# CONDUCTING A STATE OCCUPATIONAL NEEDS SURVEY IN AGRI-BUSINESS, NATURAL RESOURCES AND ENVIRONMENTAL IMPROVEMENT

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"Educational programs must be in tune with the social and economic needs and demands related to agriculture, renewable natural resources, and environmental protection... Educational programs should be flexible in nature to qualify students for entry into occupations, to pursue additional options, and to fulfill their role as effective citizens in a democracy... Educational programs must be based upon realistic manpower requirements of the total agri-business and renewable natural resources industry in the State." These statements in the Report of the Blueprint Commission on the Future of New Jersey Agriculture (1973) reveal that educational programs, if they are to be relevant and effective, are dependent upon occupational needs data and they hint somewhat at the nature of the data to be gathered.

In that education is a responsibility of each state; it would seem most fitting that occupational needs surveys be done by state geographical areas. Stevens (1973) supports this notion when he wrote that "investment in human capital development is a function of the State founded on the purposes of education in American democracy: self-realization, human relationships, economic efficiency, and civic responsibility." State Vocational Educational Plans are or should be based to a considerable extent on the manpower needs of the state. It, therefore, follows that state manpower studies, with state pecularities such as mobility or concentrations of people, legislation, and specialized kinds of agriculture, as examples, are most useful to program planners in education. National and local surveys supplement state studies in that they provide overview data and specific reference point information respectively.

State manpower surveys can generate definitive information concerning occupations for which students are being trained, are to be trained, or are not to be trained. Current assessments and projections of labor market data are required for comprehensive program planning. Occupational preparation that is responsive to the agricultural industry is developed around the competencies needed for a job or cluster of jobs. Training programs which emerge from baseline labor market data get a step closer to meeting the needs of students, the industry, and society in general.

## The New Jersey Manpower Survey

The New Jersey Manpower Survey was prompted by leaders in

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Agriculture, Education, Labor, Environmental Protection, and the New Jersey Advisory Council on Vocational Education because they realized that effective occupational preparation requires a coherent relationship between the education of people and the labor market in which they work. They knew that data on changing employment patterns and related occupational information were needed for planning, administering, and evaluating educational programs if they are to be successful.

Manpower studies are often based on a series of assumptions about the economy. A description of the national labor force; the international climate; the institutional framework of the American economy; social, technological and scientific trends; and fiscal and monetary policies are examples of conditions which prompt assumptions for devising formulas for adjusting data. When businessmen of the industry are surveyed, it is usually assumed that they considered the state of the economy by some yardstick in estimating their projected labor force.

In addition to assumptions about the economy, basic assumptions about the design of the study or survey must be formulated if data are to be reasonably accurate and useful. The implementation of a survey is often characterized by a series of compromises due to the availability of financial and informational resources. Basic assumptions made for the New Jersey Manpower Survey were as follows:

1. Employer responses provide the most reliable data concerning occupational opportunities in their respective business areas.

2. Data collected with the use of a carefully constructed mail questionnaire would provide valid data.

3. Mailing lists obtained for the survey represent the total universe of employers in each of the business categories.

Assumptions made for an occupational needs survey can be simple or complex; all assumptions made should be reasonable and clearly stated.

The objectives of the New Jersey Manpower Needs Survey in Natural Resources and/or Agriculture (1972) were as follows:

1. To determine the present (1971) and projected (1976) employment opportunities for jobs.

2. To determine the educational levels desired by employers of employees for selected jobs.

3. To determine salary and wage characteristics of selected jobs.

4. To determine the general characteristics of the seasonable labor force in respect to off season employment activities.

5. To determine the employers' views of the future manpower situation.

6. To determine present and projected output of potential employees from training programs.

The occupational clusters selected for the New Jersey Manpower Survey in Agri-business did not parallel those established for Agricultural Education in the Standard Terminology for Curriculum and Instruction in Local and State School System (1969).

Eight occupational cluster areas were identified for the survey: (1) Horticultural businesses and services included nurseries, nursery dealers, horticultural services, golf courses, florists, and farm and garden stores; (2) In the natural resource businesses and governmental services cluster were sporting and recreational services, water supply and sewage, municipal and county government, and state and federal government services; (3) Agricultural production and related services were made up of commercial farms and farm machinery dealers: (4)The animal services cluster included animal health and care, pharmaceutical research, and race tracks and stables (It was extremely difficult to obtain data from businessmen in this latter category); (5) The food processing industry was categorized into meat products, dairy products, canned fruits and vegetables, and grain mill products and services; (6) The food distribution industry (wholesale and retail), (7) lumber and building materials services, and (8) fishing industry rounded out the occupational clusters surveyed. The eight occupational clusters included a population of 13, 418 businesses in the State.

Data collected using a stratified sample (size of business and geographical location in the State) of the businesses by job titles included "number of full-time and part-time jobs in 1971 and predicted for 1976." The 1971 employment figures were relatively easy to provide; the predicted employment for 1976 by job titles was more difficult for employers to forecast as demonstrated by incomplete returns or marginal notes attempting to justify the estimate.

The employer was asked to list the beginning salary or wage per week for each job title in his business and also the potential maximum salary. High, low, and mean weekly salaries were reported for each job title in the final report.

Employers were also asked to suggest educational levels necessary to do the various jobs within their businesses. Some employers specified more than one educational level for a job title; other employers chose not to specify educational level.

What was learned about the manpower needs of the State? The

State had nearly 66,000 full-time workers and 55,000 part-time workers in natural resources and agricultural occupations. The five-year forecast was for a 30.7 per cent increase in full-time workers and a 17 per cent surplus of seasonal or part-time workers. Employers were concerned that liberal welfare regulations and unemployment compensation tended to discourage a willingness to work.

Other findings were that (1) the highest salaries were paid employees in the professional, sales, and managerial positions, (2) many of the seasonal or part-time workers were in jobs that required little or no training, and (3) the horticultural and the food industries had the greatest need for trained workers. These findings have implications for establishing new and revising present programs.

New Jersey needs 4,000 new or replacement workers annually in natural resources and agricultural occupations. Each year educational institutions in the State graduate about 800 students prepared for this specific labor market with about 250 at the professional level, 30 at the technical level, and about 500 at the skilled level. There is a need for more training (five times more) than is presently provided. The major gap in occupational preparation is at the technical level.

The 200 page report, with more than 375 job titles, which lists salaries and educational levels provided by employers has been of considerable assistance to educational planners responsible for allocating funds, implementing new programs, and in reviewing on-going programs at all levels and in many institutions within the State. The Report is a resource used by those in education, government, business and industry to encourage training of a supply of workers that will correlate with the needs of employers and, thereby, improve the efficiency of matching people with jobs.

## More Suggestions on Conducting Manpower Surveys

Review and Synthesis of Research on Manpower Forecasting for Vocational-Technical Education by Kidder (1972) represents an attempt to sort out and classify forecasts and their underlying models so that researchers and administrators might use such procedures, projections, and techniques. He concluded that no one model clearly boasts more advantages than any other. For forecasting at the state level he stated a preference for the Occupational Training Information System approach which has definite advantages as a total systems concept.

Upon the selection or design of a manpower survey model which promises to meet the survey needs, write a sound proposal and get it adequately funded. Experience indicates that the services of a fulltime professional person (agricultural background specified) and secretary for a period of one year are necessary to complete a manpower survey in agriculture for a state. In addition to salaries, funds for supplies, telephone, travel, resource persons, computer time and a large quan-

tity of final reports must be written into the proposal. Too many surveys are done with too little support. It is better not to do a manpower survey than to do it in a shallow way due to inadequate funding. Valid and reliable data are more likely to be produced from well funded, in-depth surveys.

Be encouraged to establish an advisory committee to monitor the survey. A small advisory committee of key persons in government, agri-business, labor, and education is an invaluable resource which costs little. The advisory committee can, among other functions, endorse the survey, secure and produce lists of businessmen to be sampled, review procedures and instruments for gathering data, and give considerable credence to the final report. Members of advisory committees are generally excellent disseminators of the survey findings because of their close association with the survey and high visability throughout the state.

Identify the population and categorize the agindustry into occupational cluster areas for sampling. Determine sampling procedure and sample size for each stratification. It is suggested that each agribusiness area be stratified by geographic areas within the state and by size of business. It is advantageous to request data by meaningful categories which can always be collapsed if necessary.

Design a basic questionnaire but prepare variations of it for each occupational cluster area of jobs. The questionnaire packet generally includes: (1) a letter of introduction, (2) instructions for providing data, (3) a form for gathering occupational needs data, and (4) a self-addressed, stamped envelope for returning the completed questionnaire.

The rationale for the use of a mail questionnaire is that (1) it is an accepted research practice, (2) it is efficient in the use of money and staff, (3) and reduces time required to collect the data. On the other hand, returns from mail questionnaires are not high. Letters of endorsement from related trade associations, and State Departments of Agriculture and/or Education prompt higher returns.

Use the computer to summarize and analyze the data. It does save time and it has the capacity to store periodic data for future comparisons which is the basis for forecasting trends. It can be programmed to print out data by geographical regions and/or by state, by occupational clusters and/or by all of agriculture.

Use manpower figures provided by trade associations and government, data from other appropriate studies, and counts on professional membership rosters as bench mark information with which to compare your estimate of present employment. For example, the state veterinarian association knows the exact number of veterinarians practicing in the state. The survey estimate of employment compared with actual employment in certain occupational areas provides cross checks on the general accuracy of the occupational survey.

In addition to reporting manpower needs data and projections, gather and report manpower supply data by occupational clusters and levels. The number of professional, technical, and skilled workers prepared to meet manpower needs annually completes the supply/demand picture. Often the supply side of manpower surveys is overlooked totally.

The drawing of conclusions from occupational survey data should be done with caution if done at all in the final report. It may be well to present the baseline data clearly and let schoolmen at the several educational levels, businessmen interested in specific occupational cluster areas, governmental planners and others draw their own conclusions for their own enterprises and purposes from the data. The final report is a resource which has a host of uses such as counseling and placement, budgeting and program planning, and making other administrative decisions. To draw conclusions and include them as a part of the report limits the use of the report.

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