**Problem**

Need to efficiently store and share 3,000 raster images throughout the organization.

**Goals**

- Scan large numbers of maps into digital images.
- Increase accuracy and timeliness of data by storing it electronically in a central location.
- Create one hybrid seamless map to view water network data on the desktop.

**Results**

- With no more designs on paper, edits are done on time, decreasing editing time by 30 percent.
- Time spent querying water network data has been reduced from ten minutes to three.
- Information connectivity difficulties on map sheet edges have been eliminated.
- Paper maps are no longer needed in offices.
- Digital data instead of paper is now delivered to external parties.

**The Challenge**

To maintain the water network successfully, Pidpa needs to have accurate information on the location and characteristics of every water main that is in use. Pidpa faced many challenges, including not having digital basemap data available, making it necessary to use large numbers of paper maps that were located in several offices. All available information on Pidpa’s water network has been historically maintained on paper or Mylar® film in an archive of approximately 3,000 A0-sized maps on a 1:1,000 scale and 175 A0-sized maps on a 1:5,000 scale. For complete details on every piece of the network, Pidpa also had approximately 90,000 A4-sized Mylar synoptical drawings at no scale. This distributed paper-based system created problems for keeping all the maps up to date and synchronized. Pidpa realized it needed an open and database-centric solution that combined raster and vector data, allowing everyone to look at the same dataset, and perform edits only once.

“**The ability to use one central water network dataset, in a user-friendly browser environment on every desktop, is a major improvement in day-to-day work.**”

Bart Reynaert, ICT Consultant, Pidpa

Pridpa's GeoLink software, Web-based application based on ESRI ArcIMS, allows staff to access water network data throughout the company.

Learn more about ArcGIS® software at www.esri.com/arcgis.
ESRI Software Used
ArcSDE
ArcInfo
ArcIMS

Other Software Used
Microsoft SQL Server
Citrix

The Solution
ESRI® geographic information system (GIS) technology was chosen to improve company-wide geographic data management and water network management capabilities. Converting the large number of paper and Mylar maps was a major challenge. Maps had to be scanned as TIFF images, and, after some processing, stored in a file structure. They were then georeferenced into a grid, or image catalog, in scales of 1:1,000 and 1:5,000. The goal was to create one hybrid seamless map that could be used by the data editors in ESRI ArcInfo® to enter new network data and vectorize existing data on top of the scanned maps. The same hybrid combination of data would be used in an ESRI ArcIMS® Internet-based viewing solution called GeoLink, allowing everyone in the company to efficiently access the same water distribution network data via a browser. After using this hybrid data combination successfully for three years, the raster data is gradually being converted to vector data.

ESRI ArcSDE® for Microsoft® SQL Server met Pidpa’s needs for a Wintel-based solution with a centralized database structure, capable of supporting a LAN as well as a WAN with limited bandwidth (over Citrix). Other attractive features were the open architecture of the software, which is easily used by many employees. “We believe that the issues we were confronted with are also issues that other companies have to deal with,” says Bart Reynaert, ICT consultant, Pidpa. “It is important to bundle and reuse existing knowledge and expertise. ESRI and its subsidiary in the Netherlands shared this strategic vision and were willing to actively participate in the creation of a functionally rich generic solution.”

Results
This central, seamless hybrid combination of raster and vector data allows all staff members at Pidpa to use the same up-to-date set of geographic data about the water distribution network. Information connectivity difficulties on map sheet edges have been eliminated, and the average time spent querying water network data has been reduced from ten minutes to three. This eliminates the burden of maintaining several paper copies of maps in different offices and ensures that edits are only made once.

Creating design maps immediately in the GIS (instead of using a manual process of copying, cutting, and pasting on paper) and having this information instantly available are vast improvements in the work process. Now, digital data instead of paper maps can be delivered to outside parties.

Pidpa’s GIS gives employees the ability to query vector data, run complex analysis, and link this data to other corporate information systems.

Learn more about ArcGIS software at www.esri.com/arcgis.