A SUMMARY OF CURRENT PATTERNS OF MORBIDITY AND MORTALITY IN PACIFIC ISLAND COUNTRIES

AND

HEALTH-RELATED ACTIVITIES OF THE SOUTH PACIFIC COMMISSION

by

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for

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STATEMENT BY THE SPC SECRETARIAT FOR THE XVTH COUNCIL OF DIRECTORS OF PASTEUR AND ASSOCIATED INSTITUTES, 14-17 OCTOBER 1986, PAPEETE, TAHITI, FRENCH POLYNESIA

There is a long history of co-operation and collaboration between the health section of the South Pacific Commission and the Institutes Pasteur (Noumea) and Louis Malardé (Papeete).

In recents years joint efforts have included: mosquito surveillance at international airports in the region, studies of hepatitis B in Vanuatu, studies of hepatitis A in Palau, and investigation of diabetes and cardiovascular diseases in New Caledonia and Wallis island all in association with the Pasteur Institute in Noumea. There has also been co-operative activity with the Institute Louis Malardé in Tahiti, particularly concerning Ciguatera fishing poisoning.

The closer co-operation between the SPC and the Institute Pasteur (Noumea) than with the Institute Louis Malardé (Papeete) is a result, primarily, of geographicc proximity. However, we hope that this meeting will provide the oportunity for the SPC to improve links the Institute Louis Malardé.

In the implementation of epidemiological projects in Pacific Island countries the South Pacific Commission works closely with the health departments of member states, and also, usually with resource institutes which are able to provide needed technical services. This tripartite arrangement has worked well in the past, and it can be anticipated that there will be a continued need for the technical expertise which can be provided by the Institutes Pasteur and Louis Malardé, particularly in the area of laboratory testing of specimens fields surveys.

ABSTRACT

Pacific Islands countries are in the process of demographic and epidemiological transition, and there is a wide spectrum of health status and patterns of morbidity and mortality by cause amongst the Pacific Island countries today.

The melanesian malarious countries (Papua New Guinea, Vanuatu and Solomon Islands), and certain mid-Pacific states (Kiribati, Tuvalu, Federated States of Micronesia) have relatively high mortality, and a disease pattern dominated by infectious disease and acute respiratory infection. Certain US-associated and NZ associated island states (Guam, Palau, Northern Marianas Islands, American Samoa, Cook Islands, Niue) have low mortality, and a disease pattern characterized by cardiovascular disease, cancer and trauma. The bulk of Polynesian countries, Fiji and New Caledonia are in the middle of the spectrum, and demonstrate a mixed pattern of morbidity and mortality by cause, in which both infectious diseases and non-communicable conditions are causing major problems.

The major infectious disease problems in Pacific Island populations are: malaria, acute respiratory infection, diarrhoeal disease and intestinal parastism, and tuberculosis. There are also significant difficulties with sexually transmitted diseases, meningitis, dengue and Ross River fevers, leprosy, and hepatitis A and B.

The principal non-communicable conditions in Pacific populations are: hypertension, diabetes, coronary heart disease, cancer and trauma/poisoning. The evidence available suggests that diet, exercise, tobacco smoking, alcohol consumption and the availability of motors vehicles are causally related to these diseases of modernization.

The health section of the South Pacific Commission consists of the Epidemiologist, Health Education, Officer, Nutritionist, and Public Health Engineer. There is also a epidemiological survey and analysis unit (the NCD project supported by extra-budgetary funds), responsible to the Epidemiologist, and consisting of a Health Survey Technician (the two encumbents of this post have been medical doctors with public health qualifications), a computer technician/data processor, and a secretary/typist.

The activities of the health section are determined by the work programme which, in turn, is derived from recommendations of the Regional Meetings of Directors of Health Services. The health section also responds to direct requests from countries of the region concerning problems which are outside of the work program.

In the implementation of the projects, the health section collaborates closely with the health departments countries of the region, and with resource institutions which are able to render needed technical assistance (e.g. Universities, Schools of Public Health, Institutes Pasteur and Louis Malardé etc.).

The work of the epidemiology component of the health section involves, mainly: the provision of assistance to countries in the collection of data on health status and various diseases; the analysis and publication of this information, in close co-operation with health department personel and the provision of advice on the design, implementation, and evaluation of prevention and control programs.

PART I

A SUMMARY OF CURRENT PATTERNS OF MORBIDITY AND MORTALITY IN PACIFIC ISLANDS COUNTRIES

INTRODUCTION

Pacific Island populations are in a state of demographic transition from the traditional pattern of high-mortality/high-fertility/low-population growth, to the modern pattern of low-mortality/low-fertility/low-growth. During this transition there is often a phase when reductions in mortality are not matched by reductions in fertility, and high population growth is the result - unless there is extensive out-migration. In concert with the demographic transition is the "epidemiological" transition; that is, a change in the causes of morbidity and mortality from the traditional pattern dominated by infection, acute respiratory disease and undernutrition, to a pattern in which non-communicable conditions (especially cardiovascular disease, diabetes and cancer) and external causes (such as accidents, injuries, poisoning) are pre-eminent.

In the Pacific today we find populations at both ends of the spectrum of the demographic and epidemiological transition. In many respects, the ordered array of health status in the various Pacific communities today reflects the sequential health development that the most modernized populations have passed through since the turn of the century. In the countries in which morbidity and mortality is dominated by endemic infectious diseases. There are, however, differences between the contemporary and historical spectra of health status; notably, the desapearance of devastating epidemics of infectious disease such as those, immediately following European contact.

1.1 CONTEMPORARY PATTERNS OF MORBIDITY

1.1.1 HOSPITAL MORBIDITY

Most health departments record activities of public health institutions relating to out-patient visits and hospital inpatients. The picture derived from hospital morbidity reports usually points out geographics areas where health services are less available, and often where the health status and living conditions are worse. This is particularly true in the Melanesian malarious countries, but also in the Micronesian atolls.

The use of traditional medicine and private physicians services varies widely through the Pacific. Patients treated in these sectors will not appear in the records of the public system. The accuracy of morbidity reports is often questionnable, especially when from remote institutions such as aid-posts or dispensaries, where the means of diagnoses are very limited. Diagnoses are often expressed as symptoms or ill-defined conditions, and this does not lead to a very usefull information for health planners

Hospital admission is often related to complications of diseases, therefore hospital statistics could lead to an alarming picture if considered in isolation. For example, very few malaria cases are hospitalized, but these cases usually suffer from acute cerebral malaria, which is, thankfully a very rare complication of the disease.

Hospital morbidity information is also related to the level of care available in the various Pacific countries. Diagnosis quality is often function of the availability of sophisticated laboratory techniques such as serological tests or histopathological interpretation. When treatment is not available for some conditions, such as cancer or diseases of the sense organs, patients may not be refered to the hospital at all.

Even with these limitations, hospital inpatient morbidity is still the best source of morbidity data available in most Pacific Island countries. Hospital inpatient morbidity provides reasonably refined diagnostic information, usually recorded upon discharge, and listed according to the World Health Organisation (WHO) International Classification of Diseases (ICD).

Using the latest available annual reports of health departments and country statements delivered, at SPC health-related conferences, the data were abstracted and classified using the 17 major groups of the ICD (9th revision). Complete inpatient recording was available for 11 countries, but for 2 of them only prior to 1980. For 7 countries data did not cover all hospitals, or covered only the major diseases. No information was available for 3 of the 21 countries.

Normal deliveries were excluded from the tables, and proportionate morbidity calculated. Several countries reported high proportions for the "ill-defined" category (XVI), with 13.8% in Tonga, 10.4% in New Caledonia, and 8-9% in the Northern Marianas Islands, Western Samoa and the Cook Islands (Table). For further analysis this "ill-defined" group was excluded. The results are reported as a summary table which includes only the morbidity groups which comprise more than 10% of the inpatient conditions in any one of the Pacific countries (Table 1).

In Papua New Guinea, New Caledonia, Solomons Islands, Niue, Tuvalu and Western Samoa respiratory diseases represented over 20% of all conditions; and Tonga was the only country reporting less than 10%. A more refined analysis by age group would be useful to detect regional variations between acute (mainly children) and chronic (mainly adults) respiratory diseases.

Infectious diseases were the leading cause of hospital inpatient morbidity (over 30%) in the malarious countries (Papua New Guinea, Solomon Islands, Vanuatu), but also in Tokelau, Nauru, and the Marshall Islands.

Injuries and poisoning (external causes) were the leading cause of hospital morbidity in Kiribati, Palau, American Samoa, Cook Islands, and French Polynesia, and were responsible for over 15% of hospitalization in Nauru, Niue, New Caledonia, Solomon Islands, and the Northern Marianas. The lowest percentages for this cause of hospitalisation were found in Tonga, Tokelau, and Papua New Guinea.

In Fiji the highest proportion of hospital admissions (24.4%) was, suprisingly, related to complications of pregnancies and deliveries while a side from American Samoa (16.3%), and Solomon Islands, all others countries reported proportions of 10% or less. It is probable that health department policies with respect to management conditions related to pregnancy are important in determining hospitalization for this group of conditions rather than only their incidence.

Skin and subcutaneous tissues conditions were a particularly infrequent cause (less than 5%) of hospitalization in Kiribati, Fiji, Northern Marianas Islands, Tuvalu and Palau.

The leading causes of hospital morbidity in Tonga were cardiovascular diseases (20.7%) and cancer (18.1%). No other country approached such proportions. Circulatory system illnesses were responsible for almost 10% of inpatient diagnosis in Cook Islands, French Polynesia and Nauru, and less than 4% in Niue, Vanuatu, Western Samoa, Papua New Guinea and Solomons Islands. Cancer represented less than 4% of admissions in all countries except Tonga.

Digestive diseases reached over 10% of admissions in Cook Islands, Tokelau and the Marshall Islands. Genito-urinary illness were for all countries below 10%, apart from Tokelau (12%). New Caledonia reported 12.5% of conditions as due to diseases of the nervous system and sense organs.

1.1.2 ROUTINELY REPORTED MORBIDITY

Infectious disease surveillance

All countries record cases of certain infectious diseases which occur in their population, and SPC publishes an annual report of the aggregate data sent from countries as monthly returns. The reporting systems in Pacific Islands countries are at various stages of development, and comparisons between countries must be made with caution since the data are subject to variable and unquantificable underreporting.

The most common reported infectious diseases in the region are malaria, acute repiratory infection (including measles, influenza etc), diarrhoeal and other intestinal infections, tuberculosis, sexually transmitted disease, meningitis, viral hepatitis, and conjunctivitis (Table 2).

Cancer registration

The information produced by the Cancer Registry has assisted with the definition of the magnitude of the problem of cancer in the region and indentification of the major anatomical sites involved in the various Pacific populations. Many Pacific countries are in the process of developing cancer registries, and SPC provides assistance in this area, collates the data available, and intermittently publishes comparative reports. Again it should be noted that the data from many countries is uncomplete. The data information produced by the Cancer registry has revealed significant differentials in proportional cancer incidence between various groups which require further study in order to elucidate causative factors.

Lung cancer in males, and breast and cervix cancer in females, are prominent in many Pacific populations, as they are in the industrialized nations (Table 3-4). There are, however, certain cancers that are relatively more frequent in Pacific Island populations because of specific local factors, in particular: mouth cancer in Papua New Guinea, Solomon islands and certain Micronesian populations, probably related to betel nut chewing; and liver cancer in many Pacific populations, probably related to the high prevalence of hepatitis B infection.

The considerable incidence of Lung cancer in Polynesian, Micronesian, and New Caledonian Melanesian males is probably related, as elsewhere, to smoking of manufactured cigarettes. Alcohol intake may contribute to the excess of oesophageal (gullet) cancer in males from New Caledonia (Melanesian and European), French Polynesia, and Hawaii (Polynesians).

Other disease registries

A few countries maintain registries for other conditions such as acute rheumatic fever, diabetes, perinatal or maternal death, tuberculosis and leprosy, etc.

1.1.3 MORBIDITY DATA FROM SURVEYS

Because of the problems associated with the collection of routine morbidity figures from the health care system, and in order to find out more about the epidemiology of certain diseases, many countries in the region have mounted population-based sample surveys. These studies have usually been prevalence surveys, but some have also been concerned with the incidence of the diseases in question.

Infectious diseases (Table 5 hepatitis B)

Surveys of infectious disease have revealed that tuberculosis, acute respiratory infection, filariasis, dengue fever, diarrhoeal disease intestinal parasites, and hepatitis, to name only a few, are problems of some magnitude in many Pacific populations. These surveys help to establish the groups most at risk, and provide information which assists with the identification of the mode of transmission of the disease and the important vectors and reservoirs.

Data from seroepodemiological surveys in the Pacific over the past 20 years (see Table) have revealed relatively high prevalence of hepatitis B antigen in most populations (5-15%). There are, however, certain population groups with a relatively low prevalence of carriage of hepatitis B antigen, notably Fiji Indians (0.5-2.0%), but also some small isolated groups in which hepatitis B may have been introduced only recently. Age-specific prevalence data from several surveys suggests that most hepatitis B transmission in Pacific populations occur during the first decade of life, and that most transmission occurs during early childhood.

Non-communicable conditions (Table 6: diabetes)

Population surveys of non-communicable disease (such as hypertension, diabetes, and coronary heart disease) have been undertaken in most Pacific Island countries in the last two decades. It has been documented that these conditions are frequent in modernized populations, and that urban/rural differentials exist within the same ethnic group - with rural populations experiencing lower prevalence of non-communicable disease than urban populations. Although Polynesians and Micronesians are the groups most affected, non-communicable disease is certainly a problem amongst Fijians and New Caledonian Melanesians. These surveys have incriminated obesity, reduced physical activity, and change in diet (particularly increase in salt and sugar intake, and decrease in fibre intake) as factors responsible for the high prevalence of diabetes and hypertension, in particular, in urbanized Pacific populations.

A summary of populations based studies of diabetes prevalence using standardized methods is set out in Table—. Almost all surveys demonstrate a significant difference in diabetes prevalence between rural and urban populations (X2-3) which underline the importance of environmental causative factors. There is also evidence for genetic influences since certain ethnic groups are less susceptable to diabetes (Melanesians, especially those of austronesian ancestory), and other groups more susceptable to the disease (Polynesians and Micronesians, but especially asian Indian).

1.2 CONTEMPORARY MORTALITY PATTERNS IN PACIFIC ISLAND COUNTRIES

1.2.1 LEVELS OF MORTALITY

There are two main methods of obtaining mortality data in Pacific: (1) the direct method using the deaths registration, and dividing these to the estimated population (from the censuses) - this method will provide mortality rates by age group; (2) The indirect methods: these use demographic techniques on data collected at censuses and surveys. In many Pacific countries, especially the least developed with the highest mortality, death recording is very incomplete and all data on mortality is derived from indirect estimates. Mortality can be expressed either as age-specific or age standardized mortality rates, or life expectancy at birth or other ages (derived from life table analysis).

Estimates of life expectancy at birth and at age 15 years for males, females, and both sexes combined, are set out in Table 7. In all countries, except Vanuatu and the Solomon Islands, females had longer life expectancy at birth than males. Sex differentials in life expectancy at birth generally increase with increasing life expectancy.

Countries were classified by life expectancy at birth (for both sexes combined) into high, medium and low categories, as shown in Table 8. The more developed US-associated states (Guam, American Samoa) and New Caledonian Europeans had high life expectancies (>= 70 years). Two other US-associated states (Palau and Northern Marianas), the two New Zealand-associated states (Niue, Cook islands), and New Caledonia (all), were in the "high-medium" bracket (65-69 years). The "low-medium" bracket (60-64 years) was the largest group, and included Fiji (Melanesians, Indians, all), New Caledonia Melanesians, Western Samoa, Tonga, French Polynesia, Wallis and Futuna, and Marshall Islands. The "low" life expectancy group (< 60 years) included the three malarious Melanesian countries (Papua New Guinea, Solomon Islands, Vanuatu), and certain small mid-Pacific island states, three of them Micronesian (Kiribati, Federated states of Micronesia, and Nauru), and one Polynesian (Tuvalu). Life expectancy at birth in the SPC metropolitan countries (Australia, France, New Zealand, United Kingdom, United States) was 74-75 years around the same period.

Age-specific mortality rates are given in Table 9. Countries with high infant mortality (>= 55/1 000) include Papua New Guinea, Vanuatu, and Kiribati; and those with low infant mortality (< 25/1 000) are Guam, New Caledonian Europeans and Niue. The malarious Melanesians countries and Kiribati demonstrated high "toddler" (age 1-4 years) mortality (>=10/1 000), and Guam, American Samoa, Northern Marianas, Niue, Fiji Indians and Tokelau were characterised by low "toddler" mortality (<2/1 000).

Secular changes in life expectancy in selected Pacific Islands countries from 1940 to 1980 are shown in Table 10. While there have been marked improvments in life expectancy in some countries (for example, Cook Islands and American Samoa), others have recorded rather slugglish evolutions (especially Fiji, Western Samoa).

1.2.2 CAUSES OF DEATH

Information on causes of death must be obtained from death recording, and information supplied by the health worker on the main condition which led to death. Data on death by cause is even more fragmentry than that for levels of mortality. In many Pacific island countries information on cause of death is only available from hospital deaths, and sometimes, only deaths which occur in the main national hospital. These deaths are obviously a very biased selection. Because of incompleteness of recording of deaths by cause in most countries, this information is presented as proportionate mortality.

Proportionate mortality by major cause of death, for all ages and both sexes, is set out in Table 11. The malarious Melanesian countries and two underdeveloped Micronesians states (Kiribati and Federated States of Micronesia) had high (>= 20%) proportionate mortality for infectious disease.

Countries with relatively high proportionate mortality for cardiovascular disease (>=25%) included Fiji, most of Polynesia (American and Western Samoa, Tonga, the Cook Islands, French Polynesia), and eastern Micronesia (Guam, Palau, the Northern Marianas), and also the SPC metropolitan countries (45-50%). Proportionate mortality due to cancer was high (>=15%) in Guam, Palau, American Samoa, French Polynesia, Cook Islands, and Tonga, as well as in the metropolitan countries.

In the population of Nauru and Tuvalu, premature death from diseases associated with modernisation are partly responsible for the low life expectancies. Furthermore, in some populations with relatively modest life expectancies (particularly Fiji Indians, Western Samoa, French Polynesia), proportionate mortality from non-communicable disease and external causes is relatively high, and these diseases contribute significantly to the relatively excessive mortality.

1.3 CONCLUSIONS

Evaluation of health problems in the Pacific Island countries is hindered by the generally poor quality of routinely collected information, in particular, mortality and hospital morbidity data. However, with care, it is possible to obtain raugh estimates from incomplete data using techniques to correct for underenumeration, and knowledge of probable biases.

Because of the variable quality of routinely collected health data, and to investigate more closely the epidemiology of the major diseases in Pacific populations, it is necessary to mount population based sample surveys. Such studies are very valuable in the investigation of infectious and non-communicable disease, and also for the collection of mortality data where death registration is deficient.

The evidence at our disposal at present indicates that in the Pacific region there is mide spectrum of morbidity and mortality patterns, ranging from countries characterized by high mortality and infectious and respiratory disease as the main cause of morbidity and mortality to countries characterized by low mortality and cardiovascular disease, cancer and trauma as the main causes of morbidity and mortality at the other end of the spectrum. Furthermore, there are populations in the middle of the range who have major problems with both infectious and non-communicable disease simultaneously. This situation provides numerous possibilities for comparative epidemiological studies.

PART II

HEALTH-RELATED ACTIVITIES OF THE SOUTH PACIFIC COMMISSION

2.1 General overview

The health section of the South Pacific Commission consists of the Epidemiologist, Health Education Officer, Nutritionist, and Public Health Engineer. There is also an epidemiological survey and analysis unit (the NCD project supported by extra-budgetary funds), responsible to the Epidemiologist and consisting of a Health Survey Technician (the two encumbents of this post have been medical doctors with qualified in epidemiology, computer technician/data processor, and a secretary/typist (section 2.2).

The health program officers are all responsible directly to the Director of Programs, but there is considerable consultation between personel, and many joint projects.

The activities of the health section are determined by the work programme which is, in turn, derived from recommendations of regional meetings of Directors of Health Service (section 2.9); the health section also responds to direct requests from countries of the region concerning problems which are outside of the work program. The work programme is funded from the core budget and is devided into disease-specific items (section 2.7 and 2.8). Extra-budgetary funding (e.g. from Australian Development Assistance Bureau, United Nations funds for population activities, etc.) is used to support infrastructure (health survey and analysis capability), and to for certain field surveys.

In the implementation of projects the Health section collaborates closely with the health department of countries of the region, and with resource institutions which are able to render needed technical assistance (e.g. Universities, Schools of Public Health, Institutes Pasteur and Louis Malardé, major hospitals, and other research institutes within the region, or in neighbouring countries) (section 2.4).

The work of the epidemiology part of the Health section involves mainly: the provision of assistance to countries in the collection of data on health status and various diseases; the analysis and publication of this information (section 2.6), in close co-operation with health department personel; and the provision of advice on the design, implementation, and evaluation of prevention and control programs.

2.2 DESCRIPTION OF THE NON-COMMUNICABLE DISEASE PROJECT (NCD)

The aims of NCD project, at its inception, were to increase the capacity of the Epidemiology section of the Health program to respond to the concerns of the Directors of Health regarding the increasing problem of non-communicable disease in the Pacific Island region. The project provided extra resources for the collection, analysis and publication of information on the distribution and determinants of non-communicable diseases, and for the provision of assistance to countries on the design and implementation of prevention and control programs. This project was established in 1983 with extra-budgetary funds from the Australian Development Assistance Bureau.

The principal non-communicable conditions in the Pacific Island region are: hypertension, diabetes (adult-onset type), coronary heart disease, cerebrovascular disease, cancer, and injuries (particularly road accidents and suicides). These conditions are increasing in all countries in association with development and modernization of way of the life, and in some populations are responsible for negating expected gains in health status from the control of infectious diseases.

The NCD project now consists of: a health survey technician (both encumbents of this post have been medical doctors who are qualified in epidemiology), a computer technician/data processor, and a secretary/typist. The equipment used are two IBM-XT microcomputers, one terminal for the Commission's main HP computer, and a TRS-80 for word processing. Standard software packages are used (DBASE, SPSS, Lotus, etc). The project is supervised by the SPC Epidemiologist, and there is close liaison with the SPC Nutritionnist and Health Education Officer.

One of the main outcomes of the NCD project has been to provide the SPC health section with the capability to collect and analyse data from Pacific Island health surveys. Prior to the commencement of the NCD project most field surveys were conducted with a heavy involvement of teams from outside of the region, and data obtained from health surveys were sent to metropolitan countries for analysis; this often led to considerable delays and inadequate involvement of field staff in the interpretation of the results. These health surveys have included studies of a variety of non-communicable and infectious diseases, analysis of trends in mortality, and nutrition/dietary studies. For example: the Vanuatu Non-Communicable Diseases survey (1985), Marshall Islands Women's Health Survey (1985), Fiji Health Care Workers Hepatitis B Survey (1985), Mortality Analysis in Niue (1984), etc.

For several years health departments of Pacific Island countries have been increasingly involved in the planning and fieldwork stages of joint projects with the SPC health section. The NCD project has facillitated such arrangements, and brought data analysis one step closer to the countries themselves; and there are now plans for joint data analysis projects (including training) with certain countries who have recently acquired computer equipment (e.g for the Tonga National Nutrition Survey). This is certainly a very exciting development, and will provide valuable experience in computer analytic techniques for Pacific Island countries.

2.4 WORK IN PROGRESS

- Reports in preparation or publication. (See 1.7).

- Data analysis in progress:

  - Survey of environmental and sanitary conditions of households in urban and rural sample in the Marshall Islands.
  - Case series of alcohol-related accidents in Fiji.
  - Study of nutrition and dietary intake in urban and rural samples in Vanuatu.
  - Analysis of anthropometric data from Tuvalu.
  - Comparative study of hospital morbidity in Pacific Islands countries.
  - Regional analysis of cancer registration data.
  - Studies of Hepatitis B prevalence in children and adults from Vanuatu.
  - Comparative study of mortality and socioeconomic factors in Pacific Islands countries.

- Health surveys currently in progress:

  - Tonga National Nutrition survey.
  - Vanuatu Vital Statistics Sample survey.

2.5 COOPERATION BETWEEN THE HEALTH SECTION OF THE SOUTH PACIFIC COMMISSION AND OTHER INSTITUTIONS

International agencies

The SPC has cooperated closely with the World Health Organization since its inception. There is routine consultation and coordination between SPC and WHO to avoid duplication and maximise resources. There is also considerable cooperation between SPC and WHO, and representatives of each organisation generally attend conferences or workshops organised by the other. Joint collaborative projects between SPC and WHO have also been implemented, including, conferences and workshops (e.g. recent meetings on alcohol-related problems 1985 and tuberculosis/leprosy 1986) and fields surveys (e.g. Vanuatu Non-communicable disease survey 1985).

Institute Pasteur and Louis Malardé

There is a long history of cooperation between the South Pacific Commission and the Institutes Pasteur and Louis Malardé. Because of geography, the contacts between the Institute Pasteur (Nouméa) have been closer and more frequent than contacts with the Institute Louis Malardé in Tahiti.

In recent years the SPC and the Institute Pasteur have worked together on surveys of mosquito vectors at international airports in the region, hepatitis A and B studies in Palau and Vanuatu, and cancer registration. Joint reports have been issued to countries, and analysis of some the work is still in progress.

In the recent past there was close collaboration between SPC and the Institute Louis Malardé concerning research on Ciguatera, but there is no longer provision for funding for this activity in the SPC budget.

The South Pacific Commission does not have a laboratory at its disposal, and thus would be pleased to strehgthen it's co-operation with the two most sophisticated laboratories in the Pacific Island region.

Although the South Pacific Commission does not have particular programs for the control of filariasis and dengue, there are funds available for activities in the general area of control of mosquito vectors. The continuation of the SPC program control of mosquito vectors in the region could take place in close co-operation with the Institut Louis Malardé and Pasteur, and ORSTOM.

The SPC has its disposal the means and the ability for epidemiological investigation, including planning, fieldwork and data analysis for health surveys. Furthermore, by virtue of its organisatory status and the close relationship of its personel with counterparts in countries of the region, the SPC posseses a unique network of contacts in the Pacific.

Universities and other institutions

The SPC has developed extensive contacts over the years with various universities, school of public health, research institutes, and certain major hospitals in the region and in neighbouring countries, for example Schools of Public Health at the Universities of Hawaii and Sydney, University of the South Pacific (Suva), Fairfield Infectious Disease Hospital (Melbourne), Faculty of Community Medicine in Auckland, Cancer Centre at the University of Southern California, Institut National de la Recherche Médicale (INSERM), etc.. These institutions are able to provide consultants, technicians, specialised equipment or laboratory expertise for joint projects involving countries of the region and the SPC. Furthermore, there is considerable interaction between the SPC and other institutions during conferences on health-related topics heald in the region.

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