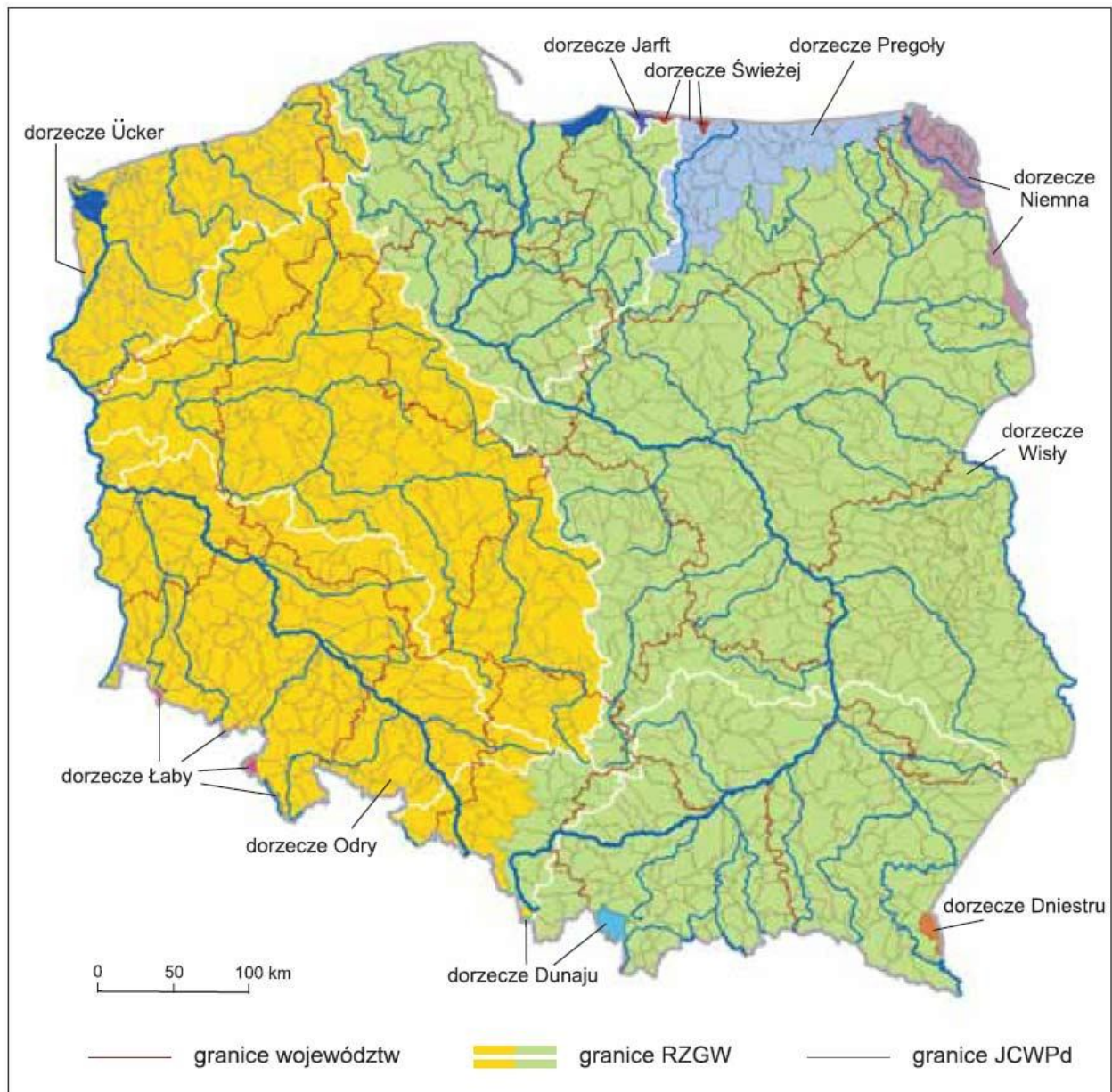
construction excavation dewatering, intake construction and the provision of water to cities and districts.

In the last two decades, Poland has undergone system and economic transformations, has become a member of the European Union and is currently implementing the Union's policy as regards protection of groundwater resources, along with neighbouring countries. Once Poland became a member of the EU in May 2004, the necessity arose to change the legal regulations by harmonising them with **EU directives** and to adapt activities that could make it possible to determine GWBs, evaluate their status and design and undertake actions to improve it. These activities are being successfully implemented, mainly due to structural and organisational changes, such as the establishment of the Polish Hydrogeological Survey at the Polish Geological Institute – the National Research Institute.

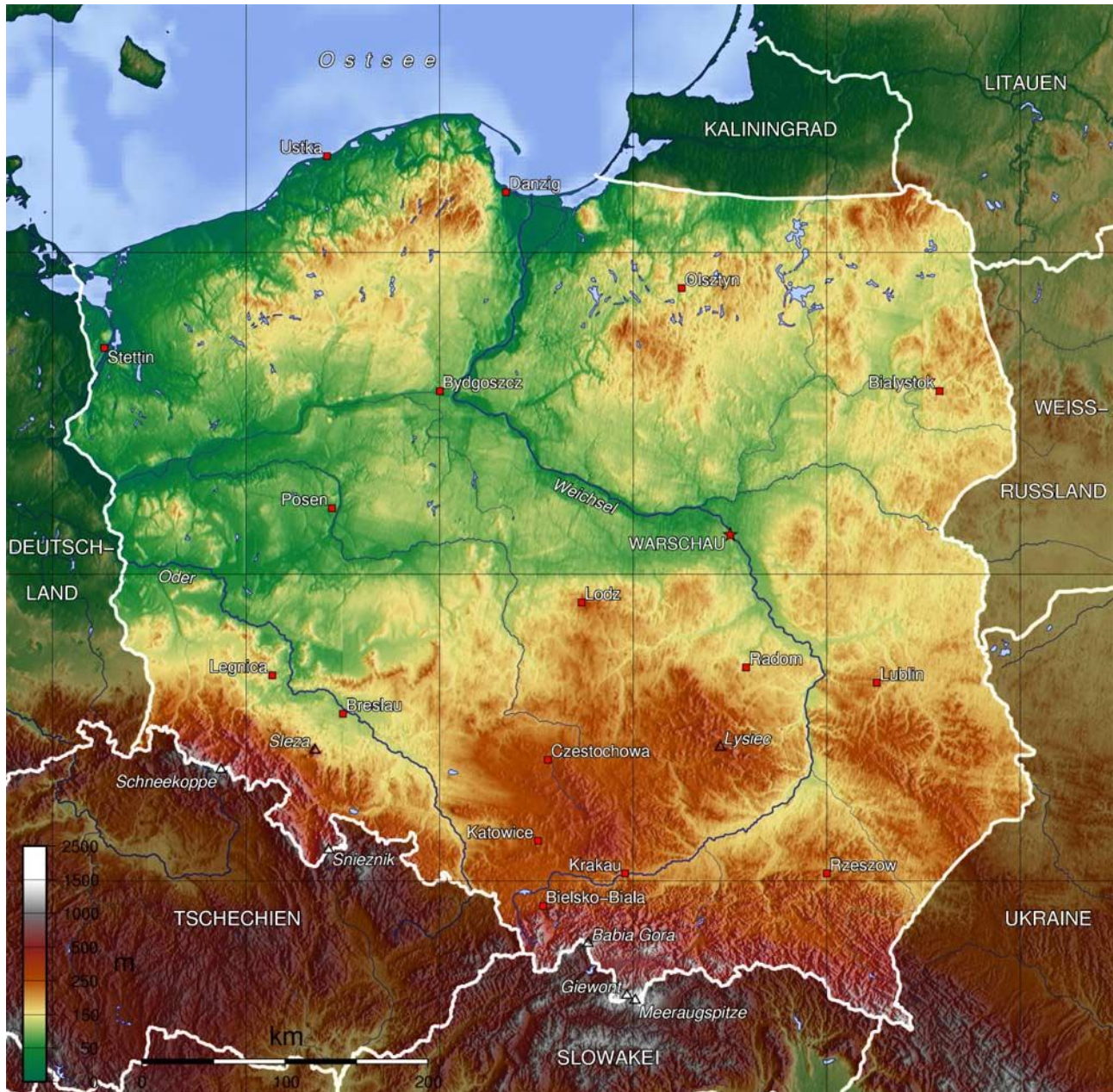


Poland's *Water Law Act* of July 18, 2001 was implemented following an EU Directive in 2000 (Directive 2000/60/EC) regarding water management and protection of waters. A subsequent EU Directive in 2006 (2006/118/EC) strengthened the earlier directive, to protect groundwater from pollution and deterioration. Poland's Water Law states that hydrogeological surveys are to be conducted by the Polish Geological Institute/National Research Institute.

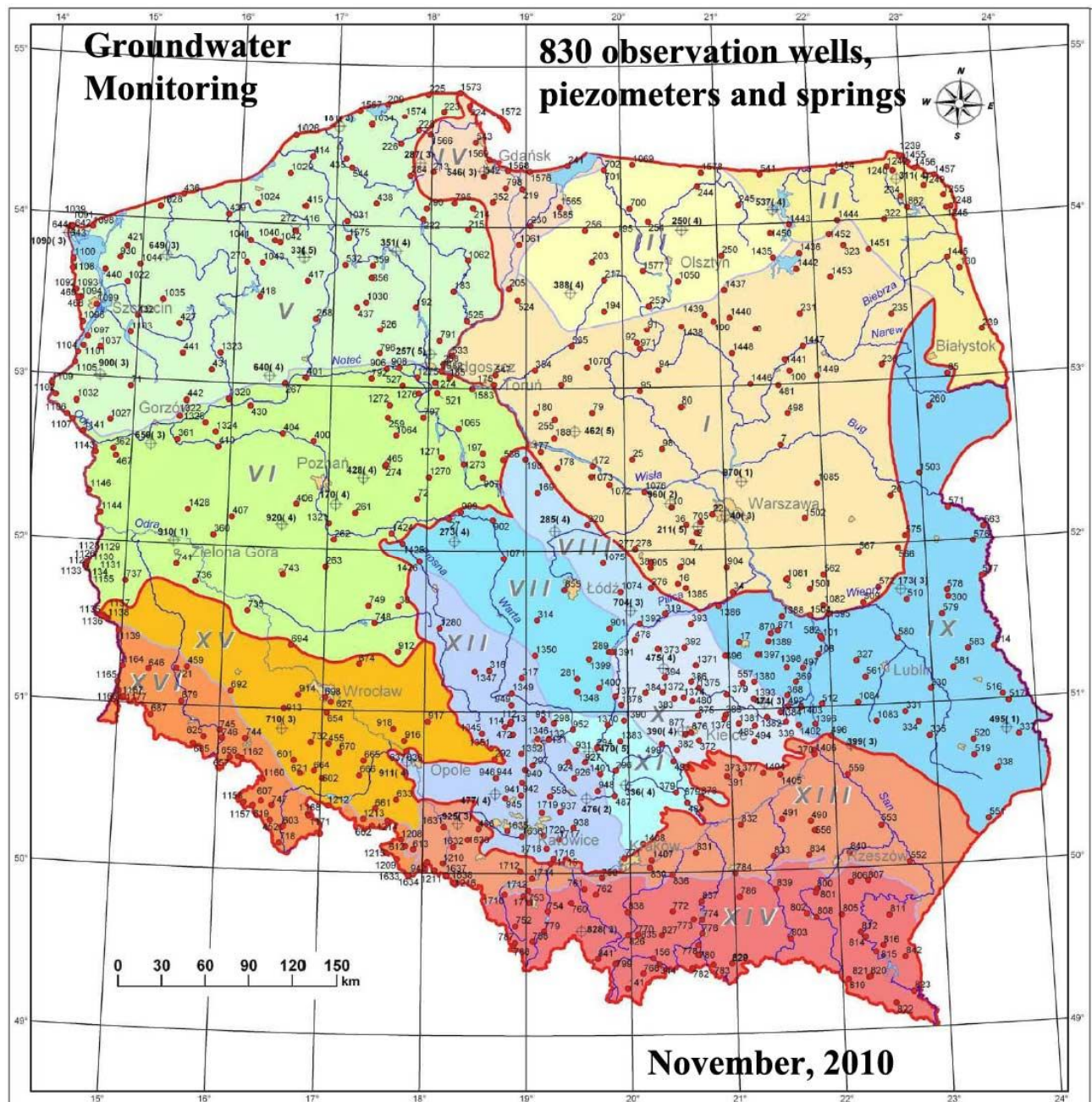
Below is a map showing the primary watershed or drainage basins of Poland. The Vistula (Polish, *Wisła*) River basin (green) is the largest, 194,424 square kilometres, and the river's length is 1,047 km. The other major basin is the Oder (yellow) of 854 square km. The Oder, which originates in the Czech Republic, winds 742 km, forms about half the political border with Germany, and also empties into the Baltic Sea.



The principle of sustainable groundwater management, which takes into account the demand of the society and the economy and, at the same time, ensures the protection of resources and groundwater-dependent ecosystems requires detailed knowledge concerning the hydrogeological and environmental conditions of the occurrence of aquifers. This is why the Polish Hydrogeological Survey carries out a series of works the purpose of which is to study and protect groundwater resources. (Polish Hydrogeological Survey website, Main Tasks)

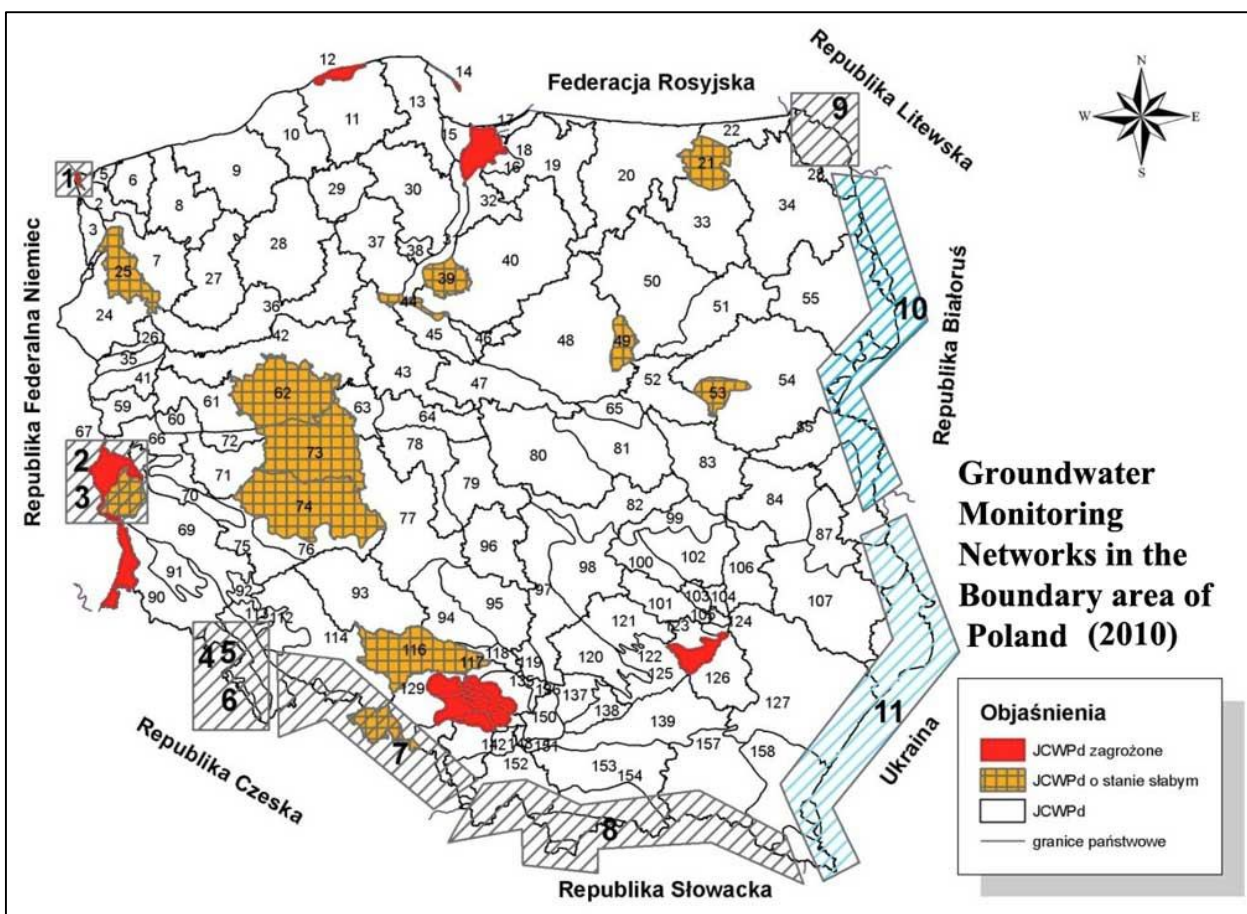


Relief map of Poland. The Carpathian mountains in Poland's southern region are the headwaters of its two main river drainage systems or primary watersheds. The geologic unconventional shale gas, shale oil, and coalbed methane concessions granted to foreign and state-based petroleum companies diagonally transect the high mountain and lower plains of Poland.



Poland's four groundwater monitoring regions (dark red lines) are further divided into 16 sub-regions (identified by Roman numerals and color shading). Source: *Groundwater Monitoring in Poland and Cross-border Areas*, by Tomasz Gidzinski, November 24, 2010, at the Druskininkai meeting.

Cross-border groundwater monitoring with Poland's neighbouring states began in 2003. In 2006, an inter-state cooperative groundwater program began under NATO's Science for Peace (SPS), *Sustainable Use and Protection of Groundwater Resources - Transboundary Water Management*. According to the program's Pilot Study summary, "the main idea of the project is the development of transboundary water quality monitoring and assessment between Ukraine and Poland," with "strong support from the USA and Israel, and the development of international cooperation on implementation of transboundary water quality assessment:"

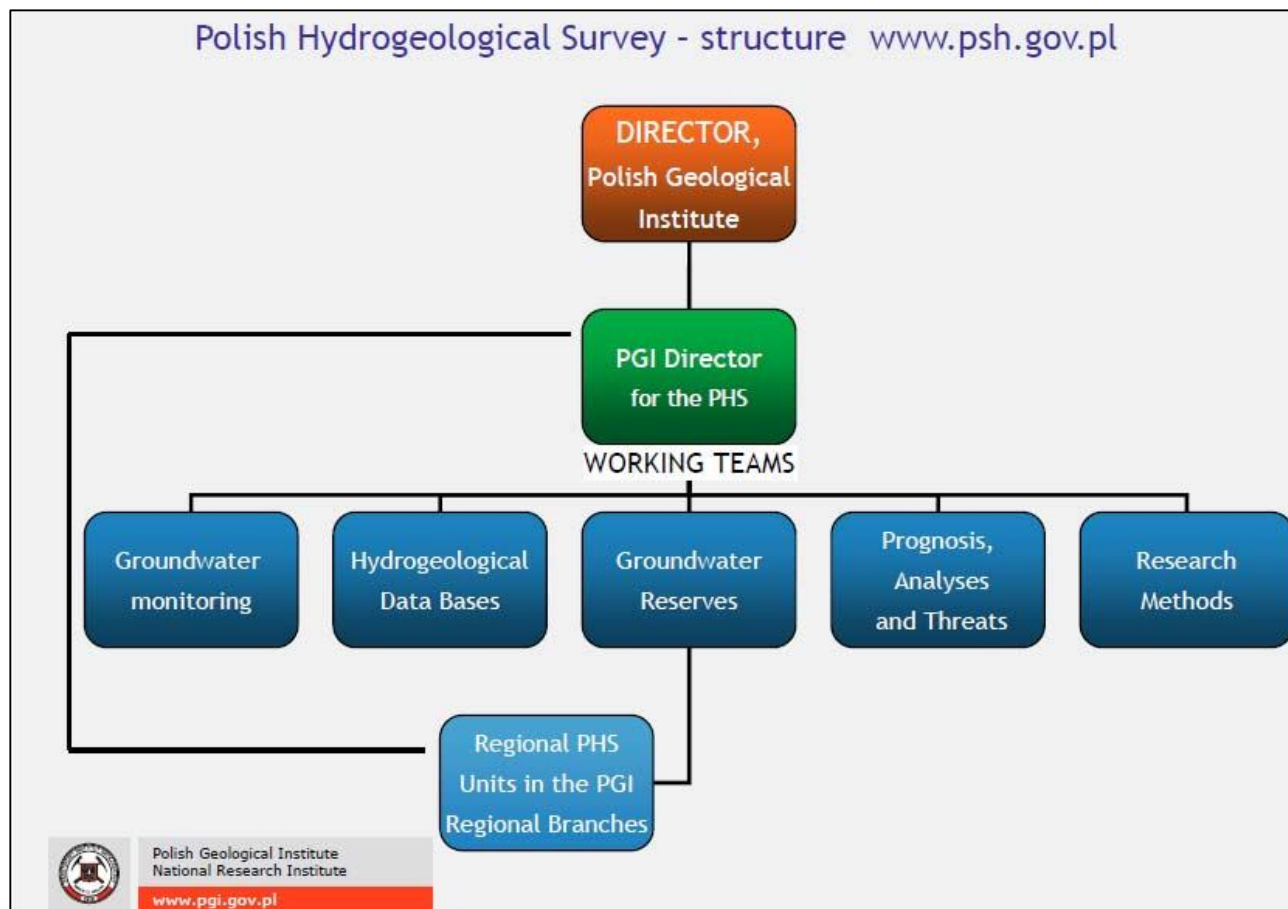


Source: *Groundwater Monitoring in Poland and Cross-border Areas*, by Tomasz Gidzinski, November 24, 2010, at the Druskininkai meeting

Groundwater resources will be of increasing significance for the domestic economy in the future because surface waters - the main water source used by humans over ages - become progressively more contaminated. Now more than 60% of man-used water comes from groundwater resources. The consequences of water shortages could destabilize the geopolitical environment. The political conflicts that such changes in water resource availability could engender, could put global economic sustainability and security at risk. Therefore, the most important fields of activity in hydrogeology are the preparation of balance of groundwater resources, assessment of factors affecting their formation, and implementation of protection systems.

Another stage in the development of hydrogeological cartography in Poland was the development of a digital Hydrogeological Map of Poland (MhP) between 1996 and 2004, scale 1:50,000, which offers a broad description of useful aquifers that are the primary source of water for people, industry and agriculture. Since 2005 cartographical works have continued connected with describing shallow groundwaters directly affecting the surface waters, land ecosystems and a considerable part of the farmlands and woodlands.

Royal Dutch Shell, with shale gas concessions in Poland's neighbouring State Ukraine, is just starting to frack up that country.



“Approximately 2,000 people currently work in design and consulting offices, in administration and in academic centres in the specialised branch that is hydrogeology and engineering geology.”

The Polish Hydrogeological Survey supervises an extensive project the purpose of which is to delineate protection areas of the Major Groundwater Reservoirs in Poland. This project uses mathematical groundwater flow modelling.

Poland’s population of about 39 million people are scattered over an area of about 313,000 square kilometres. That’s a density of about 122 people per square kilometre.

The State is divided into 16 counties (voivodships), 379 cities/townships (powiats) and 2,4578 communes (gminas). About 30 percent of Polish people live and work in agriculture settings, where cultivated land represents 41% of Poland’s lands. There are over 8,000 lakes in Poland (one hectare in area, over), representing about 2.5% of Poland’s land mass, most of which are located in the north, in the Pomeranian and Masurian Lake Districts.

The largest collection of data regarding hydrogeological boreholes in Poland is the Central Hydrogeological Data Bank, known as the HYDRO Bank, containing information on 134 thousand documented hydrogeological features in Poland. The *Intake Database* provides information on the use of groundwater intakes. The data come from over 11 thousand intakes and along with the *Disposable Groundwater Resources Database* is the basic source of information necessary for undertaking water management

According to a short descriptive on *Poland* by the Poland National Committee of the ICID:

Poland is one of the European countries with quite limited water resources.... To make things worse Poland's poor water resources are substantially variable in time and space.

Water deficit in agriculture is strongly felt in the central belt of the Polish lowlands. According to statistical data from the late 1970s the acreage of overgrazed agricultural land was around 4 million ha. This poor condition of the land is caused by extensive deforestation done in the past as well as by improper management of the water resources.

It is believed that protection of water resources must consist of storing as much water as possible from the spring meltwater and from periods of intensive precipitation. The condition of the water system could be significantly improved by the conscious and appropriate shaping of the agricultural landscape.

Disseminating information on groundwater

A significant aspect of the activity of the Polish Hydrogeological Survey involves raising the awareness of the public in the area of groundwater use. Consumers do not tend to think about the origin of the water they drink and they are often unaware that it comes from groundwaters that is "invisible" on the surface and the quantity of which exceeds that of surface waters by tens of times. Education in this respect starts as early as primary schools, through various contests, dedicated classes, exhibitions and brochures.

The basic information on the condition of groundwaters in the country is made available by the following cyclic publications: informational groundwater bulletins, hydrogeological annual reports, guidelines of the Polish Hydrogeological Survey, handbooks and other. Direct access to information on Polish groundwater resources is provided by a website of the PHS (www.psh.gov.pl) and the e-PHS geoportal.

On October 12, 2011, two days after Donald Tusk was re-elected as Poland's Prime Minister, and the day before Tusk was reportedly musing about merging the Ministry of Commerce with the Ministry of Environment, over 150 people gathered for a *Digital Hydrogeological Cartography in Poland* symposium where they not only celebrated and paid tribute to Professor of Hydrogeology, Bronislaw Paczynski, for 60 years of work, they also celebrated his ten years of service with Poland's hydrological survey.

Along with other presenters at the symposium was a celebration of Poland's modern digital hydrogeological mapping series which began in 1996, detailed mapping at the 1:50,000 scale. For more than 20 years, professor Paczynski played an important role as deputy chair and chair of the mapping program.



Guests later gathered in a banquet hall at the Museum of Geology in Warsaw for a final formal tribute to professor Paczynski.



When carefully examining the petroleum industry's promotional material (including the reams of recent materials from its hired teams of public relation firms) and conference presentations on shale gas in Poland generated over the last two or three years, the reader will not find descriptive and honest representations of Poland's history and efforts to protect surface and groundwater sources. By ignoring this history as summarily presented in this chapter - a strategy formerly executed by the timber industry in North America as it was mining forests in the public's protected drinking watershed sources - the petroleum industry would like the public to simply forget about such matters. Of great concern, as the shale gale starts to unfold, water programs and critical data may soon be under threat, and conscientious watchdogs in Poland's government marginalized.