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REVIEWS IN BRIEF

Irrigation Development Planning—Aspects of Pakistan Experience, Agrarian Development Studies, Report No. 2, I. D. Carruthers, Department of Economics, Wye College (University of London), Ashford, Kent, England, 1968. Pp. vi + 67. 10s.

It is significant that more than half of the cropped land in Pakistan is irrigated which has made it possible to obtain maximum benefit from improved crop varieties, fertilizer, and improved cultural practices. Public and private investments in irrigation and drainage facilities have greatly contributed to recent increases in agricultural production in Pakistan. This monograph examines some of the general problems encountered in water resources development under conditions of acute capital scarcity. These general problems are illustrated with reference to specific experience from Pakistan. Divided into seven chapters, the first chapter of this monograph considers some of the technical features of water development. In Chapter 2, the role of water in the agricultural development strategy of Pakistan is discussed. Irrigation project planning procedure in Pakistan is outlined in Chapter 3 and some of the criteria of project design that have been derived in this process are examined in Chapter 4. The problems of estimating costs and benefits are explored in Chapter 5, including shadow pricing and crop area and yield forecasting. In Chapters 6 and 7, benefit-cost analysis and agricultural taxation and water pricing are discussed respectively. In regard to the appraisal of irrigation projects, the study advocates the use of a discounted present value criterion with emphasis upon reinvestment potential of projects. As regards pricing of irrigation water in Pakistan, there is a strong tradition of non-price rationing of irrigation water. The current water pricing system in the Lower Indus Basin is found to be inefficient and this is particularly serious because capital to finance the wide range of alternative investments will have to be found from within the agricultural sector. For improving the efficiency of use of irrigation water and revenue performance, a two-tier system is advocated for water pricing with a charge at average cost for current supplies levied as a charge per irrigable acre owned. For supplementary supplies it is recommended that a betterment levy should be used to recoup the fixed costs (tube-wells) or a reasonable proportion of the fixed costs when the major expenditure is fixed (canal remodelling). In addition, it is recommended that an annual charge should be levied for these supplementary supplies at a level sufficient to cover recurrent cost.

Agricultural Development in Nigeria 1965-1980, Food and Agriculture Organization of the United Nations, Rome, Italy, 1966. Pp. xlv + 512. \$14.00 (paper-bound). \$18.00 (cloth bound).

This report deals with the perspective for agricultural development in Nigeria up to 1980, taking as its starting point the broad objectives of national economic and social policy already enunciated in the National Development Plan 1962-68. The problems of agricultural development are discussed within the framework of overall economic growth. This approach has been followed with a view to measuring the general magnitude of the tasks facing the agricultural sector which is to provide (a) the food requirements of a rapidly growing population which is expected to increase by about 55 per cent between 1963-1980; (b) the agricultural raw materials for Nigeria's developing industries; (c) the volume of ex-

ports needed to pay for the import of capital goods; (d) employment for about 6 million additional agricultural working population in 1980 as compared to 1964; and (e) a substantial share of the capital to finance the development of the whole economy. The report attempts to analyse the principal problems to be faced in meeting these tasks and to chart the broad policy lines in various fields. The report is divided into four parts and sub-divided into 23 chapters. The last part contains the appendices and table annexes. The main conclusions and recommendations of the report are as follows : The rate of growth of gross domestic product must be stepped up well beyond the present objectives of 4 per cent per annum for realising the longer term objective of self-sustained growth. The targets proposed for the rate of increase of gross domestic product are 5.5 per cent per annum during 1968-69 to 1973-74 and 6 per cent during 1974-75 to 1979-80, providing an increase in gross domestic product of 135 per cent by 1980. In the growth model developed for the purposes of this report, even the postulated savings of 16 per cent of gross domestic product during 1974-1980 would not meet the investment required to push growth of gross domestic product up to 6 per cent per annum because of a high prospective rate of growth in consumption. Foreign investment would need to remain large although it would be a declining proportion of gross domestic product at 3.6 per cent as compared with an estimated 5.7 per cent in 1967-68. The third stated objective of national policy, *viz.*, more equitable distribution of income between social groups and between geographic regions is unlikely to be reached by 1980. The potential labour force between the age-group 15-60 years is estimated to reach over 45 million by 1979-80 as compared with 30 million in 1963-64. Assuming a participation rate of 80 per cent (95 per cent for males and 63 per cent for females), the economically active group is estimated to increase from 25 million to 36 million, and the economically effective population (*i.e.*, full-time employed) from 14.4 million to 24.5 million during the same period. The impact of the population increase on employment in agriculture has been calculated as residual. It is estimated that agriculture including fisheries and forestry should provide full-time employment for more than 17 million people by 1980 as compared with about 11 million in 1963-64. Following the discussion of the main elements of the strategy of development, the report analyses a number of factors which in FAO's view have the most important bearing on agricultural development. These pertain to the existence of vast unutilized land in the riverain provinces and its potential to become the mixed farming area; the necessity of working towards permanent systems of farming requiring an entirely new concept of land use for the preservation of fertility; the relative abundance of land suitable for dry land farming and its bearing on the priority to be given to irrigation projects; impediments to agricultural modernization created by deep-rooted social customs; the pressing problem of rural employment; the needs for and the limitations of mechanization; the need for long-term development programmes for export products; improvement in the quality of the diet; promotion of agro-allied industries; provision of a better institutional framework; need for adequate statistics as well as education and training.

Rice Milling in Developing Countries—Case Studies and Some Aspects of Economic Policies, Commodity Bulletin Series 45, Food and Agriculture Organization of the United Nations, Rome, Italy, 1969. Pp. iv + 33. \$1.00.

This report is the outcome of the Study Group on Rice which considered at its ninth session in April, 1965 the results of an FAO enquiry into the economic

structure of rice milling industries based on data provided by 25 member countries and recommended that case studies should be carried out in selected countries for a more detailed and reliable assessment of the comparative costs of rice milling and other economic problems of rice processing industries, especially in the developing countries. This report analyses the major characteristics and operational efficiency of rice processing industries as revealed by case studies made in three countries, viz., Ceylon, Malaysia and the Philippines based on an on the spot survey in 1966. The characteristics of rice processing industries are broadly common to all the three countries, with variations arising from differences of geography, patterns of agricultural production, historical evolution of rice processing industry and government policies. An attempt is made in this report to analyse some of the more important economic issues which seem to be relevant in policy making in the context of national development policies. The case studies revealed that the major problems of the rice milling industry in the Philippines were (i) procurement of adequate paddy for milling, (ii) fluctuations in paddy prices and (iii) passage of paddy through many hands before it is ultimately milled. In Ceylon, (i) the control and regulation of the installation of new mills, (ii) better utilization of existing capacity, (iii) improvement in the quality of milled rice, especially government procured supplies and (iv) better co-ordination of various government policies were the major problems faced by the rice milling industry. In Malaysia, the main problems of the industry were (i) overcrowding particularly of small mills, and consequent excess milling capacity, (ii) lack of working capital at reasonable rates of interest and (iii) absence of a co-ordinated approach to the industry by a single authority.

Modernization in Rice Industry, Indian Institute of Management, Ahmedabad, 1969. Pp. ix + 116.

Studies on Modernization in Paddy-Rice System, V. K. Gupta, T. P. Gopaldaswamy and D. P. Mathur, Indian Institute of Management, Ahmedabad, 1969. Pp. xvi + 242. Rs. 10.00.

Both the publications under reference attempt to give a perspective on the size and nature of the task of modernizing the rice processing industry in India. The first report contains the proceedings of the seminar on modernization in rice industry held at Bangalore in January, 1969 and 12 contributed papers dealing with various problems of the rice milling industry. The main objective of the seminar was to create an awareness of the inter-related and interdependent nature of operations in the whole paddy-rice system and the roles of the government administrators and policy makers, credit and financing agencies, mill and mill equipment manufacturers, and the co-operative marketing and processing sector. The contributed papers are grouped under four sections, each section discussing respectively the dynamics of modernization, the economic and financial implications, the technological implications and the personnel requirements for modernization in the paddy-rice system. A brief summary of the proceedings of the group discussions on each topic is given at the end of each section. In the first paper on "Modernization in the rice industry and agricultural development in India," Douglas Ensminger emphasizes the importance of modernization in the rice industry in the context of agricultural development in India and outlines the contributions a programme for identifying potential growth centres and long range

planning for the development of socially and economically viable communities can make to national development. The dynamics of modernization in the paddy-rice system is dealt with in Section I. James E. Wimberly in his paper on "What is rice mill modernization" and V. K. Gupta in his paper on "Dynamics of modernization in the paddy-rice system" discuss the historical developments in the rice industry, economic consequences of changes from time to time, and the contributions of the modern system of production, processing and distribution. In the paper on "Relationship among production, processing, and distribution in the modern paddy-rice system," A. A. Johnson examines in detail a few of the characteristics of modernizing agriculture and emphasizes the development of marketing. The discussion on the different roles that the government could perform in helping the modernization process in the rice mill industry highlighted that the role of the government must be that of a catalytic agent and that it should develop policies which would provide the incentive to set up modern mills, discourage huller mills, and provide an integration within the industry.

In the second section, a paper each by D. K. Desai, V. K. Gupta and T. P. Gopaldaswamy and V. S. Tyagaraja Mudaliar considers the economic and financial implications of modernization in the paddy-rice system and the co-ordination of the modern paddy-rice sector with credit and financing agencies. The group report estimated the total capital requirement for the modernization programme at Rs. 614 crores which included capital needed for the setting up of new rice mills of two-tonne and one-tonne capacity, modernization of sheller-cum-huller mills in the private sector, replacing the sheller units with modern one-tonne sheller units and capital requirements by co-operative mills and the Food Corporation of India.

In the third section dealing with the technological implications of modernization in the paddy-rice system, A. C. Pandya, Radhey Lal, N. G. Bhole, H. S. R. Desikachar and H. A. B. Parpia discuss the role of the new innovations and the range of new equipment now developed for modernization in the rice processing sector. The group report attempted to draw up a programme of modernization for the traditional sector. In the last section on personnel requirements for modernization in the paddy-rice system, V. K. Gupta and K. B. Kothari in their paper discuss the development of specialized manpower for the sector with special reference to the Tanjore Co-operative Marketing Federation. The group discussion focussed attention on the existing facilities for development of manpower and the extent to which facilities should be developed to provide the required skilled manpower for the rice industry. The seminar recommended that a central agency should be set up composed of the various interests in the paddy-rice system for accelerating the process of modernization in this sector.

The second report combines the findings of an earlier study on the modernization of rice milling and also of the studies on the traditional sheller sector in Madhya Pradesh. The report covered two modern rice mills in Thanjavur in Tamil Nadu and Raipur in Madhya Pradesh, which were set up in 1966-67. It attempts to understand the ecological conditions of the two areas in the light of possible modernization of the paddy-rice system. The economic and financial implications of modernization were then studied. The first aspect explored whether investments in modernization were profitable and the second aspect

examined some of the operational limitations of the rice processing industry. The report also studied another aspect which has a bearing on the question of modernization of the traditional sheller sector based on a survey of 27 traditional sheller mills randomly selected from Raipur-Bilaspur. In addition to these problems, it also examined some of the issues in the working of modern mills at a micro level. These were the effects of procurement levy on a modern mill, increasing utilization by higher procurement during the season and building up of organizational structure for procurement and marketing. The main conclusions of the study are as follows : (a) The rate of modernization in paddy processing will be affected by the ecological conditions of the area. (b) Modernized processing is economically viable and leads to increased physical and monetary gains. (c) Processing throughout the year in one paddy crop area by building storage facilities and inventories is not as profitable as having larger installed capacity to be utilized only during the paddy seasons. (d) Since modernized processing involves a high technological level, it will require a higher level of management and technical personnel; and new jobs will have to be undertaken by the processors. (e) Modernization of traditional sheller sector is economically profitable.

Agriculture in the Australian Economy, Edited by D. B. Williams, Sydney University Press, Sydney, Australia, Methuen & Co. Ltd., Publishers, London, 1967. Pp. xvii + 349. 56s.

This book presents an excellent review of the developments in the agricultural economy of Australia and describes the significant changes which have occurred in the economy in recent years. The sixteen chapters in this book have been prepared by members of the profession of agricultural economics in Australia. The history and development of Australian agriculture from 1788 to 1965 is reviewed in Chapter 1. The review reveals that agriculture is now very much a capital intensive industry. Throughout Australia's history, the state has played a major role in building the infra-structure of the economy. But essentially the pattern of rural investment has been for the government to provide expensive major facilities and for the graziers or farmers then to undertake the less costly work of developing their own estates. Unfortunately, they did not always have the knowledge or the capital needed to do this. Political pressures and human sympathies resulted in the farmer being protected from paying the full penalty for an over-optimism which was often shared by the majority of the Australian community. Analysing the economic structure of Australian farms in Chapter 2, it is noted that over 90 per cent of the 2,53,000 rural holdings in Australia were operated by their owners who, with their families, formed more than 60 per cent of the total farm labour force of 2,80,000 people, operating 1,184 million acres of land. An average of one person worked in agriculture for each 4,228 acres in rural holdings. The high proportion of land to labour used has reacted on and has been influenced by specialization. Most farms produce only one or two commodities and between 50 and 60 per cent of the country's agricultural production was exported. During the nineteenth century the restrictions on production imposed by the export market and by the amount of labour available led to distinct and highly specialized types of farming in different zones of Australia, viz., sugar, dairy products, sheep and beef and wheat and sheep and cattle grazing.

For well over a century since 1788, Australian agriculture was exploitive and little was done to conserve or build the natural resources. But from 1901 onwards intensification of production, as distinct from simple expansion began through the application of science to the growth of plants and animals. The nature of innovations introduced in Australian agriculture is reviewed in Chapter 3. An outline of the administrative services which have been established in the country relating to agriculture with special reference to research, extension and education is given in Chapter 4. Chapter 5 describes the ways in which primary producers in Australia have organized themselves for protecting and advancing their economic welfare. The role of agriculture in the national economy of Australia is discussed in Chapter 6. Only 13 per cent of gross national product in Australia is derived from primary production. In 1961, only 10.9 per cent of the work force was engaged in primary production even though the farm sector provided the bulk of the export income. In recent years, both farm production and exports have expanded and yet the farm sector still has considerable capacity for growth, provided markets can be found at prices which induce this growth. Chapter 7 describes the changes in output of agricultural products which have occurred in Australia including a discussion of the reasons for such movements. Some results of a more detailed study of short-term supply responses for six of the most important farm products are also presented. The study reveals that farm output in Australia has grown at a fairly uniform rate of about 3 to 3.5 per cent per annum since the early 1950s. The next three chapters of the book are devoted to a discussion of issues relating to land policy, rural labour and farm investment. The role of credit in Australian agriculture, the changes in the sources of farm credit and the changes and modifications of credit policy as it relates to agriculture are considered in another chapter. Since 1946, there has been a great increase in the number and scope of public and private land development projects, attributed largely to more favourable prices for rural products, new knowledge of development and production techniques, and increasing participation and financial contributions by the government. Chapter 12 reviews the agricultural development projects in Australia. It is pertinent to note that much of the increase in production and productivity over the last two decades in Australia has been on existing farms, rather than on new farms established under the development projects. The changes in food consumption in Australia are discussed in Chapter 13. The next chapter describes the salient features of the marketing of each of the principal agricultural products, which is preceded by an evaluation of the policy relating to the creation of producer-controlled or dominated marketing monopolies. The last two chapters discuss respectively the agricultural price policies followed in Australia and the factors influencing them and agricultural trade and trade policy. The editor deserves warm praise for bringing this book which will be read with interest by students of agricultural economics.