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EDITORIAL.

ECONOMIC RESEARCH FOR IRRIGATION DEVELOPMENT.

Water conservation projects now in progress or being planned will permit a substantial expansion of irrigation farming within this State and other areas of the Commonwealth. Although a period of some years will elapse before many of these schemes reach fruition, significant quantities of water will become available from storage dams within the next ten years. The consequent increase in irrigation farming in both coastal and inland areas should add appreciably to the stability of rural production. It should encourage more efficient management and result in greater output, particularly from the grazing industries.

Whilst the possibility of expanding the area under irrigation in Australia is considerable, it is not as great as is often popularly supposed. Eventually shortage of water will be the basic factor limiting further rural development and, to a significant degree, our capacity to maintain further increases in population. For this reason alone there is the greatest need for the most careful planning in the use of our limited water resources. Particularly in the field of land settlement, economic research can play an invaluable role in this process.

A complexity of economic and social problems faces Governments and administrators whose responsibility it is to plan irrigation development in a manner which, in the long term, will prove most beneficial both to the farmers directly concerned and to the overall economy. Many factors will inevitably influence the precise character of these plans. Considerations of defence, human welfare and other sociological and political factors must all be taken into account. Similarly, irrigation projects must necessarily be viewed as an integral part of more comprehensive regional development in which the scope for stimulating secondary and tertiary industries is considered along with the possibility of intensifying and expanding primary industries. Nevertheless, in spite of the complexity of factors which will affect the broad outlines and basic details of policies for irrigation development, it is essential to the long-term welfare of the community that decisions be made in the light of the best economic knowledge and advice and with a full realization of the probable economic consequences of such decisions. It is an extremely difficult task to forecast with reasonable accuracy the likely economic repercussions of irrigation schemes. Nevertheless, if this problem is to be approached in the best manner during the coming period of resource development in Australia, it is vital that a great deal of basic economic research, particularly at the farm level, be undertaken in the not-too-distant future.

Agricultural economists must necessarily share the responsibility of analysing the present and potential character of farming in prospective irrigation regions, of making comparisons between the economic advantages and disadvantages of alternative forms of land use and the relative merits of alternative areas which present scope for irrigation development. The facts revealed by this type of research can be used in conjunction with data on market prospects as basic considerations in determining the location, timing and character of future irrigation development. This will ensure, as far as this can be assessed by prior analysis, that any public investments made will result in the greatest net social product.

In the initial phases of planning irrigation settlements, the agricultural economist should be employed to gather data and give advice of a kind designed to improve the possibility that only those projects are undertaken which are economically sound. This task involves a detailed assessment of the scope for development in particular areas and the balancing of measurable costs and benefits associated with various proposals for water development. After the decision has been made as to a priority of works, the economist should assist in carrying out the research and providing the advice necessary to ensure that, once a programme is under way, it will achieve a maximum increase in productivity, as far as this can be influenced.

Comparative land use studies will prove invaluable guides to the rural potentialities of proposed irrigation areas. These studies can indicate possibilities for intensifying development in districts already affected by extensive irrigation schemes and, with certain qualifications, farmers' experience in present irrigation regions can be used when measuring the potentialities of new areas. Land use studies can also be used to assess the extent to which inefficient methods of farming under irrigation are the result of uneconomic practices, unsatisfactory land tenure arrangements, uneconomic farm sizes and other related causes. This will assist the more efficient design of future projects by reducing the possibility that mistakes made in the past are not unwittingly repeated in the future.

When determining the part which irrigation can play in any region, a fundamental problem is that of deciding whether on the one hand to encourage new forms of farming to which the area may be ideally suited but with which present farmers are unfamiliar or, on the other hand, to employ irrigation as a means of integrating irrigation areas with surrounding non-irrigation lands so as to assist present lines of development in a comprehensive area. This problem arises specially in the semi-arid pastoral areas and most authorities in the United States, where similar problems have arisen, take the view that the scope for the latter form of development should receive close study. Such an analysis calls for a detailed appraisal of the existing patterns of land use and an assessment of the likely impact of more stable supplies of stock fodder on the economy of pastoral holdings.

Experience in the irrigation districts of south-eastern Australia has emphasized that it is essential at the outset to design the structure of irrigation settlements so that maximum flexibility is achieved. Having established irrigation farms to undertake certain combinations, or single types, of enterprises it is essential that these farms be capable of changing their land use activities if economic conditions warrant such a change. This problem raises questions involving farm size and the distribution of soil types within farms, the layout and capacity of channels for distributing irrigation water and the provision of sufficient scope for more drainage if a change from extensive to intensive water applications becomes necessary.

It is unrealistic to assume that a satisfactory solution to the various complex problems raised by irrigation proposals can be achieved merely by an objective appraisal of the measurable technical and economic problems involved. The ultimate character, location and timing of such investments will be influenced by political considerations and numerous intangible factors. Nevertheless, the chances of reaching a sound decision are made more feasible if adequate emphasis is given to the detailed economic problems involved.