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POST-WAR DEVELOPMENT OF INDIAN FISHERIES

INDIA'S resources of fisheries are rich and extensive. The Bay of Bengal and the Arabian Sea are abundant in tropical species of food-fishes. Besides the marine fisheries, the inland waters such as the rivers, lakes and tanks abound in good fish and constitute a substantial source of food supply. Unfortunately, no serious attempts have been made to develop and exploit these fisheries. Fishing is, no doubt, practised by the coastal fishermen but their fishing craft is primitive and the mode of disposal of fish unscientific and uneconomical. Fish is hardly supplied a few miles interior of the coastal line. In spite of the poor fishing methods used by the fishermen the average quantity of fish landed by a fisherman on the Malabar Coast works out to seven tons a year which exceeds the corresponding average for the Japanese fisheries. This instance is cited to emphasize the richness of the West Coast fishery. But the total catch of the whole of India which is estimated to be 7,000,000 tons per year is shockingly poor compared with the vast population of the country.

Pioneer workers in the field of fishery development in India such as Dr. Francis Day, Sir Frederick Nicholson, Sir K. G. Gupta, Dr. B. Sundara Raj, Dr. S. L. Hora, and others have repeatedly pointed out the backward condition of the Indian fisheries and have urged the importance of organising fishery development and fishing industry. The Royal Commission on Agriculture in India have observed, "We have been greatly struck by the comparative failure to develop the fisheries of the country . . . The addition of fish to the diet of the cultivator seems to be the most promising way of securing that improvement in his nutrition which is so much needed and all measures practicable to this end should be taken". The Overseas Committee of the Indian Science Congress Association has stressed the need for the formation of a Central Executive Fishery Research Council working under one of the departments of the Government of India and the establishment of a Fishery Research Institute for the proper development and conservation of the valuable fisheries of Indian waters. In a memorandum (Government of India Press, New Delhi, 1944), Dr B. Prashad has made similar recommendations as those of the Overseas Committee and has given a five-year plan for the development of fisheries in India with particular reference to the importance of scientific research both biological and technological. An account of the prawn fisheries of India and their importance as sources of food production has been given by Dr B. Chopra in his Presidential Address to the Indian Science Congress (1943). It is gratifying to note that the importance of fishery development is being felt in different parts of India. Some basic work has already been done in Bengal, Madras, Bombay, Punjab, Travancore, Mysore, Hyderabad and Baroda. It is true that so long as the fisheries is a "transferred" subject the main responsibility of organising and exploiting the fisheries rests with the provincial and state governments, but the problems connected with the fishery development in India as a whole are so varied and complicated that they cannot be solved without proper co-ordination and financial assistance by a strong Central Advisory Body in Government of India. The Overseas Committee in recommending the formation of such a body have rightly observed, "Many fishery problems are, moreover, common to several provinces, or, indeed, to the whole of India, and to attempt their solution by a number of poorly staffed and disconnected units—even if it were possible—could only result in overlapping and in wasted efforts". The establishment of the Fishery Research Institute and the Advisory Fishery Research Council as suggested by Dr. Prashad is as urgent as it is essential for the successful solution of the basic problems of fishery development.

There are numerous difficult problems to be solved in connection with the development of Indian fisheries. Dr. Prashad states, "The intricate problems concerned with the proper development and exploitation of the fisheries are often so much more difficult of elucidation and solution than in other industries, that only a carefully planned, long-term scheme of research and experimental work would seem to meet our difficulties. Various physical and biological factors which influence the abundance or scarcity of fishes in any maritime area are depth, temperature and salinity of the water, nature of the bottom, weather conditions, state of the tide, time of the day, season of the year, migrations of the fishes following those of organisms which form their food or in response to reproductive instinct, and several other factors. In European and American waters, sustained and well-directed research by large bands of trained marine biologists of all nations extending over many years has gone a long way towards elucidating the relative influences of nearly all these factors, and making available detailed information on the biology, age, life-histories, food, rates of growth, migrations, etc., of most of the important food-fishes No such data are available for Indian species of marine fishes. There are similar problems in regard to the freshwater and estuarine fisheries of India awaiting solution, but no real progress is possible until accurate and detailed information on these basic points becomes available." Other problems connected with the fishing industry relate to the adoption of deep-sea fishing, devising better fishing craft and fishing appliances, organising curing, smoking, canning, refrigeration, quick transportation, marketing of fishes and such others. Further there is the problem of organising subsidiary industries such as the manufacture of fish-oils, guano and fish-meal. It may further be pointed out that the hydrographical and biological conditions of the fisheries and the habits of fishes in our tropical waters are so different from those in the Western countries that a blind application of the Western fishery principles to solve these problems may prove inadequate and often useless. It is, therefore, necessary that each problem has to be carefully studied with particular reference to local conditions and appropriate solutions found.

The magnitude of the importance of fishery development in India cannot be over-emphasized. No dietetic improvement can be planned for the people of India without a programme for the rational exploitation of its fishery resources. The various provincial and the state governments in this country particularly the Central Govenment should devote its earnest attention to the subject of fishery development and give the subject an important place in their Post-War Planning.

Till such time as the Central Advisory Fishery Research Council and the Fishery Research Institute are formed, the scope of the "Fish Committee" of the Imperial Council of Agricultural Research may as well be widened to secure an effective and fruitful co-ordination of fishery investigations among different provinces and states. The Fishery Experts in different parts of India should be invited to serve on the reconstituted and enlarged committee. They have acquired an intimate knowledge of the present condition of the fisheries in their respective provinces and states, which will be very helpful in formulating a correct policy regarding the organisation of fishery development in India. Important investigations can immediately be started with the co-operation of fishery departments and scientific institutions in the country. The Madras Zoological Research Laboratory has recently carried out some outstanding work and with additional staff and equipment, the Institution will no doubt be able to successfully solve marine biological problems connected with fishery research. Similarly the Marine Biological Stations at Trivandrum and West-Hill can conduct such investigations on the West Coast. The example of the Department of Zoology of the Calcutta University which has worked out certain fishery problems, is worthy of emulation by other universities in India.

NUTRITIVE VALUE OF DEHYDRATED VEGETABLES

DEHYDRATED vegetables are now being manufactured in large quantities in many belligerent countries and it is important that their nutritive value should be studied. A good deal of work on this subject has been carried out in the Indian Research Fund Association Nutrition Research Laboratories, Coonoor, under Dr. W. R. Aykroyd, says the report of the Scientific Advisory Board of the Indian Research Fund Association for the year 1943.

Steam-blanched cabbage was found to lose vitamin C more rapidly on storage than cabbage blanched by dipping in boiling water. Loss of vitamin C in dehydrated vegetables prepared by the so-called "pre-cooking" method was more rapid than in vegetables prepared by other processes. The general conclusion arising out of a considerable amount of work on the vitamin C content of dehydrated vegetables is that these cannot be relied upon as antiscorbutics after a period of a few months' storage.

While carotene is somewhat more stable than vitamin C in dehydrated vegetables, very appreciable losses occur on storage. After 20 weeks' storage at 98° F, bitter gourd, cauliflower, carrot, pumpkin and potato lost from 35 to 65 per cent. of their original carotene content. Losses in the mineral content of dehydrated vegetables during reconstitution and cooking amounted to 60 per cent. When in the U.S.A, attending the United Nations Conference on Food and Agriculture, Doctor Aykroyd collected considerable literature on the effect of dehydration on the nutritive value of vegetables and other foods, a subject which is being intensively studied in England, Canada, the U.S.A. and Australia.