



## The Chairman's Corner

Rep. Scott E. Hutchinson, Chairman

The remnants of tropical storm Isidore may have helped to relieve parched conditions in parts of Pennsylvania, but the fact remains that 55 of 67 Pennsylvania counties are either in a drought emergency (19 counties), drought warning (five counties) or drought watch (31 counties).

The Joint Conservation Committee's most recent Environmental Issues Forum (EIF) featured a presentation on drought and groundwater by Dr. Richard R. Parizek, a distinguished Penn State professor of Geology and Geo-environmental Engineering. While Dr. Parizek could provide no panacea for alleviating drought-like conditions, he did present some good food for thought. The hydrological/geologic science of some of his suggestions may elude the understanding of many of us, but the sense of what he is suggesting does not.

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**See page 2 for a national perspective on drought**

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Finding ways to either create new sources of water or to make better re-uses of water without further draining available surface water and groundwater resources becomes more important when one looks more closely at the effects of drought.

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Craig D. Brooks, Director

Several years ago, the Western Governors Association called for the development of a national drought policy that would help coordinate the actions and responsibilities of federal, state and local governments, and improve federal and state responses to drought conditions throughout the United States. Although drought is a normal part of the climate for many regions of the country, it is the multi-year drought events that are of greatest concern to water planners, managers and policy makers.

In response to this, Senators Pete Domenici (R-N.M.) and Max Baucus (D-Mont.) have introduced S. 2528, the “National Drought Preparedness Act of 2002”. The bill would put in place a comprehensive national drought policy that statutorily authorizes a lead federal agency for drought, and delineates the roles and responsibilities for coordinating federal assistance to drought stricken areas of the country.

The Domenici-Baucus bill would create a national policy for drought that emphasizes resource management by encouraging planning at all levels of government and incorporates mitigation programs and actions aimed at reducing impacts of future drought events. The bill would establish the National Drought Council and designate the Federal Emergency Management Agency (FEMA) as the lead agency in charge of coordinating federal

drought programs. It would function much the same way FEMA does when providing assistance for other natural disasters under the Stafford Act.

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### **National Drought Preparedness Act of 2002 would develop a national monitoring network and a “Drought Assistance Fund”**

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The bill would also build on existing water policy and watershed planning processes and assist states, local governments and other entities such as watershed groups in the development and implementation of drought preparedness plans. The bill does not mandate state and local planning, but is intended to encourage plan development and implementation through the establishment of the “Drought Assistance Fund”. The creation of this fund could stimulate development of drought preparedness plans, mitigation programs, and other actions necessary to improve drought assessment and response.

The bill would help develop the National Drought Monitoring Network in an effort to improve the forecasting of future droughts and to provide a mechanism for distributing funds to needed areas.

There are, however, some reservations about the bill in two critical areas. First, although FEMA has considerable experience in responding to natural disasters, it may lack knowledge and experience with drought. Second, there are concerns about the lack of scientific representation on the National Drought Council which may not provide the best science available for developing national drought policy. Even with these reservations, the legislation shares bipartisan support and sets a course for being better prepared and coordinated for national drought events.



A drought-stricken stream in Montgomery County.



# Research Briefs

Each month, the committee's staff researches and prepares a number of "briefs" on several topics relevant to the Joint Conservation Committee's mission. Very often, these briefs include references to reports and further research on the topics so that readers may pursue issues on their own.

## North America Shifts Pollution From Air to Land

— Tony Guerrieri, Research Analyst

Factories, electric utilities, hazardous waste management facilities, and coal mines in the United States and Canada generated almost 3.4 million tons of toxic chemical waste in 1999, according to a report by the Commission for Environmental Cooperation (CEC). The report, *"Taking Stock 99: North American Pollutant Releases and Transfers"*, contains data on 210 chemicals covered by both the U.S. Toxics Release Inventory and Canada's National Pollutant Release Inventory.

The report presents the first five-year (1995-1999) analysis of the amounts of toxic releases and transfers reported by industrial facilities in North America. While the total emissions in the two countries in 1999 were still high – 3.4 million tons – releases in the United States decreased by six percent between 1995 and 1999, while Canadian emissions increased by six percent.

The five-year trend shows only a slight overall change in the total of toxic chemicals generated, but big changes in how those pollutants are handled. There has been a significant shift from releases to the atmosphere to releases to the land and water. The North American manufacturing sector's 25 percent (153,000 tons) reduction in releases to air was offset by a 25 percent (33,000 tons) increase in on-site releases to land and a 35 percent (58,000 tons) increase in off-site releases, mostly to landfills. Releases to lakes, rivers, and streams also increased during this period by 26 percent (24,000 tons).

The CEC report notes a general decrease in on-site releases – those that are released or disposed of within a facility's fence – and a corresponding increase in amounts of chemicals transferred for disposal. According to the report, the growing shipment of toxic substances off-site could indicate a desire to send wastes to locations that are better equipped to manage them.

The five-year analysis also found an overall decrease of 13 percent between 1995 and 1999 in on-site releases to air, water, land, and underground injection. However, progress has been slow in reducing chemicals of concern, such as carcinogens. Total releases of known or suspected carcinogens decreased by only three percent, compared to a decrease of six percent for all chemicals from 1995 to 1999.

The report found that between 1998 and 1999, facilities in the United States and Canada reported a one percent decrease in total on- and off-site releases of toxic chemicals, with decreases in on-site releases to air, underground injection, and land, but an increase in on-site discharges to water. There was a four percent decrease in off-site releases of metals, but a 31 percent increase in off-site releases of other substances.

There was also a one percent increase in transfers of toxic chemicals for recycling, but a 10 percent decline in transfers for other management activities, including energy recovery and treatment.

Among other highlights of the report, states and provinces with the largest total releases of chemicals from manufacturing and new sectors were Ohio (138,000 tons), Texas (108,000 tons), Pennsylvania (96,000 tons), and Ontario (88,000 tons). The same jurisdictions also had the largest chemical loading. (Chemical loading is the sum of chemicals reduced on-site plus chemicals sent for disposal within the same jurisdiction plus the amount received from external jurisdictions).

The CEC is a Montreal-based environmental body established by the North American Free Trade Agreement (NAFTA) partners – and its report uses data collected by the national governments of Canada and the United States. Reporting of data for Mexico is not yet mandatory, though legislation to collect this data was passed in Mexico late last year, and 117 Mexican facilities reported their chemical releases voluntarily.

The data collected by the national programs does not currently include all chemicals or all sources of pollution such as dry cleaners, service stations, cars

and trucks. Also not covered, due to differences in national reporting, are releases from the mining industry.

A copy of the report is available from the Commission for Environmental Cooperation, 393, rue St-Jaques Quest, Bureau 200, Montreal, Canada H2Y 1N9; telephone: (512)-350-4300. The report is also available at: [http://www.cec.org/pubs\\_docs/documents/index.cfm?ID=831&varlan=english](http://www.cec.org/pubs_docs/documents/index.cfm?ID=831&varlan=english).

## State of The Nation's Ecosystems Report Released

— Jason H. Gross, Research Analyst

The report “*The State of the Nation's Ecosystems*”, released under the auspices of the Heinz Center, is designed to lay out a blueprint for periodic reporting of the condition of ecosystems in the United States. The primary goal of the report is to create an index much like the Dow Jones index for purposes of examining and determining the nation's environmental situation. The report was designed for decision makers and policy writers as a succinct overview of the environmental condition and to provide a reference point for environmental improvement or degradation.

Enacting environmental policies that create environmental health requires accurate information and strong factual support because of the high costs of these policies. According to the report, support for sound environmental policy is strong, nonpartisan and consistent. This reflects the recognition that a damaged environment has a high economic and political cost. By the same token, in order to ensure a clean, safe, and healthy environment, money must be spent. According to the report, nearly two percent of the United States gross domestic product is used annually to ensure a healthy environment. In order to invest this money effectively, an ecological blueprint, as presented in the report, is necessary.

The designers of the Heinz report seek to meet certain goals in order to provide a cohesive and policy-friendly ecological report:

- offer a scientifically credible report in response to some earlier efforts that were seen as being so scientifically inaccurate so as not to represent a true picture of the environmental situation;
- offer a nonpartisan report in both content and process so as not to lead directly to any politically determined conclusions;
- engage the expertise and experience of national environmental monitoring programs and professionals

to tie together current environmental monitoring efforts; and

— design the report to incorporate new experiments and techniques about the ecological blueprinting process.

In order to implement these principles the Heinz Center developed an intricate strategy that allowed them to effectively model the national ecological blueprint.

According to the report, the specific composition of the acreage of a particular ecosystem is fundamental to the ecological conditions. Gains or losses in certain types of ecological systems can affect the greater environmental whole. For instance, the loss of forest area has a different ecological effect than if grasslands are reduced in size by the same amount. According to the report, forests, grasslands, and shrublands each declined by one third since European settlement in this country. Since the 1950's, forests have decreased by about one percent, and since the 1980's, the non-federal grassland/shrubland area has decreased by about three percent, while urban and suburban lands have increased considerably.

Another issue analyzed in the report is one of fragmentation of the landscape. According to the report, the pattern of the ecosystems in the landscape affects the environmental condition almost as much as their composition. For example, the size of each contiguous area of forest has as much effect as the total quantity of forest. The report goes on to state that landscape fragmentation and pattern can be measured in many different ways, but currently there is no consensus on the best way to do so. Among the report's findings is that about two-thirds of all eastern and western forests are surrounded by a more densely populated forest, and about half of all natural lands in urban and suburban areas are in patches smaller than ten acres. This is interpreted to show that in forested areas fragmentation is at a low level, but the fragmentation of natural lands in urban and suburban areas is currently not at a good level and must be improved upon.

The report states that ecosystems provide services to people such as natural resources and recreation. The report attempts to measure the amount of recreational activity days available in specific natural areas and tries to quantify the amount of service people receive from ecosystems into “recreational days” - the amount of days per year that an environmental area is open to recreation. The most common outdoor recreational activities are walking, biking, and nature viewing, each with more than 10-billion recreation days per year. Swimming and beach going account for 5-billion recreation days. This high level of recreation on environmental areas provides additional support to efforts to protect the environment for economically viable recreational pursuits. According to the report, more research must be done in order to

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understand the recreational aspects of natural areas.

For copies of the entire report contact the Heinz Center at [www.heinzctr.org/ecosystems/](http://www.heinzctr.org/ecosystems/).

## Global Trends Will Drive Tomorrow's Business Opportunities

— Tony M. Guerrieri, Research Analyst

New questions have emerged in the debate about environmental concerns and industrial competitiveness that suggest a need to re-examine traditional views. Will environmental concerns in time fundamentally alter the way in which business is done? Will concepts like sustainable development come to have a major influence on the way in which business decisions are made?

According to the report *"Tomorrow's Markets: Global Trends and Their Implications for Business"*, businesses that wish to survive and thrive in a global economy must respond to major social and environmental trends that are reshaping markets. The report suggests certain trends will have tremendous influence on business in the near term, and may lay the foundation for innovation and future business opportunities down the road.

The report, issued by the World Business Council for Sustainable Development, the United Nations Environment Program, and the World Resources Institute links global economic, environmental, and social indicators to market development in order to help businesses better respond to future challenges. Backed with facts and figures, the report outlines 19 trends businesses should focus on in their global planning.

Since the world economy depends on a base of natural resources that is being severely degraded, reducing consumption and waste creates new opportunities for businesses to grow through innovative, less wasteful processes and with life-enhancing goods and services. According to the report, future markets will favor businesses that partner with government to serve basic needs, enhance human skills, increase economic capacity, and help remedy inequities.

The report stresses that wherever they operate, businesses must meet both increasingly rigorous governmental regulations as well as societal expectations of socially responsible behavior. It highlights the critical importance of democracies and laws that promote ethical behavior in creating the atmosphere for profitable

business competition.

The first step toward action is a better understanding of the complex interrelationships among major global problems. The issues covered in the report include: population, wealth, nutrition, consumption, emissions, efficiency, ecosystems, agriculture, fresh water, urbanization, mobility, communications, labor, democracy, accountability, and privatization.

The 19 issues examined in the report document major changes resulting from rapid population growth and its impact on Earth's resources. Among the trends highlighted in the report are:

- The money spent on household consumption worldwide increased 68 percent between 1980 and 1998. In many developing countries, food purchases accounted for as much as 70 percent of family income.
- World energy production rose 42 percent between 1980 and 2000 and will grow between 150 and 230 percent by 2050. Renewable resources like solar and wind account for only 11.5 percent of current consumption.
- Over the past century, world water withdrawals increased almost as fast as population growth. Currently, 70 percent of freshwater withdrawals are for agriculture.
- The current addition of 60 million urban citizens a year is the equivalent of adding another Paris, Beijing, or Cairo every other month.
- Today, over 400 million people use the Internet, compared with fewer than 20 million five years ago. By 2005, there will be about a billion users. However, more than half the world's peoples have never used a telephone.
- In developed countries, the working age population will shrink from 740 million to 690 million between 2000 and 2005. In developing countries, it will increase between three and four billion people.

### News to Use in the Environmental Synopsis... share it with a friend

The *Environmental Synopsis* is issued monthly. The newsletter examines timely issues concerning environmental protection and natural resources.

If you or someone you know would like to receive a copy of the *Synopsis* each month, please contact the committee office at 717-787-7570.



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● There are 119 democratic states out of a total of 192 countries in 2000, as compared to 22 democratic states out of 154 countries in 1950. In 1948, only 41 non-governmental organizations had consultative status in the UN; now there are 2,091.

The report concludes that those companies with the foresight to anticipate and capitalize on these social and environmental trends in their early stages of development will be the most successful.

Copies of the report may be found at the World Business Council for Sustainable Development's website at [www.wbcsd.org/newscenter/reports/2002/tomorrow-market/tm\\_cover.pdf](http://www.wbcsd.org/newscenter/reports/2002/tomorrow-market/tm_cover.pdf).

## Environmental Law Handbook Helps Communities and Citizens

— Jason H. Gross, Research Analyst

The Environmental Law Institute (ELI) recently released a new handbook entitled "*A Citizen's Guide to Using Federal Environmental Laws to Secure Environmental Justice*". The handbook acts as a guide for use by citizens who wish to know how the Environmental Protection Agency (EPA) could be directed through various laws to enforce measures to serve environmental justice. The institute's hope is that by writing this handbook, citizens can use the law to protect their health, communities, and the environment.

According to the report, environmental justice concerns arise in communities that have relatively low economic resources and as a result have a relatively small voice where the environmental good of their community is concerned. According to the report, independent studies have concluded that low-income communities are disproportionately exposed to environmental harms and risks because the perpetrators of these harms feel that the ability of these communities to respond is relatively low. Since the communities lack resources, they usually also lack the ability to legally fight back against environmental injustice. The residents of these areas may be exposed to environmental pollution from a variety of sources such as a combination of incinerators, waste dumps, wastewater treatment facilities and industrial centers, chemicals, automobile exhaust, and contamination of locally grown food.

The challenge for these communities is to get the backing of the government in order to correct the adverse health impacts of multiple pollution sources within a community. The synergistic impacts of multiple

pollutants can create a toxic substance that poses a greater health risk than each pollutant independently. Often an agency issues an operating permit based on the pollution of one source, but these permits sometimes fail to take into account the total cumulative effects of all pollutants in one area. Burdened communities can make the government aware of all sources of pollution and existing health problems before a decision is made whether to issue an individual and additional pollution permit.

Environmental laws are highly technical and complex, but the handbook is designed to level the playing field so that communities can navigate the legal issues and use the laws to alleviate the harms and risks to their environmental situation. Some of the general legal rules can be used to promote environmental justice. For example, public notice and requirement is required before the government can give a permit to conduct polluting activity. During this time the public, if it remains aware, can organize a public meeting and comment about their views on the permit.

Also, environmental impact statements (EIS) must be issued before a permit is passed. The public has a right to comment on this process, and as a result the EIS can be commented on if it fails to fully account for the pollution allowed by the permit. Citizen lawsuits concerning a specific issue are another effective way to force the government to take action if that action is required under environmental laws.

Certain specific areas of the law have acts that are most effective in dealing with their specific subject matter. The Clean Air Act is designed so that city residents can challenge air pollution problems and sue to have cleaner air. Superfund law allows communities to get money from the EPA to hire their own scientists to allow them to effectively participate in clean up actions. The Clean Water Act requires governments to consider the combined health effects of different sources of pollution in one generalized area. Combining these laws can help a community work toward ensuring its environmental future.

For more information or a copy of the report please go to the ELI website at: <http://www.elistore.org/Data/products/d12.02.pdf>.

# On The Horizon...

a look at upcoming committee events

► **Tuesday, November 12<sup>th</sup>, 12 noon, Hearing Room 1, North Office Bldg., Capitol Complex – Environmental Issues Forum.** Randy Cooley, president of the Westsylvania Heritage Corporation, will make a presentation on heritage development.

Environmental Issues Forums are open to the public. Please call the committee office at (717) 787-7570 if you would like to attend.

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## Committee Chronicles...

a review of some memorable committee events



As described in "The Chairman's Corner" on page one, Penn State Professor of Geology and Geo-environmental Engineering Dr. Richard Parizek addressed the committee's September Environmental Issues Forum on drought and groundwater. These photos show Dr. Parizek explaining the effect of geological formations on water supplies, chatting with committee chairman Rep. Hutchinson and preparing to answer questions from the audience.



JCC For many of us, drought simply means we conserve more water at home so the well does not go dry. For others, however, the drought impacts their very livelihoods. And like a stone thrown into a pond (unless it has dried up from the drought), that impact has a ripple effect on others.

Consider. The drought in Pennsylvania could result in crop losses of more than \$300 million, according to the Pennsylvania Department of Agriculture. Fifty-four counties have already filed for federal agricultural disaster aid. This means reduced crop yields, particularly in corn and soybeans, which means less quantity and higher priced farm products at the store. Farming already carries relatively slim profit margins, and the drought has increased farmers' costs for labor, fertilizer, irrigation and packaging. So, continued drought may mean more farmers being forced to sell their land, more development of farmland and more water runoff, further exacerbating drought conditions.

Another example. Drier conditions mean reductions in retail sales at nurseries and reductions in earnings for lawn-care and landscaping businesses. New Jersey estimates sales and earnings reductions of one-third, for instance. This all adds up to a slower economy, fewer jobs and higher prices.

Dr. Parizek suggested several ways to make better use of available water sources. For example, he pointed to waste water reuse, noting Penn State's "Living Filter Project", in which the university applies 100 percent of its secondary treated effluent to forests and crops year-round. The result is annual increases in recharge of up to 95 inches a year.

He also suggested research into new water storage space, such as abandoned mines, quarries and related excavations. While some mines do not lend themselves to such uses because of acid mine drainage, others do have the potential to store clean, usable water.

Other possibilities, he said, are development of a pervious pavement, architectural design changes to enhance upland recharge, detention storage on flat rooftops and use of recharge wells, pits or green space to capture high quality roof water. Better systems of aquifer storage based on hydro-geologic formations and use of wetlands to reduce pollutant loads in stormwater are other possibilities.

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**40 percent of the United States is in a moderate to severe drought**

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Suffice it to say, neither the problem nor the solutions are as simple as they first appear. However, Dr. Parizek's message is a poignant one: the long-term solution to drought includes "thinking outside of the box". We must nurture some new thinking about water supply, storage and usage.

Science and engineering can play a key role in helping us better manage our water resources. Pennsylvania is already examining comprehensive watershed management proposals, and may need to consider funding for a variety of water supply related needs, such as low-interest loans for infrastructure, assistance to small water companies and authorities and research and development funds for pilot water supply initiatives.

## How to Contact The Joint Conservation Committee

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