

12.0 INFORMATION MANAGEMENT AND PUBLIC PARTICIPATION

12.1 Information Resource Issues

SRA handles large volumes of data for a variety of purposes. Many of this data are technical and are used for operation and management of its water supply system. SRA collects water quality data from its own sampling stations in the watershed, monitors water volumes in its canal system and tracks reservoir discharges and hydroelectric power generation. SRA also maintains an ALERT system to record rainfall and reservoir storage levels and to predict potential flood situations. Other data that SRA maintains are used to inform the staff and public of its activities and issues pertinent to the management of the water resources in the Basin.

To better utilize SRA's current information system and provide for future needs in information management, an Information Management Plan was prepared and submitted to SRA as a separate document. This plan was developed in context of SRA's goals to improve its responsiveness and management of its increasingly large information resources. The plan provides a framework for SRA's developing system to organize data and data flow throughout the system, and to expand SRA's role as an information resource for water issues in the Sabine Basin. A summary of the Information Management Plan and its development is presented in the following sections.

12.1.1 Goals

SRA is committed in developing an effective and efficient information system. To accomplish this, SRA management and staff identified the following information management goals:

1. Provide information to SRA personnel for planning, operations, regulatory reporting and compliance, administration and financial analysis.
2. Provide information for public education on water quality, water resource planning, water conservation, economic development and recreation.
3. Position SRA as regional information clearinghouse for planning and environmental data for Northeast and Southeast Texas within the Sabine River Basin.

12.1.2 Current Information System

SRA's current information management system is comprised of manual and automatic measurement, data transcription from one medium to another, data transmission, storage, and retrieval. There are five semi-independent data systems that are used to handle data maintained by SRA. These are:

- Environmental Services Division/Development Branch wide-area network;
- Arc/INFO Geographic Information System (GIS);
- Internet Web server;
- ALERT system; and
- Operations data in hard copy and on the Internet web server.

These systems contain data in different formats and have limited interaction. The Environmental Services Division network is used to manage water quality data generated from SRA's field offices and laboratory. These data are currently entered into two different data management systems, depending on the sample location. Data are combined by hand into a single database to generate reports and provide information for the SRA web site.

The GIS includes a mapping program and a database that are linked to each other and can be used to store, display and analyze geographic information. The system is currently used to store planning data such as land use, hydrologic and physical features of the watershed, and watershed segment, reach and sub-watershed boundaries. The GIS is also used to index and store raster images (digital ortho-photographs) of the watershed.

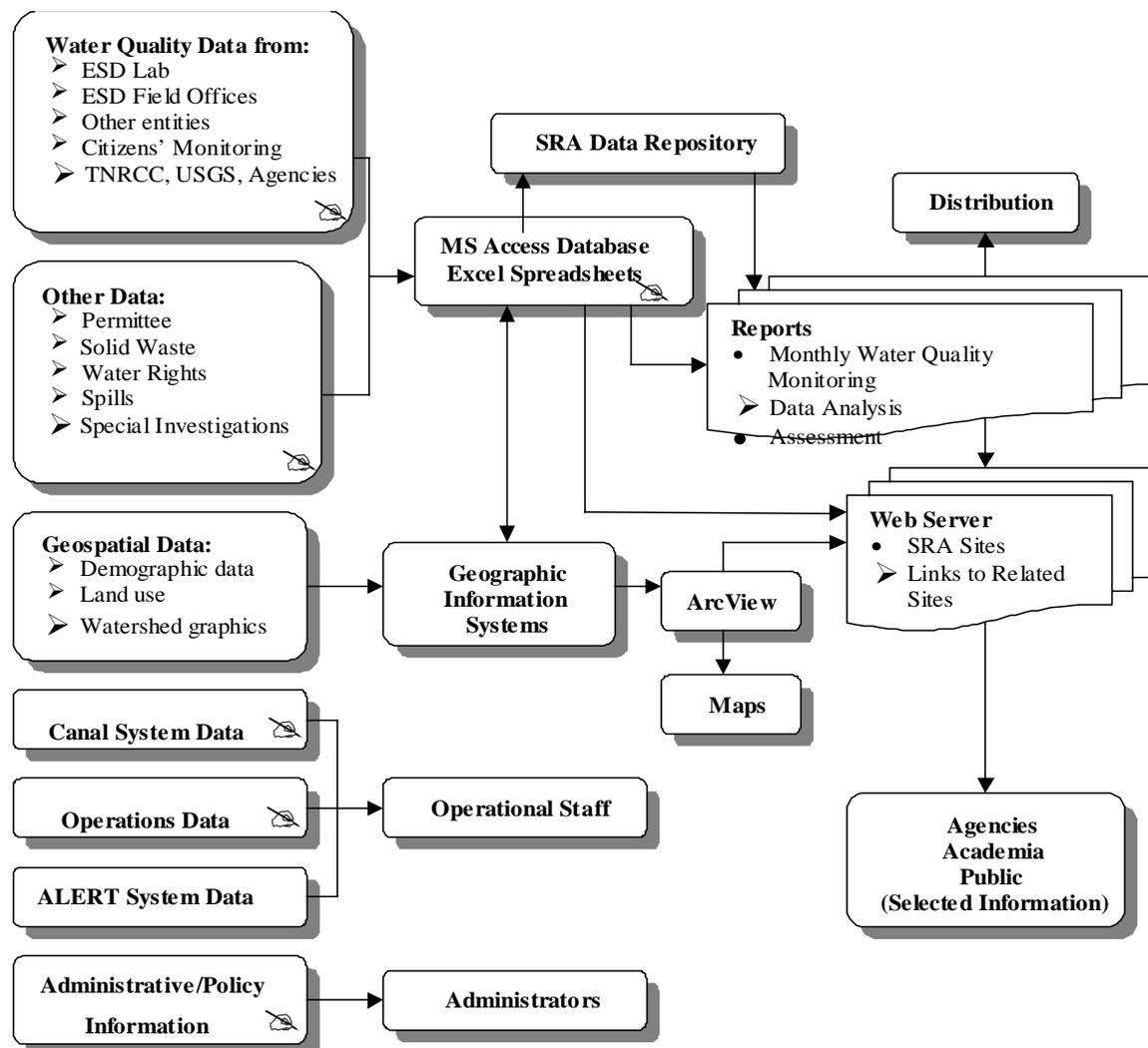
The SRA's World Wide Web server allows Internet users to access data regarding the watershed. The Web site contains agency information, community socioeconomic profiles, water resources statistics for the watershed, and other information about the Sabine River Basin.

The ALERT system is a proprietary information management system for flood alert. It monitors lake levels and sends an alert to the SRA headquarters if the level rises to preset trigger levels. The monitoring data in this system are stored and are available to

SRA if converted to a standard format. Currently these data are not used for other purposes.

Operations data for reservoir and canal system management are generated by hand and maintained in hard copy format. These data and the Alert data can not be readily integrated into databases through electronic means. Some of the operations data are converted by hand and placed on the web site. A diagram of SRA's current information system is illustrated on Figure 12.1.

Figure 12.1: Current Information System Configuration



The elements of the system (boxes) are data sets, and the arrows that connect them are data flow operations. A writing hand (✍️) indicates that the operation is done manually. All other operations are electronic transfers.

Data Processing and Maintenance

Currently, data from different sources are entered, transcribed, processed and retrieved in different manners, using processes developed by the individuals using the data. While these processes are functional they are presently not easily used by others in the organization and may be difficult to integrate with the GIS or other new systems.

Data are maintained as numerous computer files on the network server, the Web server and on each user's computer hard drives and floppy disks. Data are stored in different file formats; some are also stored as handwritten forms or as hard copy paper printouts in files. Data quality control is performed at different levels for different data. Water quality data are checked using documented QA/QC procedures, while other data are checked by the user.

12.1.3 Conclusions and Recommendations

The current SRA Information Management framework meets basic agency needs, but restructuring offers the opportunity to operate with greater effectiveness and efficiency. SRA is beginning to collect more data than it can comfortably handle under the current data management systems. As data volume increases, the need to automate data collection and transcription and to process and analyze data for end users will become more pressing. This may be SRA's major challenge for its information system over the next five years

SRA is successfully implementing a World Wide Web site on the Internet that provides easy access to data, often in innovative forms such as mapping applications, but this can not adequately serve as SRA's data management system. The Internet is basically a communications system, not a database system. Recent acquisitions of hardware will allow expansion of SRA's ability to provide large amounts of data to users. However, without a master database, data from different sources do not have relationships that can be used to deduce trends. Modern database programs allow users to filter data sets to get just what they need, summarize the data or analyze it for trends and patterns

Based on these conclusions, it is recommended that SRA:

- Continue to evaluate more efficient means of handling data. This should incorporate software that permits data filtering and analysis.
- Improve the information system for collection, storage, retrieval and analysis of watershed planning and environmental data for SRA use, compliance with regulations and dissemination to the interested public;
- Develop a standardized and accessible record control system for SRA documents; expediting document location, preventing storage of multiple document versions, and facilitating migration to an electronic document management system.
- Improve the communications process between SRA divisions, and tie these locations into the SRA data system;
- Create automated tools to analyze Sabine River watershed data for watershed operations and planning; and
- Maintain its Internet World Wide Web site to communicate with federal, state, and local agencies, institutions, and SRA field offices and to inform and educate the public.

The objective of these recommendations is to improve efficiency through better access to information and analytical tools. In so doing, SRA will increase the value of its information management system to the organization and to the public it serves. A more detailed description of the recommendations and how they can be implemented are presented in the Information Management Plan. (Brown and Root, Task 16 Technical Memorandum)

12.2 Public Participation

SRA provides the general public with extensive information about itself, its facilities, water quality conditions, recreational opportunities and general social and economic conditions in the Basin through its Web page, maps and materials on recreational opportunities and quarterly newsletters. SRA is involved with a local GIS consortium that connects it with water planning and civic entities in Orange County. It also provides area schools with the Major Rivers water use education program for fourth grade students. Through the Texas Clean Rivers Program it meets regularly with the public to discuss water quality issues and general operations activities. In addition, the Trans-Texas Water

Program has deepened SRA's communication network extending it to members of the Basin's industrial, civic and environmental communities.

To further community participation, SRA should focus its public involvement efforts on specific issues that impact the public/corporate/civic interests in direct ways. Such issues include the relationship between private actions, public policy and water supply, water conservation, drought contingency planning, water quality programs, and economic development.

The following is a summary of the recommended approach to public involvement. Details of this approach and how to implement the recommendations are presented in a separate technical memorandum. (Brown and Root, Task 13 Technical Memorandum)

- Define goals that focus on specific issues of importance to the Sabine Basin;
- Implement a "Partners in Water Resource Management" program. This program identifies specific water quality or water supply conditions and client or interest groups that impact or are impacted by these conditions. It then enlists these entities in working with SRA to find and implement responses.
- Continue existing public information and education activities;
- Develop policies and internal communications with regard to public notice via the SRA website and/or newsletter. These policies should establish guidelines for types of information that can be made available to the public, who is authorized to release information and how to notify the webmaster or newsletter editor of this information.