ANL/LRP-TM-13



# INTEGRATED MINED AREA RECLAMATION AND LAND USE PLANNING: THE FULTON COUNTY CASE - A WORKSHOP SYNOPSIS

J. O'Connor, L. Guernsey, W. Toner,
E. Imhoff and J. LaFevers



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ANL/LRP-TM-13

# INTEGRATED MINED AREA RECLAMATION AND LAND USE PLANNING: THE FULTON COUNTY CASE - A WORKSHOP SYNOPSIS

Sponsored and Conducted by

U.S.G.S. Resources and Land Investigations (RALI) Program,

U.S. Department of Energy, and

Argonne National Laboratory

J. O'Connor, L. Guernsey, W. Toner,
E. Imhoff, and J. LaFevers



Argonne National Laboratory
Argonne, Illinois 60439

February 1978

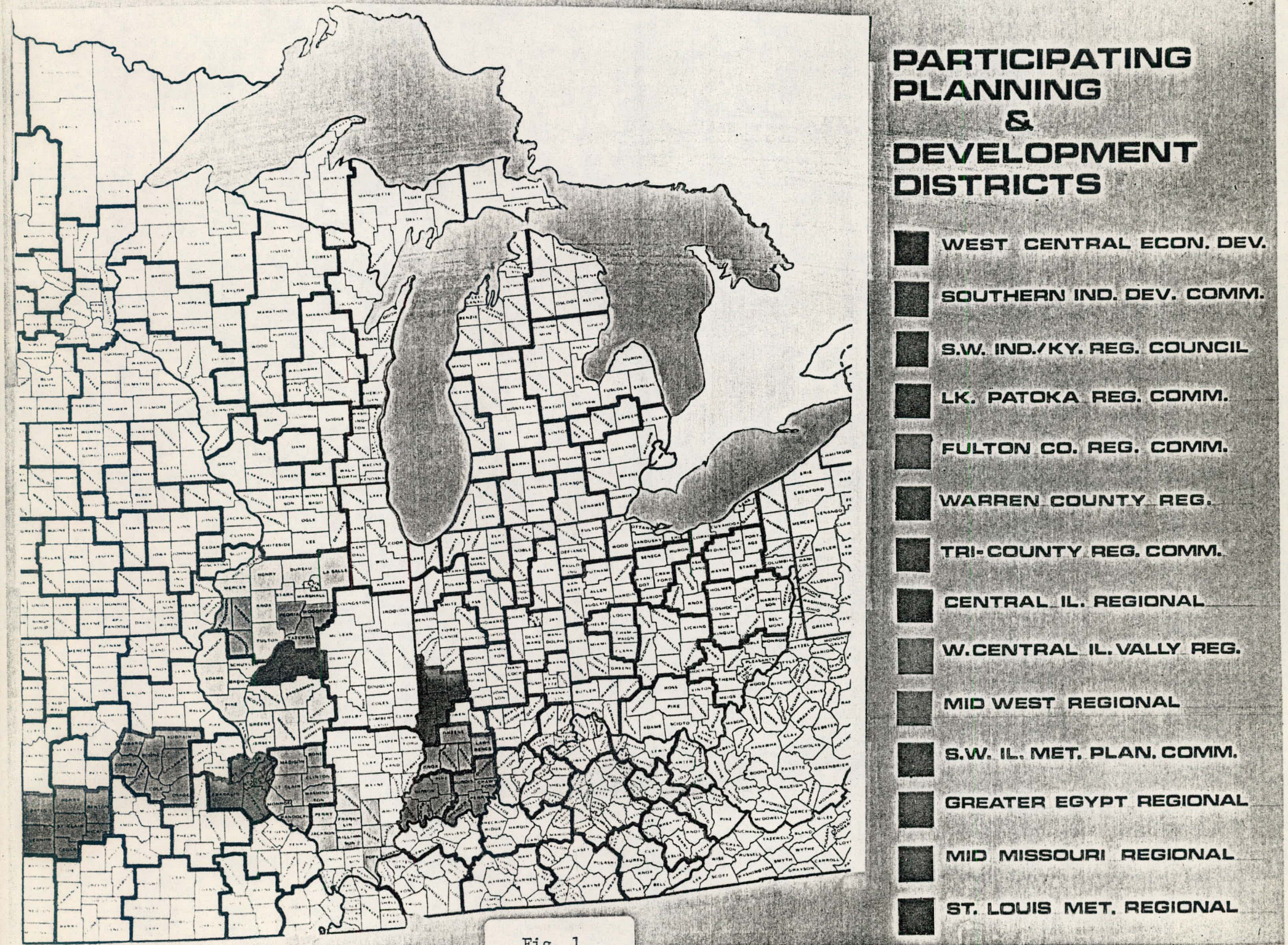
# *INTEGRATED MINED-AREA RECLAMATION AND LAND-USE PLANNING: THE FULTON COUNTY CASE - A WORKSHOP SYNOPSIS*

## *1 INTRODUCTION*

The reclamation of surface mined areas in the United States began in the 1920's as a voluntary effort to help improve the appearance of abandoned mine sites (Carter, 1974). In Fulton County, Illinois, this early effort was typified by one mine operator who scattered grass seed over the mined terrain from horseback. Since such simple beginnings, Fulton County has achieved noticeable success in blending extensive surface mining into the everyday life of the predominantly rural area. Most recently, for example, a large recreational area was developed near the city of Canton. The area encompasses nearly 600 acres, and includes a golf course and a park. The mining industry not only donated the land, but also provided considerable aid in developing the area.

The Resource and Land Investigations (RALI) Program of the U.S. Department of Interior and the Argonne National Laboratory of the U.S. Department of Energy felt that it would be instructive for local and regional planners faced with the problem of extensive surface mining and reclamation to study some of the problems and decisions which faced the planners in Fulton County as this cooperative effort in land-use planning and mined-area reclamation developed. On October 6 and 7, 1977, these two groups sponsored a workshop at the Laboratory for local planners. The topic was Integrated Mined-Area Reclamation and Land-Use Planning, and the Canton area of Fulton County was used as a case history to be examined during the workshop. Participants were invited from counties and development districts in the Illinois Coal Basin (see Fig. 1), from state and federal agencies which had programs in surface mining, and from a small number of environmental and special interest groups. The total attendance was about 50 (Attachment 1).

Organizers of the workshop were Dr. James R. LaFevers, Program Director, and Dr. J. Lee Guernsey, both of Argonne National Laboratory; William Toner, private consultant; and Dr. Joseph T. O'Connor and Edgar A. Imhoff of USGS/RALI.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&
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DISTRICTS
WEST CENTRAL ECON. DEV.
SOUTHERN IND. DEV. COMM.
S.W. IND./KY. REG. COUNCIL
LK. PATOKA REG. COMM.
FULTON CO. REG. COMM.
WARREN COUNTY REG.
TRI-COUNTY REG. COMM.
CENTRAL IL. REGIONAL
W.CENTRAL IL. VALLY REG.
MID WEST REGIONAL
S.W. IL. MET. PLAN. COMM.
GREATER EGYPT REGIONAL
MID MISSOURI REGIONAL
ST. LOUIS MET. REGIONAL

Fig. 1

RALI/ERDA INTEGRATED RECLAMATION AND LAND USE WORKSHOP

Argonne National Laboratory
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The workshop was designed to examine the Canton area within a general framework of information on technical reclamation problems, economic mining concerns, environmental considerations, and natural resource data. The study was set up so that participants were confronted with situations representing different time periods in the history of mining around Canton. They were asked to function as planners for the area using only that information available during the time period under discussion; thus as the exercise progressed, participants would become familiar with the evolution of surface mine reclamation and its relationship with local planning. It was felt that this would afford the participants a good look at the context of current surface mining legislation as viewed by different groups. As a final task in this study, the participants were given copies of the new Surface Mining Control and Reclamation Act (SMCRA) of 1977 (30 U.S.C. 1201 ef. seq., P.L. 95-87; 91 Stat. 445) and asked to analyze some of the provisions that affect planning under the Act. The sponsors felt that the planning powers of local government and the data requirements of the Act, both of which are still relatively undefined, could be most clearly defined by this approach and by the panel-type discussions of pertinent problems and opportunities confronting local planners. Attachment 2 -- the workshop agenda -- identifies the various speakers and the topics discussed.

## *2 WORKSHOP DESIGN AND RESULTS*

### *2.1 DESIGN*

The case study was selected and designed to demonstrate the advantages of a good working relationship between a community and a mining company. During the period under study, the groups involved were Canton Township, the Canton Park District, the Fulton County Road Commissioner, the Fulton County Planning Department and the Consolidation Coal Company. The objective of the exercise was to illustrate that an integrated reclamation and land-use planning program could benefit both the community and the mining company. Conversely, without planning, both the community and the mining company would suffer. Throughout the case study, the participants were encouraged to apply the principles and practices of planning for mineral resource development.

# RALI/ERDA INTEGRATED RECLAMATION AND LAND USE WORKSHOP

Argonne National Laboratory
9700 South Cass Avenue
Argonne, Illinois 60439
Bldg. 212, Conf. Room A157

October 6-7, 1977

*AGENDA*

October 6

| | |
|---|---|
| 9:00 - 10:00 AM | Argonne Welcome -- Ed Croke, James LaFevers, Chairman, Ralph Carter, ANL<br>Roger Dahlman, DOE |
| 10:00 - 10:30 AM | Case Study Background -- Bill Toner<br>Fulton County Planning Dept. (Charles Sandberg)<br>Mining Company (Dick Strode, Consol) |
| 10:30 - 10:45 AM | Coffee Break |
| 10:45 - 12:00 AM | Fulton County Case Study (Task 1)<br>Referees: Ralph Carter, Edgar Imhoff, Lee Guernsey, Jim LaFevers, Bill McCamey, Jane Markley, Joe O'Connor, Glenn Phillips, Charles Sandberg, Dick Strode, Bill Toner, and Roger Dahlman |
| 12:00 - 1:00 PM | Lunch -- ANL Cafeteria |
| 1:00 - 2:00 PM | Imperatives of PL 95-87 -- Ms. Janie Markley, OSM Task Force and CEQ Staff |
| 2:00 - 2:15 PM | Coffee Break |
| 2:15 - 3:15 PM | Fulton County Case Study (Task 2) |
| 3:15 - 3:30 PM | Coffee Break |
| 3:30 - 5:00 PM | Fulton County Case Study (Task 3) |
| 5:30 - 7:00 PM | Cash Bar Reception (Willowbrook Holiday Inn) |
| 7:00 - 8:30 PM | Dinner -- Speaker, Dr. Thomas F. Bates, Information and Analysis Office, U.S. Geological Survey, Denver Office<br>Topic: Problems and Experiences in Transferring Earth Science Information to Land Use Planners |

RALI/ERDA WORKSHOP (Contd.)

October 7

| | |
|---|---|
| 9:00 - 11:00 AM | Panel Discussion -- Methods and criteria for improving local planning input to reclamation decisions. Moderator: Jim LaFevers, ANL |
| | Reclamation Laws -- Edgar Imhoff, Environmental and Resource Planner, U.S. Geological Survey |
| | The Role of Land Use Elements in the Planning Process -- Lee Guernsey, ANL |
| | Land Use Plans and Plan Implementation -- William Kockelman, U.S. Geological Survey |
| | Fulton County Land Use Plans for Surface Mined Lands -- Charles Sandberg, Director, Fulton County Plan Commission |
| | Environmental Policies -- Karl Englund, Environmental Policy Institute, and Russ Boulding, National Coal Policy Project |
| 11:00 - 12:00 AM | Fulton County Case Study (Task 4) |
| 12:00 - 1:00 PM | Lunch -- ANL Cafeteria |
| 1:00 - 2:00 PM | Group reports |
| 2:00 - 3:00 PM | Fulton County Case Study (Task 5) -- Joe O'Connor, U.S. Geological Survey |
| 3:00 - 3:30 PM | Summary of Case Study -- Bill Toner<br>Bill McCamey<br>Dick Strode<br>Bill McCamey<br>Jim LaFevers |
| 3:30 PM | Wrap-Up and Evaluation of Workshop -- Edgar Imhoff |
| 3:45 PM | Meeting Adjourned |

The workshop agenda was arranged around five tasks, each of which provided participants with limited information on one aspect of mining and reclamation planning in Fulton County. Background for the case study was given by the head of the Fulton County Planning Department, Charles Sandberg, and by representative of Consolidation Coal Company, Richard Strode, before the beginning of the exercise. A Water Resources Division team from the U.S. Geological Survey presented a short course in the application of hydrologic data to the problem at hand. Following the early sections of the study, but before the application of environmental information to the planning tasks, Tom Bates of the U.S. Geological Survey spoke on the problems of transferring earth-sciences information to reclamation and land-use planning. And, before the final stages of the study, there was a panel discussion of various current aspects of surface mine reclamation.

The panel of six speakers presented ideas on the methods and criteria for improving local planning input to reclamation decisions. The panel was arranged and moderated by Jim LaFevers of ANL. The topics and speakers were: (1) Reclamation Laws by Edgar Imhoff; (2) The Role of Land Use Elements in the Planning Process by Lee Guernsey; (3) Land Use Plans and Plan Implementation by William Kockelman; (4) Fulton County Land Use Plans for Surface Mined Lands by Charles Sandberg; (5) Environmental Policies by Karl Englund; and (6) The National Coal Policy Project by Russ Boulding.

An introduction of information was on the discussion of SMCRA was made by Jane Markley of the Council on Environmental Policy and OSM. This discussion was introduced early in the workshop program because of expected interest in the statute, and the desire of the staff to promote discussion and feedback on problems connected with the proposed implementation of the Act. Such discussion did ensue, although the placement of the discussion did cause some participants to forget the non-existence of the bill during the time interval represented by the task of the exercise on which they were working.

About six hours of the two-day workshop were used for the case study. Nine tables were set up, one of which was for panel members and special referees. Each of the eight tables had at least one referee to facilitate and appraise the five tasks that were assigned the participants. The eight table referees were as follows: Table 1 - Edgar Imhoff, USGS; Table 2 - Charles Sandberg, Fulton County Planning Commission; Table 3 - Richard Strode, Consolidation Coal Company; Table 4 - Glenn Phillips, Consolidation Coal Company; Table 5 - William Toner, ANL; Table 6 - Roger Dahlman, DOE and Janie Markley,

CEQ; Table 7 - Joseph O'Connor, USGS; and Table 8 - Lee Guernsey, Argonne National Laboratory.

Special referees, who occupied the ninth table, included James LaFevers and Ralph Carter - ANL, and Tom Bates, USGS. Each of the eight working groups were given the same tasks and asked to work out group solutions. The tasks were designed to follow the key steps in the planning process that would lead to the development and reclamation of a mine site.

The study period examined a 10-year span during which the strip mine was planned, developed, and reclaimed. The working groups were given various problems relating to specific portions of the 10-year period. Their "correct" solution to the problems (there were many possible "correct and incorrect" solutions) would point up the benefits of good planning for mineral resource development. Similarly, incorrect solutions would illustrate the costs of poor planning. A comparison of the planned solutions with the actually-realized solutions would emphasize this and point out the variations that can exist under the integrated planning concept.

Before detailing the lessons of the case study, it should be noted that the study was designed to lead the working groups into mistakes -- to make them poor planners. This was done by giving the working groups information that was incomplete. Some groups produced quite nearly ideal solutions in spite of the difficulty, but most fell victim to the lack of data. By forcing mistakes, the sponsors felt that the participants would learn more. Thus, in the discussion which follows, emphasis is placed on the groups' errors rather than on their perceptive solutions.

In Task 1, the working groups were asked to establish long-range land use for Fulton County covering the period 1966-1990. Each group was given the basic information and then told to assign land use to one of four categories: residential, commercial, industrial, or recreational. The groups were told that the County was underlain by vast strippable coal reserves. Further, it was explained that the County had a history of surface mining and that, in general, residents approved of the mining. However, no information was available as to which areas were more likely to be disturbed by mining activities.

For Task 2, the groups were given a set of environmental information on Fulton County. Using these data on soils, topography, hydrology, and vegetation, the groups were asked to review the land uses they had assigned in the first task and asked to make the necessary adjustments. This task was important in demonstrating the value of environmental data when assigning land uses and deciding what areas are to be mined. With this information, the groups could make more rational assignments of land uses and assessments of areas that were suitable or unsuitable for mining. This task represented the period near 1968 when environmental concerns emerged as public concerns in land use planning.

In Task 3, the working groups were given a mining plan for one area of the community. In addition to the mining plan, the groups were also given a post-mining land-use plan for the Norris Mine site, one which had been prepared by the mining company. The company's plan featured residential and commercial developments coupled with large open spaces and a few public uses (such as schools). Each group was asked to review their assigned land uses for the area given the mandates of the mining plan. They were also asked to review the company's long-range land-use plan for the site.

Task 4 presented the groups with the actual post-mining condition of the site. They were then asked to prepare a detailed site-specific land use plan. The purpose of this exercise was to let the attendees discover the problems of planning for a mined area that had been reclaimed with little attention given to post-mining land uses. This task thus became one of reclamation design and salvage of the remaining parts of earlier land-use plans.

Task 5 of the exercise took place after all the retrospective planning had been accomplished and the final configuration of the Canton site had been determined. It assumed the passage and implementation of SMCRA, and all currently available information on resources and processes was provided.

This was a prospective part of the Fulton County case and was introduced to raise issues which will be part of the reclamation planning process under SMCRA. For example, reclamation plans submitted by mining companies under SMCRA must be reviewed by local planning agencies. Thus federal law mandates a new interaction of land-use planning agencies and the coal industry, which will require the incorporation of large quantities of heretofore unavailable data in the decisionmaking process. Task 5 sought to discover the potential demand for such data by the parties which will be most involved in reclamation

and land-use planning -- the planning agencies, the mining companies, and the data-producing agencies themselves. New potentials for protecting prime agricultural lands were also examined under this task and questions were asked about their contribution to, or detraction from, the planning process.

The relationship of Consolidation Coal Company to the planning and reclamation in Fulton County, and to the final land use for the study area, was explained by R. Strode and Glenn Phillips of Consolidation Coal Company, and by Robert Ems, who represented the Canton Park District.

A summary of the meeting was given by Edgar Imhoff of the U.S. Geological Survey. Imhoff invited the planners to continue providing their views on the regulation development for SMCRA to the Office of Surface Mining.

## *2.2 RESULTS*

Workshop participants were given a ratio of areas within the county to be devoted to residential, commercial, industrial, and recreational uses in the Canton area. The ratio was taken from the Fulton County Comprehensive Plan, and the task of the working groups was to apply this distribution to the area immediately north of Canton.

The maps produced at the end of Task 1 represented small variations on the distribution of the four elements (Figs. 2, 3 and 4). Most of the area that would eventually become the Norris mine was allocated to residential and recreational purposes, with a small scattering of commercial uses. Most proposed industrial uses were for lands either at some distance from the future mine site or adjacent to it on the east. Although there were some complaints about the lack of data on coal reserves underlying various parts of the Canton area, no attention was given to this problem in the exercise. It was stated that in 1967, the period represented by this task, information on coal reserves was limited to the general understanding that minable coal underlay most of the area.

The reaction of the working groups was to assign land use without considering the implications of the coal reserves. Long-range land uses were plotted for Fulton County as if the coal reserves did not exist. Although the dimensions of this error did not become apparent until later in the exercise, the task pointed up the importance of accounting for mineral resource

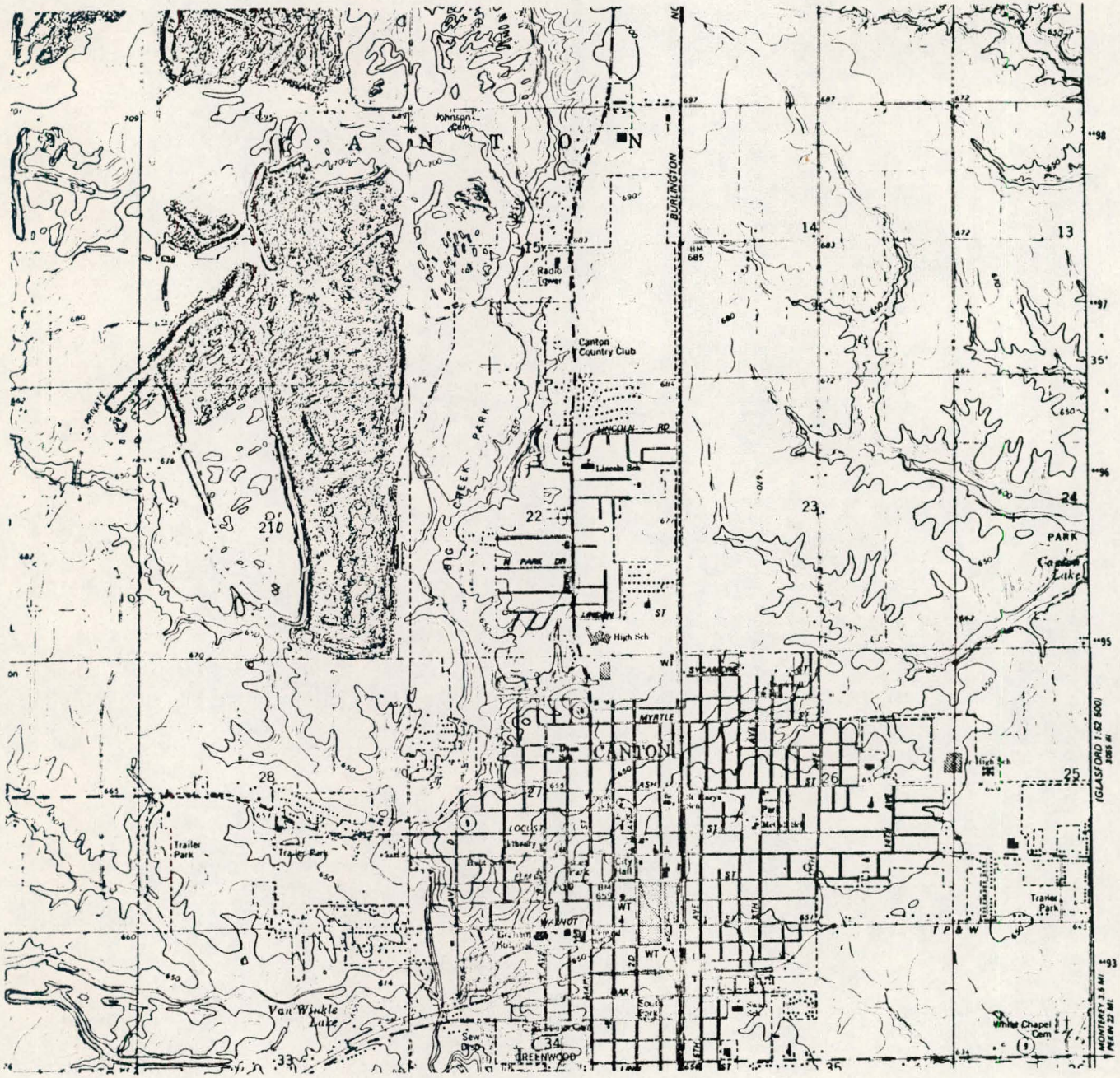


Fig. 2. Base Map of Study Area

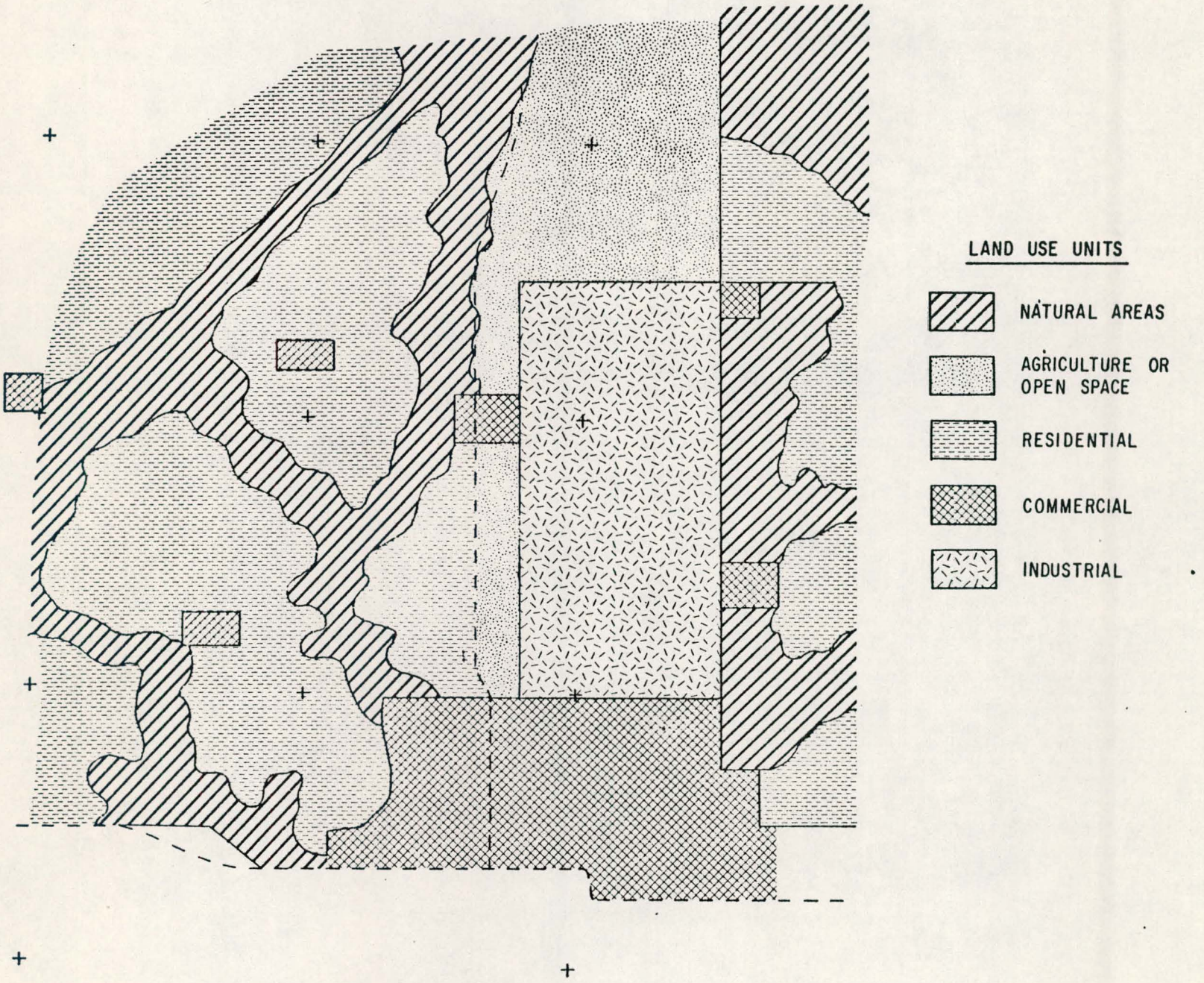


Fig. 3. Proposed land-use map of the Canton, Illinois, area showing the distribution of uses proposed after the completion of Task I of the workshop.

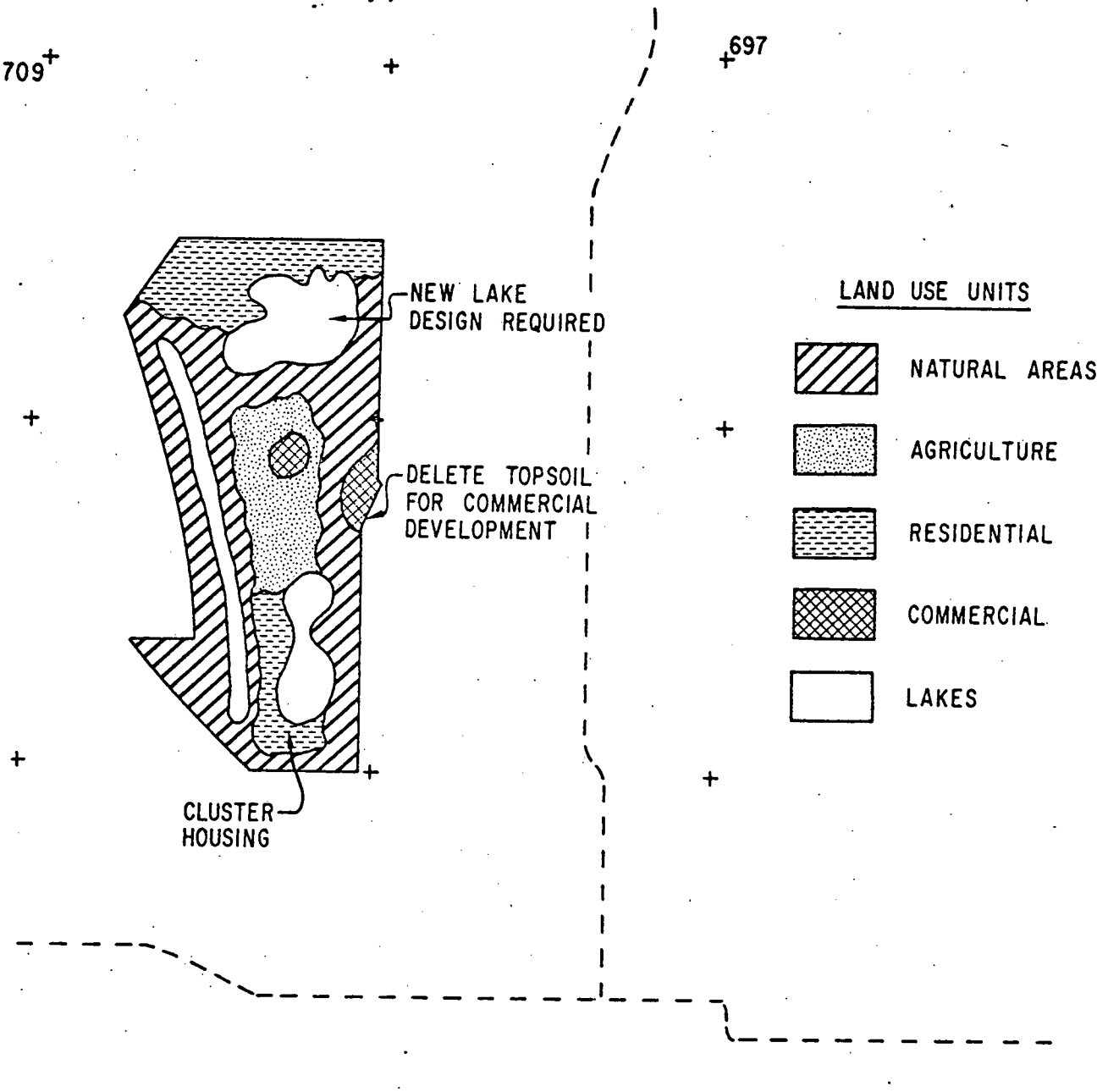


Fig. 4. Proposed land-use map of the Canton, Illinois area showing the distribution of uses proposed after the completion of Task III of the workshop.

development in the formulation of long-range land use plans. For example, if land-use patterns accounted for strip mining as an interim use, both the community and the mining company would benefit. But by assigning land use without considering strip mining as an interim use, both the community and the mining company might suffer.

Although the environmental data were not introduced until the second task, it was clear that all groups considered the environment when working on the first task. In the first task, the groups were given a bare minimum of environmental information, but the participants were quick to act on even that scarce information. With additional data, some slight adjustments were made in land uses.

As in the first task, the groups, as a whole, did not consider the environmental data in terms of the land's limitations or capabilities to support strip mining. The environmental adjustments that were made in their land-use plans did not overcome the more important shortcoming, and many groups assigned land uses that were incompatible with surface mining. This became evident in Task 3, where participants made a series of important discoveries. First, many groups had to adjust their assigned land uses since they were inconsistent with the mining plan and the post-mining reclamation plan. Second, every group rejected the company's land-use plan since it was also inconsistent with the post-mining reclamation plan. Finally, although the groups were forced to reject residential, commercial, and industrial land uses for the site, there was no doubt that the community still needed land for residential, commercial and industrial development. Thus, the residential, commercial and industrial land uses were rejected because they were incompatible with the reclamation plan, rather than because they were not needed.

This brought out another major point. The reclamation plan made the site unsuitable for most of the group's assigned land uses because the groups did not consider strip mining as an interim use in Tasks 1 and 2. Had strip mining been considered and incorporated in the early assignment of land uses, the mining company might have been influenced to make its reclamation plan more compatible with community needs. But since mining was not considered by the planners or by the community in real life, and the company-acting in its own interest -- did not set up a reclamation program based on community needs, the community lost the opportunity for land uses that would have met its needs, and the company lost the opportunity to reclaim land that would have

been a valuable corporate asset. Some frustration was expressed by the groups, which felt that land-use planning aspects of the exercise were being compromised by the arbitrary introduction of mining programs that were at odds with proposed uses but were inviolable for the planners.

In Task 4 the actual post-mining condition of the land at the Norris Mine was depicted on an aerial photograph. The new land configuration caused each proposed land-use plan to undergo some design changes. The lack of engineering-properties data caused a disparity of views about what could be done with the land. But because of topographical and hydrological constraints resulting from reclamation practices, there were few remaining choices in the selection of land use. Immediate private land changes would be limited to open-space uses although suggestions were made for deferred residential development. Public use of the land would require acquisition or donation. Clearly, the public interest in the land had suffered because of the lack of pre-mine planning. This was demonstrated in the development of site plans which focused mainly on open-space uses rather than on needed commercial, industrial or residential uses.

This task emphasized most strongly that the local land-use planner had primarily a reactive function under the more comprehensive Illinois surface mining law. While there was obviously some room for bargaining with the mining company, and while such companies were quite helpful in modifying their reclamation processes for some final land uses, the land-use planner was restricted in function to reclamation design.

Task 5 caused the greatest debate and returned the least amount of agreement. The concurrence that did occur was the large amount of data necessary to accomplish the mandates of SMCRA. The participants expressed a desire for extensive soils surveying, hydrologic studies, agricultural productivity information, geologic and other resource data, land-cover and land-use data, and engineering properties information. The participants were asked if they would have excluded any of the land now occupied by the Norris mine from coal mining if SMCRA had been in effect before the mining took place. The responses were mixed. Some planners felt that the productivity of the area prior to mining was so high that it could not be returned to its original condition after mining, and that mining would be precluded by that reasoning alone. Others felt that they had proposed a preclusion of mining under a false proposed land use. This disagreement sparked a debate

about whether or not SMCRA aided or worked against land-use planning by restricting the options of the planner in circumstances such as those of the exercise.

There was, similarly, no consensus as to whether the area should be declared unsuitable for coal mining under provisions of SMCRA that concern conflict with existing land-use plans, creation of hazardous conditions, or unfeasibility of aquifer-reclamation in the Norris mine area. Most of these questions were deferred because data were lacking. It appeared that mining companies would have to collect much of the necessary data, although the expense would be quite high.

The general view of the participants was that SMCRA would give them more power over locating surface mining and reclamation land uses. They agreed that a major problem in implementation remains the gathering and analysis of the great quantity of data necessary to make informed decisions under SMCRA.

## *3 IMPLICATIONS OF THE WORKSHOP*

### *3.1 CASE STUDIES*

Several major points can be inferred from a general review of the case study. First, good planning must include detailed consideration of mineral resources long before actual mining occurs. In the development of any long-range comprehensive plan or policy plan, this means that the community should consider the land-use implications of mining as an interim land use. Areas should be designated as suitable or unsuitable for mineral resource development. These designations should be based on information concerning the quantity and quality of the reserve, the environmental and economic limitations of the site, and social factors such as the proximity of the site to residential areas. SMCRA does much to help communities make the initial designation, but the criteria identified in the legislation are not clearly defined, nor are they necessarily complete.

Second, assuming that a community is able to make an initial designation of areas suitable or unsuitable for mining, proposed long-range land uses should be compatible with this designation. It would be poor planning, for example, to allow permanent urban structures on lands designated as suitable for stripping. Moreover, the planner would invite judicial action by supporting a designation of unsuitability for mining on the basis of criteria that could be satisfied by other socially-acceptable means.

Third, in areas designated for mining, the post-mining land uses should be consistent with the technology of reclamation. The community must know the engineering and environmental limits on their post-mining land use if they are to incorporate mineral development. Further, the land-use designation makes little sense if the mining companies are unaware of community plans. Thus it is as essential for the community to review mining and reclamation plans as it is for the industry to review the community planning effort. At present, the latter review predominates.

Fourth, strip mining involves the moving of an enormous amount of material, and a large number of post-mining land uses are possible. The choices available to the community are limited only by imagination. The land might be left flat, hilly, with lakes, without lakes, with deep impressions, without deep depressions, or any number of other ways. The burden is placed on the community to consider the reclamation possibilities together with community land use needs. But none of this will be of help if the needs and desires of the community are not transmitted to the mining company long before the first bulldozer cuts the ground. Once mining begins, the reclamation possibilities are severely limited by economics.

Fifth, the exchange of data made possible by cooperative arrangements between industry and the planning community is of more benefit to planners than they may realize. Much of the information routinely gathered by mining companies is pertinent to the environmental characteristics of the land. A sharing of information between planners and mining companies should result in mining plans that have only minimal interference with community development.

Sixth, without the involvement of mining companies in the community plans and vice versa, the mining companies will continue to plan as they have in the past: in their own fiscal interest, which is not always consistent with reasonable community development, environmental quality, or efficient use of natural resources.

### *3.2 LECTURES AND DISCUSSIONS*

Past experiences have shown that the cost-effectiveness of reclamation programs to both the mining company and the local community is closely related to an integrated approach to extraction planning, reclamation planning, and land-use planning. Mined areas that are reclaimed to satisfy a specific local or regional land use, as compared to areas routinely returned to

pre-mining conditions, are more marketable for the company and more useful to the community. Historically, mining companies that developed progressive reclamation programs, and innovative land-use schemes were generally obliged to generate land-use needs inventories by relying on in-house planning expertise. A few county and regional planning agencies, as in Fulton County, routinely work with the mining companies to develop reclamation/land-use plans, but this has been on a totally voluntary basis and has been very limited. SMCRA now supports this cooperation and in fact provides for it to take place on an equal footing. However, a cooperative attitude by both the mining industry and the planners will be necessary if the results are to be effective.

The mining industry is concerned that the land-use planning implications of SMCRA may cause delays in the permitting process. Sections 508, 515, and 522 will make it necessary for land-use planners to review reclamation plans and in at least some cases, certify that they are consistent with local land-use plans and policies. Many planners are unfamiliar with not only mining processes but also reclamation plans and permitting procedures. In the beginning, this means that familiarization with reclamation plans could cause planners to take an undue length of time to review each plan. This workshop provided an opportunity for planners to become familiar with the history, format, contents, inadequacies, and inconsistencies of reclamation plans. The workshop also allowed the industry, the planning community, and some of the data-gathering agencies to view, in context, the emerging requirements of SMCRA. Some parts of the Act, such as prime agricultural land preservation, detailing of the hydrologic consequences of mining and reclamation, consistency with local land-use plans, and declaration of lands unsuitable for surface coal mining seem to imply efforts by all parties for which they are not prepared, staffed, or funded.

The workshop also enabled the planners to learn, from mining industry representatives, the types and causes of future inconsistencies that could be expected. The fact was emphasized that not all questions can be answered in a reclamation plan because of data, time, personnel, and economic limitations. Simultaneously, the industry representatives learned of questions they can ancitipate from the planners in the future, and how to answer them in the context of the new law. The exercises at this workshop reemphasized that integration of the mine reclamation and land-use planning process does not

have a clearly defined methodology. As an emerging procedure integrated planning will require cooperation between all groups involved.

## *4 WORKSHOP EVALUATION*

### *4.1 CRITERIA*

The criteria on which this workshop was evaluated include factors considered important to the organizers, to the participants, and to the flow of the workshop itself. The first criterion was the effectiveness of the workshop in setting forth information about the theme in a manner related to general planning problems, as well as to the specific situation at hand. The general planning problems relating to surface mine reclamation were defined as:

1. The definition of land uses beneficial to the area.
2. The availability, accuracy, abundance, and services of resource data for planning and reclamation purposes.
3. The effect of proposed activities on human resources in the area.
4. The effect of proposed activities on renewable and non-renewable resources in the area.
5. The feasibility of reclamation for the proposed land uses.

This information was to be placed in as current a setting as possible by means of the "simulation," a device for viewing changes in the setting and the effectiveness of planning with time. The most recent change, passage of SMCRA, was introduced to provide a look at planning requirements in the near future, as well as to give the local planner a direct look at the new Act.

The second criterion for workshop evaluation was the utility of the information to the planner/participants themselves, particularly in their daily work. While the first criterion may be evaluated by the workshop organizers, the second must rely on the response of the attendees. The evaluation forms filled out by the participants (Attachment 3) were used to measure the success of the workshops on the second criterion.

The third criterion is that of provision of a forum for effective two-way transfer of information and opinion between government officials and planners. The evaluation of workshop success by this criterion, as by the

others, must remain more of a restatement of a short-term experience than a firm measurement. Only by continued effort and analysis over a long period would the effectiveness of such projects be even remotely ascertainable.

### *4.2 GENERAL EVALUATION*

The feasibility of reclamation for proposed land uses was discussed at some length by each working group. Frequently, however, the discussion was rhetorical since data were lacking for predicting the success of reclamation for construction or farming purposes. In detailing this informational aspect of integrated reclamation and land-use planning, the workshop was quite successful. SMCRA requires more technical data to accompany mining and reclamation plans than is currently called for by most state reclamation laws. Little time was given to discussion of the specific data requirements of SMCRA or its accompanying proposed regulations, since many of these requirements were explicit in the handouts. The problem of collecting and interpreting increased data was presented; however, implementation remains an unresolved problem in many regions where staff and money restrictions severely constrain the public planner's ability to analyze reclamation problems in depth.

The unanimous response to the query on provision of useful information by the workshop was "Yes" (Table 1). The field selected by planners as to that of the most useful information was general mined-area reclamation planning (10 positive responses out of 16 responding planners) but SMCRA (9), information exchange with other planners (9), and federal position in mined area reclamation (8) were close. Only 5 planners thought the workshop provided useful information on data sources and they were the only five positive respondents (out of 31) in this field. The federal, state, and industry representatives didn't feel that SMCRA was well covered (3 positive out of 15 responses). These groups expressed the thought that general mined-area reclamation planning (9) and information exchange with other planners (9) were the most useful areas covered by the workshops with an explanation of the federal position in mined-area reclamation (6) next.

The suggestions for improvement of the workshop (Table 2) reflected participant interest in knowing more about the SMCRA. The top three substantive suggestions for improvement were: more emphasis on SMCRA (11), more emphasis

Table 1
Tabulation of Responses to Workshop Evaluation Questionnaire

| | Evaluation Element | Response | Number |
|---|---|---|---|
| 1. | Useful information | Yes | 30 |
| 2. | What information? | SMCRA | 19 |
| | | General Mined Area Reclamation Planning | 18 |
| | | Data Sources | 5 |
| | | Information Exchange | 17 |
| | | Federal Position | 16 |
| 3. | Workshop as an aid in understanding SMCRA? | Yes | 24 |
| 4. | Advance notice of workshop? | OK | 26 |
| | | Not OK | 1 |
| 5. | Opportunity for opinion? | Yes | 24 |
| 6. | Should format be repeated | Yes | 30 |

Table 2
Tabulation of Suggestions for Improvement of Workshop

| Suggestions For Improvement | No. of Responses |
|---|---|
| More emphasis on SMCRA needed | 11 |
| Informal approach good | 1 |
| More attendance by planners needed | 2 |
| Case study approach good - helpful | 9 |
| Case study approach confusing -- not helpful | 3 |
| More time for discussion and reading needed | 7 |
| More emphasis on reclamation laws | 6 |
| Advance information needed | 2 |
| Need to discuss new ideas to improve the law | 1 |
| Parts were too elementary for planners | 1 |
| Need more emphasis on latter tasks and less on early tasks | 5 |
| Need to spell out (define) tasks better | 3 |
| Task V should be dropped - does not answer any questions | 1 |
| Should include abandoned mine problems | 1 |
| Too ambitious -- should reduce number of questions (problems) in each task | 1 |
| Panel format should be expanded | 2 |
| Need more basic information about requirements (law) | 1 |
| Very well organized -- great amount of preplanning was obvious | 3 |
| Spend less time on tasks and more discussing legal impacts | 1 |
| Needed more information on housing (room) costs | 1 |
| Needed more emphasis on Task V | 1 |
| Needed more information on mining process, costs, etc. | 1 |
| Needed better quality reproduction of maps | 3 |
| Needed bigger tables | 1 |
| Needed more confortable chairs | 2 |
| Need to review the general principles of planning (for the non-planners) | 1 |
| Identify general goals better | 3 |
| Good at staying on schedule | 1 |
| Good at maintaining group control | 1 |

Table 2 (Contd.)

| Suggestions for Improvement | No. of Responses |
|---|---|
| Specify the objectives in terms of participant behavior | 1 |
| Make each task easier to accomplish | 1 |
| Reduce volume of reference material | 1 |
| Reduce size of maps | 1 |

on reclamation laws (6), and more emphasis on the latter tasks (5). Most of the other suggestions reflected procedural or logistical suggestions for the workshops.

The question of how well the workshop provided a forum for the transfer of ideas between local and regional planners and federal and state officials is best evaluated by indirect means. The organizers of the workshop were heartened to observe discussions of the proposed land-use plans for the study area going on well past the first day adjournment. This was evidence that the working-group format had, at least, captured the interest of some of the participants. The personal comments and evaluation responses confirmed this conclusion, although some of the attendees admitted to being confused by the structure and by the incomplete information which was fed to the groups as each task was begun. Most participants, however, became aware of the frustration that working with incomplete data, changing values, insufficient authority, and immmutable deadlines can bring. This frustration, the sponsors felt, would underscore the need for more complete data, early rational planning decisions based on the data, and competent authority to carry out such decisions. The discussion during and after the working group sessions demonstrated that the need for data was felt by all participants. Whether the recognition of a need for a rational decision-making basis will last, or how competent such authority should be, are questions that were not readily addressable at this workshop.

The sponsors hoped to gain a clear call for the kind of data necessary to help carry out the land-use planning aspects of the integrated concept. This hope was somewhat frustrated, since the call is clear for more data, but not altogether clear for what type. The workshop indicated that the data producers must develop close working arrangements with data users in order to understand their needs and schedules and to develop their own capabilities to answer these needs.

### *4.3 WORKING GROUPS*

The workshop's effectiveness in directing the participants to consider land uses that are beneficial to the study area may be reflected by the controversy and interest involving the various land-use proposals that were offered during the early tasks. The general lack of agreement between these plans and the final real-life land-use pattern emphasized a major problem

facing the public planner in mine reclamation: land-use planning is often the name of the game, but reclamation design may be the only task finally achievable. The introduction of SMCRA has not unequivocably cleared up this dilemma, since the Act's power delegation to local planners is still inconclusive and untested. SMCRA, however, does seem to offer more power for planning and less for reclamation design as a reaction to faits accomplis.

Data sources for land-use planning and reclamation are many and could not be covered completely during the workshop. Much of the data that were presented (on soils, groundwater, surface cover) were of such scale, resolution, or quality that they were generally weak for specific planning purposes. Since this problem is a real one in land-use planning, the presentation of the problem is not a failure of the workshop. For the effort to have been more successful in the data-base field, some resolution of the poor-and-missing data problem should have been presented. The public planner, continuing to work with reclamation and land-use planning, will be the person best able to assess the availability of useable data.

The impact of mining activity upon the renewable resources of the study area was a much discussed topic at the workshop. Also discussed was the impact of land-use planning on mining, and some accomodation was made by the working groups to avoid preclusion of mining through poor planning. The new federal Act, some felt, modified the options of the planning community in trading renewable resources and community development. Several planners in fact expressed the opinion that the best interest of the community might be precluded by rigid application of SMCRA provisions concerning agricultural land preservation. The workshop sponsors felt that this area of discussion was covered, both by the simulation and by the speakers, although many participants indicated that they would have liked to have spent more time discussing the planning implications of SMCRA.

Discussion of mining's impact upon the known resources of the area was concerned mainly with the provision of land for the mine. The lack of serious discussion of the removal of farms and farm life from the area may be considered a weakness in the workshop design.

The general comments of the participants indicated that: too much time was given to certain lecture topics, and too much of the information that was presented was of secondary importance or inappropriate to the immediate program.

Some of these comments were doubtless derived from the frustration with incomplete data mentioned above. It is felt, however, that some presentations could have been shortened, or prepared as written material with only the direct application presented orally, and that more time should have been given for panel members to respond to participant questions.

## *5 SUMMARY*

The RALI/DOE workshop at Argonne National Laboratory on the subject of Integrated Mined-Area Reclamation and Land-Use Planning demonstrated benefits derived from a close working arrangement between the planning community and the coal mining industry. Both of these parties, along with environmental groups, state and federal agencies, and other special interest groups, were exposed to the types of information available to each other, some of the problems involved in the solution of mutual difficulties, and some of the inherent limitations of their individual fields.

SMCRA was introduced to the working sessions, and some of its provisions were tested in an exercise designed to represent a real-life situation. The most representative comment made about the new statute was in regard to the vast quantity of data that must be collected and analyzed in order to cope with the decisionmaking mandated by the new Act. While SMCRA was generally held to increase the power of local decisionmakers in evaluating some mining and reclamation elements, and in determining standards of the surface mining activities, there was some concern that rigid standards in some areas would compromise the planners' ability to develop the best mixture of activities for their jurisdictions.

The workshop used a modeling approach which simulated a real situation in land-use planning and mined-area reclamation. The participants were asked to make land-use plans while constantly faced, as had been the case in the real-life planning situation in this area, with changes in statutes, interests, and mining plans. This approach received many plaudits from the participants, who felt that it placed the usually dry aspects of statutory consideration in an understandable, interesting forum; one in which they could best express their views and problems as related to the reclamation and planning processes.