High Tech FMIS

Boulder diversion weirs, earthen channels, and labor intensive cultivation practices are the typical image of a farmer-managed irrigation system. In the Gascogne region of southern France, a different type of FMIS can be seen. Computer controlled gates adjust automatically to compensate for rainfall forecasts or unusual water consumption. Farmers make a telephone call if anything goes wrong that the computers are not programmed to handle; otherwise, their irrigation management consists of keeping the control room door locked, paying the electricity bill, and checking the condition of pumps, gates, and other moving parts.

These are farmer-managed systems with a difference. Farmers certainly do the management, but most of the irrigation details are delegated, either to computer-aided equipment or to either the parastatal agency which services the equipment and provides the capital for purchasing it. The Companie d'Amenagement des Coteaux de Gascogne (CACG) is a parastatal organization established in 1956 to

help the region's development including industry as well as agriculture.

There is almost no underground water in this region; nearly everything comes from surface supplies, either pumped from rivers or stored in dams and then pumped. Water is piped under pressure and then dispersed by sprinkler. Initiating a project is usually done by farmers who want more water. They ask the CACG for help, a plan is drawn up, and then a long process of negotiation begins regarding terms and payments.

Irrigation in this area, except for a very few exceptions, dates only to the post WW-II period. According to Henri Tardieu, Director of Equipment at CACG, there have been three phases in the approach to irrigation development at CACG. In the beginning (1960s), systems were designed on the basis of theoretical water requirements, and were generally large. In the 1970s the concept of farmer demand was in vogue, and sociologists were influential in giving farmers all the water they wanted, and building smaller, more flexible systems under farmer control. This resulted in some systems having surplus (wasted) water. Now there is a feeling that both farmer management and company management have merits in different situations.

Small-scale irrigation in the region is governed by village level organizations called Association Syndicate Autorise (ASA), which are legally recognized farmer groups managing systems usually less than 500 ha. Generally there is only one village (commune) in a given ASA, and the number of farmers is usually less than 30. Larger systems are managed directly by CACG. There is little overlap in the size/management categories: large systems are agency managed (through the CACG); small systems are farmer managed (through an ASA).

The CACG provides financing, design, construction, and operational servicing for both CACG systems, as well as for ASA-run systems. Farmers form an ASA as a precondition for CACG's constructing the system. The ASA represents the farmers in negotiating terms for CACG assistance, including the design and size of the irrigation system, and the terms of repayment. Although all systems receive some subsidies, there are substantial repayments as well, generally over a 20 year period. The final agreement with CACG is signed by all the farmers. Once the system is constructed and operational, it is handed over to farmer management through the ASA. The system will continue to be serviced by CACG engineers, but not routinely; it is up to the farmers (usually the president) to call for help when he needs it. The fees that ASAs pay include a component for this type of service.

One ASA which we visited was presided over by the son of the farmer who founded the irrigation system in 1947. He had started irrigating from a stream, using a small pump and an open channel. This continued for a number of years, until in 1965 they started an informal association of 7 farmers using one pump and sprinkler pipes, which they shared. They took turns successfully, but had to move a lot of equipment (sprinklers), and eventually gave up. In 1979 the current ASA president called a meeting to discuss the idea of constructing a reservoir using CACG loan funds, and then repaying the non-subsidy portion of the loan over a 20 year period. Of 50 farm families in the community, only 25 were willing to join; some of the young people couldn't afford the annual fees to the association; others wanted to leave farming altogether.

We visited the control room for the reservoir sluice. A computer adjusts the sluice gate, controlled by its own

computer program. The president looks after it and telephones for help when needed. Since every computer connection is numbered, it is relatively easy for him to identify bad parts, or install replacements. There is also a manual over-ride, of course, should the technology fail. Asked if he would like the CACG to take over his functions, he said he has no problems handling his duties.

It Works in France, but...

Could computer automated FMIS work in Sri Lanka or Somalia? The technical support services available from the CACG, or from other societies are critical to the success of these systems. Nonetheless, the example of high tech systems under farmer management suggests the possibility of decentralized irrigation systems which use relatively advanced technology under farmer management. If support services are available for the particular technologies used (e.g., spare parts and mechanics for diesel pump sets), management becomes an issue of accessing the necessary support. French farmers are not computer wizards, and they don't have to be, so long as the CACG technicians are available.

The economics of high tech irrigation are just as critical as the availability of technological support services. In France, farm labor is expensive, and automation saves labor. At the same time, the automated equipment is manufactured within the country, so the capital expense is lower than it would be in a Third World situation. Finally, both agriculture and irrigation infrastructure are heavily subsidized. Economically viable irrigation systems are not the main objective; regional development and population stability are higher priorities.

What kinds of new technologies have been used in FMIS in developing countries? How relevant is the experience of industrialized countries in applying new technologies to FMIS settings? If you have experience and/or opinions regarding these issues, please let us hear from you.

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Announcements

WORKSHOP ON PROCESS DOCUMENTATION

The Institute of Philippine Culture of the Ateneo the Manila University hosted a seminar-workshop on process documentation research on 21-24 January 1988. Held in Tagaytay City, Philippines, the workshop was supported by the Southeast Asia regional office of the Ford Foundation. It involved 25 social science researchers from the Philippines, Indonesia, Thailand, Bangladesh, Sri Lanka, and United States, plus five representatives from international donor agencies.

The workshop brought together for the first time practitioners of process documentation, a research methodology which has had about a decade of application in people-oriented development programs ranging from irrigation, social forestry, and farming systems research.

The workshop participants shared their experiences and reflections on the methodological issues surrounding the conduct and use of process documentation. They also discussed the conceptual and theoretical under-