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ANIMAL AND FISH PRODUCTION PROGRAM*

By

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* Paper presented at the 16th Regional Technical Meeting on Fisheries, South Pacific Commission Noumea, New Caledonia, 13-17 August 1984.

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AUSTRALIAN CENTRE FOR INTERNATIONAL AGRICULTURAL RESEARCH
(ACIAR)

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INTRODUCTION

The Australian Centre for International Agricultural Research was established in June 1982 by an Act of the Australian Parliament after the then Prime Minister, Mr Fraser declared the Government's intention to do so at the Commonwealth Heads of Government Meeting in Melbourne in 1981. It is the first Australian organisation entirely devoted to mobilising the nations agricultural research capacity for the benefit of developing countries. The purpose of ACIAR is to encourage and support collaborative research into problems in Australia's neighbouring countries, such as the South Pacific, in fields in which Australia has a special competence. It does this by acting as a financial catalyst and commissions joint research projects between overseas and Australian scientists.

ACIAR's approach is problem orientated; it is aimed at identifying important constraints facing developing countries and by finding solutions using research to remove or decrease the effects of the constraint. Agriculture is broadly taken to include animal and crop production, land use and the related fields of fisheries, forestry, postharvest technology and related socio-economic research.

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The resources available to ACIAR are limited and it has been decided that the Centre should do fewer things and do these well, based on Australian research capacity, rather than attempt to do too many things and do them inadequately. Linkages will be established between related projects to assist a flow of information and to multiply the benefits of the research.

The geographical focus of research activities will be Australia's near neighbours in Southeast Asia, especially the ASEAN countries, the South Pacific and Papua New Guinea. On the basis of eco-system the focus will be in the tropics and sub-tropics.

MODE OF OPERATION

There are three bodies which guide ACIAR in carrying out what is essentially an entrepreneurial role in investigating and supporting research opportunities. Firstly, the Policy Advisory Council, which is appointed by the Minister of Foreign Affairs, of which Mr Tauilili Meredith of Western Samoa and Mr Brown Bai from Papua New Guinea are two of the eight overseas members. This Council has an overview role and an advisory role.

Secondly, the Board of Management which is responsible for the operation of the Centre and concerns itself with all aspects of the Centre, such as control of programs and approving specific projects for support.

Finally, the Centre, which consists of a Director, Professor J. McWilliam, and a small professional scientific group. The staff's duties are to identify key research problems in developing countries as well as assisting in the design and appraisal of research programs; this includes planning and development of research programs, organising and contracting

for technical resources, and receiving and managing supporting funds. A strong emphasis is placed on developing multi-disciplinary projects.

PROJECT DEVELOPMENT

To assist in developing focussed research characteristic of ACIAR projects, it was decided to establish a set of priorities within which the research programs would develop. Due to changing perceptions of needs and the nature of research, the priorities framework will change over time. The research priorities were established by consultation with scientists in Southeast Asia and the South Pacific, also specialists were asked to make project related visits in addition to consulting with the Australian Development Assistance Bureau and international organisations such as ISNAR, the International Service for National Agricultural Research.

Before ACIAR can accept a project, the following criteria should be considered:

- the efficiency and equity of the project
- the response to the expressed needs and priorities of developing countries
- the relevance to important problems of national or regional importance
- the significant participation of developing country scientists
- the utilisation of Australia's special research capacity
- the relationship to other international research activity.

Taking these factors into account, the following priority programs were established:

- soil and water management plus land use
- plant improvement and protection
- plant nutrition
- animal and fish production
- animal health
- farming systems - terrestrial and marine
- forestry
- socio-economic and communications.

A project can be initiated by overseas or Australian scientists. The project must meet the above criteria and fit comfortably into the set programs. Also, the theme of a partnership should be evident in that the project is developed by both partners, Australian and overseas. The activities of the project can be carried out overseas or in Australia or in a combination of localities.

There are two steps in getting a project approved once the initial criteria are met. The project is presented to the Board of Management as a preliminary proposal, which if the Board of Management is satisfied that all the ingredients of an ACIAR project are met, approves the development of a final project with a detailed description of the project priorities, methodology, budget, etc. If the Board approves the project the Director is enabled to sign a contract with the Australian research institution. All projects are commissioned through Australian research institutions.

THE ANIMAL AND FISH PRODUCTION PROGRAM

ACIAR considers that the marine resources in the South Pacific are an important national asset for the island states.

In many cases the marine resource is of greater importance than the land resource. As a result ACIAR is currently exploring important research priorities that have a regional importance rather than an individual country. However, the similarity of many Pacific states natural resources make it more than likely a research problem identified in one island state will be relevant to several.

A description of the *Tridacna* project will serve to illustrate the elements of collaborative research supported by ACIAR. As is well known, *Tridacna* clams are widely distributed in the South Pacific, Indian Ocean and Southeast Asia, where they have formed a significant part of the diet of the people in these regions. Another attractive biological characteristic is that the clams, with the assistance of a dinoflagellate algae are almost self-feeding, which reduces the need for sophisticated artificial diets which may not be appropriate for clam culture in the South Pacific. Also, the clam can be utilised in the traditional manner or it can be sold in the market system where it has potential as a high value export commodity.

The project is a multi-disciplinary project conducted on a collaborative basis between James Cook University and Fiji and Papua New Guinea in the South Pacific, and the Philippines in Southeast Asia. The collaboration is an attempt to support existing research facilities that have the capacity to undertake specific aspects of the studies. It is ACIAR's aim to strengthen the research capacity of neighbouring countries in order that they will be able to meet their own research requirements.

Australia has an interest in Giant Clams, although for different reasons to the South Pacific countries. The reason for this is that Australia has a large portion of its land mass and marine environment in the tropics and shares with many

Pacific and Asian countries a similar marine environment. The focus of Australia's interest in the Giant Clam is the preservation and management of the Great Barrier Reef and consequently we have a broad scientific base involved in research on the biological aspects of tropical reefs.

The objectives of the project are:

- to assess Tridacnid stocks at various localities in Fiji, Papua New Guinea and the Philippines using standardised field assessment procedures
- to study natural growth rates of Tridacnid and determine the environmental factors that influence growth rates, such as tide, sunlight intensity, water temperature etc.
- to identify the ecological requirements of larvae and juvenile clams in natural and experimental environments
- to apply the results of the above research to establish the hatching and rearing techniques for optimum growth.

Related to this biological study of giant clams are the interests of ICLARM. ICLARM will carry out a complementary research program on the socio-economic aspects that may be involved in the cultivation of the Giant Clam. ACIAR is not able to support multi-national research institutes such as ICLARM, however, it can and does support research on a bilateral basis which also complements areas of interest of international research centres. In this project, ACIAR supports the involvement of Australian scientists which ICLARM does not have, but the latter does have a strength in the socio-economic areas and an in depth experience of the Pacific. The two organisations are truly complementary and supportive, although funded from separate sources, both organisations resources are focussed on research in the South Pacific.

The project also serves to illustrate the flexibility of ACIAR projects with respect to where the research work is to be carried out. The research activity can be entirely carried out entirely overseas with Australian collaboration on site, or entirely in Australia with Pacific scientists, or a combination of the two. In this project, the more experimental aspects such as identification of the spawning compound will be carried out at James Cook University and in Papua New Guinea, the field work will by necessity be carried out in Fiji and the Philippines.

All ACIAR's support for the Clam project will flow through James Cook University to their collaborating institutions overseas. ACIAR is unable to directly support overseas institutions; all research must have an Australian base through which the research is commissioned.

The level of support is in the order of \$880,000 over 3 years, which is the normal length of a project after which a major review will be undertaken before any consideration is given to any requests for an extension. Also, it is proposed to hold a workshop at an appropriate time to assist in the dissemination of the knowledge gained as a result of the project, to assist other Pacific countries who may wish to cultivate the Giant Clam. Such a workshop could be a joint one with an international research organisation such as ICLARM. One of ACIAR's briefs is to assist in the communication and spread of relevant research gained from ACIAR projects and that generated from the Australian scientific community. As a result of the workshop, the proceedings will be published and ACIAR would consider supporting a separate publication on the cultivation methods of the Giant Clam should one be warranted.

It is difficult to predict what the research results will be, but ACIAR is optimistic, as is everyone involved in

the project, that a successful conclusion will be achieved. As Dr Munro has already stated, there is no technical reason why Giant Clams can not be successfully cultured, given a greater understanding of its biology. When anyone thinks of Giant Clams, John Munro's name is prominent and ACIAR would like to acknowledge his interest and support in developing this project.

The other project currently considered is a study of the growth, reproduction and population dynamics of the Coconut Crab *Birgus latro* in Vanuatu. This project has been approved by the Board of Management as a preliminary project and is now being developed into detailed final project. Provided there is confirmation that this research topic is a priority in the Pacific and that the project is supported by the external referees, it is likely to be considered by the Board of Management later on this year.

Briefly, the objectives of this preliminary project are to:

- provide the necessary biological and ecological information necessary for the rational management of the existing natural resources.
- investigate the technological and economic feasibility of increasing the size of the resource by natural and artificial means.

To facilitate the final development of the preliminary project, ACIAR will assist in meeting the travel costs of the scientists so that they can jointly plan and prepare the final project.

Both the Giant Clam and the Coconut Crab projects have a "multiplication" or "spill over" factor in that the research will be relevant to several countries in the South Pacific

region as well as to the countries actually involved in the project.

It is hoped that this brief description of ACIAR and two fisheries projects will give members of the SPC Regional Fisheries Technical meeting an understanding of ACIAR's role in supporting fisheries research. The Regional Fisheries Meeting could be a most useful medium for defining potential fisheries research priorities for the South Pacific.