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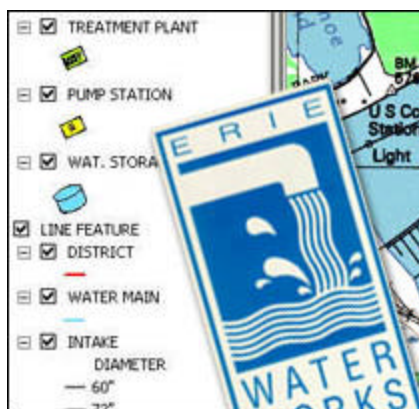
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A Publication of LAND INFO International, LLC - Global GIS Data & Consulting Services

Client Solutions

FLOODING WATER MANAGEMENT WITH GIS



The transformation from paper to digital is everywhere. Email and instant messaging now outweigh the use of postal mail, and in some cases, face-to-face discussions. Through the Internet, daily newspapers now feature up-to-the-minute breaking news around the clock. Even the classic appointment daytimer is impacted amidst the new efficiencies of palmtop PDA's. This evolution has never been more evident than in the field of GIS. GIS, by its very core, represents the power of the ongoing digital revolution. Digital geographic data is now supporting decision-making in nearly every field from government planning to commercial marketing. However, the progression to a fully digital GIS infrastructure presents many challenges. The [Erie City Water Authority](#) (ECWA) is one of the thousands of utility organizations challenged with this critical transition.

ECWA is a mid-size water district along the shores of Lake Erie in

explained **Stan Zelepsky**, ECWA's Engineering Services Manager, "with our long-term planning goals, which include updating and digitizing the older archive data."

ECWA views its growing use of GIS as a major step to maximize its resources and operational efficiencies. Currently, management decisions are based on information from a variety of sources. The goal is to ultimately link water main locations, pressure districts, building & property data, maintenance records, storage tank locations, fire safety infrastructure, parcel maps, aerial photos, topographic maps, streets data, and other relevant information, through a common, visually-oriented database. This will enable water managers to quickly react to breaks in water lines, power outages at pumping stations, expanded needs at fire emergency sites, and a variety of other responsibilities.

"The use of GIS technologies represents a whole new mindset," commented Zelepsky. "These tools will allow us to make more accurate decisions, faster, and more efficiently than ever before."

ECWA contacted LAND INFO International about its early-stage GIS program. The immediate need was to acquire 1:24,000 scale, high-resolution, [topographic maps](#) of the

Coverage Spotlight

GIS IN A GROWING PAKISTAN

[Pakistan](#) lies on the western portion of the Indian subcontinent, bordered by India on the east, [Afghanistan](#) and [Iran](#) on the west, China to the north, and the Arabian Sea to the south. The country has recently drawn worldwide attention due to its proximity to Afghanistan military operations, and the ongoing border disputes in the Kashmir region. However, inside the country, Pakistani are grappling with the pressures of an exploding population and a fragile economy. The stresses of rapid urban growth and a heavy dependence on agriculture have created a rising need for GIS.



Crime Prevention & Agriculture Are Two GIS Uses in Pakistan

Pakistan is nearly twice the size of California. Its diverse geography ranges from the lower plains of the Thar Desert, to one of the world's most famous peaks, K2, at 28,250 feet

Pennsylvania. The authority controls a complex network of over 625 miles of pipes, storage tanks, and pumpings stations. Its primary function is to supply water to households, businesses, and fire hydrants throughout the county.

ECWA is in the early stages of integrating GIS-technologies into its water management program. Its engineering team is equipped with state-of-the-art software platforms, including ArcInfo, ArcView, and WaterCAD. However, the authority is faced with a paper data archive that includes maps dating back 140 years. These schematic maps identify specifications and locations of the area's underground water distribution infrastructure. The ECWA has limited access to other geospatial data.

"The challenge is balancing the immediate project requirements, such as integrating recent geospatial data for newer areas of the city,"

Erie City region.

"LAND INFO delivered high-quality base maps that will be a key foundation for our GIS," stated **Tim Swalin**, ECWA's GIS Technician. "I was then able to overlay our internal attribute data (*water tanks, etc*) to create a powerful visual presentation of our distribution system."

Another significant use of GIS is as an education tool. For example, an immediate goal for ECWA is to acquire additional funding to expand its GIS applications. This requires educating non-engineers about the value of the technology. The visual attributes of GIS help even the most novice audience understand the power of these systems.

Please visit www.ErieWater.org to learn more about the ECWA. [Contact LAND INFO](#) for more information about building your GIS database.

above sea level. The name, Pakistan, is derived from the Urdu words that mean "pure country."

Pakistan's population has gone through tremendous growth in the past two decades. Over 147 million people now live throughout the country. In Karachi, the country's largest city at 14 million residents, the urban growth has led to a staggering rise in crime. GIS is being implemented as a tool to track crimes by location. The goal is to identify cluster areas, enabling police to allocate resources to prone areas of the city. The system also allows investigators to more rapidly identify relationships and patterns of crime sprees.

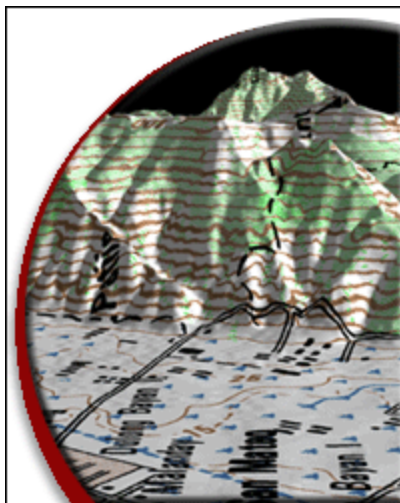
Agriculture is another area looking to GIS technologies for help. The sector is a vital component of Pakistan's economy. It employs nearly 50% of residents. The primary crops are wheat, rice, cotton, sugarcane, and tobacco. Ranchers also raise large

Services News

DEMS BRING NEW DIMENSION TO GIS MODELING

A [digital elevation model](#), or DEM, is a three-dimensional interpretation of an area's ground terrain. LAND INFO creates DEMs by extracting contour elevation data from topographic maps. Since DEMs retain their geo-referenced attributes, they can easily be integrated with other geospatial data, such as imagery, topographic maps, and a client's internal datasets. This enables users to give a powerful 3D context to other two-dimensional raster or vector data.

LAND INFO DEMs are supporting major GIS projects all over the world. Wireless telecommunications developers base wave propagation studies and line-of-sight analyses with DEMs. Aerospace and military planners integrate the DEMs into flight simulations. Civil engineers overlay topographic maps and aerial photos onto DEMs to create a virtual 3D planning model.



3D DEMs Can Enhance Impact of Next GIS Presentation

"Our goal is to deliver a visual experience that is as close to reality as technically possible," commented **Jan Zukin-Neutz**, GIS Data Manager for Microsoft's Entertainment Business Unit. [Microsoft](#) used LAND INFO's

numbers of sheep and cattle. Farmers are challenged with frequent droughts and vast regions requiring sophisticated irrigation for survival. Crop management has become a critical responsibility in Pakistan.

Agriculture scientists have turned to satellite and other remote-sensing technologies to support crop assessment. Farmers have discovered the value and efficiencies of utilizing these GIS technologies far outweigh the costly, labor intensive, traditional assessment methods. Newer, higher resolution satellite sensors have continued to expand the applications in agriculture.

LAND INFO is supporting GIS applications in [Pakistan](#). The company now offers 0.95-meter [satellite imagery](#) for Karachi, Islamabad, and Peshawar. Other imagery and GIS data is available at 1:100,000 and 1:200,000 scales. This includes geo-referenced [topographic maps](#), [digital elevation models](#) (DEM), [roads](#) layers, [hydrography](#) layers, and other [map feature](#) layers. LAND INFO can also provide

"LAND INFO's DEMs are very high quality," comments **Roger Holeywell**, an Advanced Senior Geologist for [Marathon Oil Company](#). "We have been purchasing LAND INFO data for years."

A DEM is created by extracting the [contour elevation data](#) from the source map. LAND INFO leverages the benefits of both a manual and a semi-automated production process. The combination maximizes accuracy and resolution quality, without sacrificing deliver timetable and price variables. The end result is a high-quality DEM, delivered fast, and at an affordable price.

DEMs to create ground landscapes for its Flight Simulator games. "Now with modern geospatial data, such as LAND INFO's terrain models, the games are becoming very true -to-life."

LAND INFO offers 10-meter and [30-meter DEMs](#) for the United States. Outside of the United States, DEMs are produced from the best source maps available for the requested area. LAND INFO offers high quality DEMs for virtually anywhere in the world.

HOW ARE YOU USING LAND INFO DEMS?

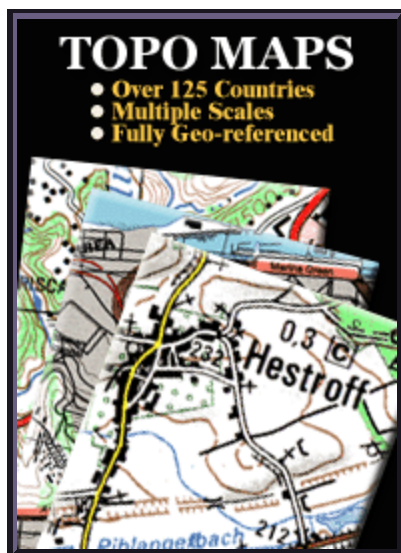
Tell us about your project that used LAND INFO DEMs. It could be the next feature in the Data Solutions Journal. [Email Steve Ebner today.](#)

consulting services, including [data needs assessment](#), custom [data production](#), [data integration](#), database management planning, and general GIS data planning. [Contact](#) your LAND INFO representative for more information.

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LAND INFO offers clients access to the world's largest, commercial databank of digital geographic data that includes coverage in over 125 countries. The company markets to civil engineers, government planners, project managers, and other international professionals for a variety of GIS, remote-sensing and land-use applications. Please visit the website www.LANDINFO.com to learn more about these products and services. [Contact LAND INFO](#) today at 1-800-949-5080 (+1 303-369-6800) to discover how our data solutions can maximize the success of your team.



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