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Section A.8.1. - Housing

HOUSING SANITATION IN THE SOUTH PACIFIC

AND ITS EFFECT ON MENTAL HEALTH

by

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Introduction

Many popular writers have described the South Pacific islands as paradisiac, and it is common belief that the Pacific islanders are happy and carefree people, because they have no problem of clothing, food or shelter. This may have been true many years ago when they lived at subsistence level in small communities on the hundreds of small islands scattered over millions of square miles of ocean, but now there is already a population explosion and the rate of increase is 4% per annum or more.

In recent years the removal of the old colonial restrictions on movement of people between tribes in some islands, and the relaxing of traditional tabus within the tribes themselves, have encouraged the drift of workers from rural areas and outlying islands to the more attractive urban centres far in excess of the demand, thus creating many social and health problems. Unfortunately, these have been left to sort themselves out for too long now, because to the casual observers, or to the islanders himself, there was no urgent need for action. This attitude fitted in very well with the official 'non-interference' policy of many administrations.

One of the most important of these problems is the shortage of houses and overcrowding of existing ones. Because of the absence of town planning and building legislation and control in several territories, there has been a rapid and haphazard growth of the urban centres. In actuality, the people are poor, due to unemployment or low wages, alcoholism or expensive food. So they can only build shanty type houses and potential slums that are infection reservoirs endangering the health of the occupants and their neighbours, and also a source of constant

nervous tension caused by personal, inter-family and racial conflicts, and persistent irritation resulting from an unsatisfactory environment which may affect their mental well-being. These are the reasons why the South Pacific Commission has recently paid increasing attention to the social, economic and health aspects of housing.

Background

The South Pacific Commission is a consultative and advisory body concerned with health, economic and social matters in 19 countries and territories of the Pacific which are shown on the attached map. Table I gives some information on the individual countries and territories arranged alphabetically. In the Agreement establishing the South Pacific Commission in 1947, the Governments of Australia, France, Netherlands, New Zealand, United Kingdom and the United States of America asked, among other things, that measures be recommended to promote "the health, housing and social welfare" of the populations to the South Pacific Islands.

Table I - Brief Description of Islands

Islands	Location Latitude	Topography	Climate	Area square miles	Population	Income
American Samoa	14°S	Volcanic	Mild *	76	26,000	Copra Fish Tourism
British Solomon	5 - 11°S	Volcanic	Mild	11,500	140,000	Timber Copra
Northern Cook	8 - 18°S	Atoll	Mild	90	21,000	Copra Pearl Shell
Southern Cook	18 - 23°S	Volcanic	Cool *			Fruit Clothing Spice
Fiji	12 - 22°S	Volcanic (some atolls)	Mild to Cool	7,000	470,000	Sugar Copra Gold Tourism
French Polynesia	7 - 27°S	Volcanic and atoll	Mild to Cool	1,500	85,000	Nuclear test Copra Tourism

* The words Mild and Cool are based upon Pacific island standards.

Islands	Location Latitude	Topography	Climate	Area square miles	Population	Income
Gilbert & Ellice	4°N - 11°S	Atoll (one raised coral island)	Mild	340	53,000	Phosphate Copra
Guam	13°N	Volcanic	Cool	212	45,000	Military base, Tourism
Nauru	1/2°S	Raised atoll	Mild	8	5,000	Phosphate
New Caledonia	18 - 23°S	Volcanic (some raised coral islands)	Cool	7,400	90,000	Nickel Coffee Tourism
New Hebrides	13 - 21°S	Volcanic	Mild	5,700	65,000	Copra Manganese Fish Cocoa Meat
Niue	19°S	Raised Coral island	Cool	100	5,000	Copra Fruit
Norfolk	29°S	Volcanic	Cool	14	1,000	Tourism
Papua	5 - 12°S	Volcanic (some atolls)	Mild to Cool	86,000	560,000	Rubber Copra Crocodile skin
and New Guinea	0 - 8°S	Volcanic	Mild to Cool	92,000	1,500,000	Cocoa, Coffee, Copra, Timber, Gold
Pitcairn	25°S	Volcanic	Cool	2	100	Stamps
Tokelau	8 - 10°S	Atoll	Mild	4	1,800	Copra
Tonga	15 - 23°S	Volcanic, Atoll, Raised coral islands	Cool	256	72,000	Copra Fruit Tourism
U.S. Trust Territory	3 - 21°N	Volcanic, Atoll, Raised coral islands	Mild to Cool	700	90,000	Copra Meat Tourism

Islands	Location Latitude	Topography	Climate	Area square miles	Population	Income
Wallis & Futuna	13 - 14°S	Volcanic	Mild	60	9,000	Copra
Western Samoa	13 - 15°S	Volcanic	Mild	1,100	125,000	Copra, Cocoa, Fruit, Tourism

Although a housing survey in American Samoa, Cook Islands, Fiji, Netherlands New Guinea (now West Irian), New Caledonia, Papua and New Guinea, and Western Samoa was sponsored by the Commission in 1951, its overall work programme gave precedence to health and social welfare at the expense of housing. This was understandable because, although the Pacific islands had their sanitary problems connected with the building and maintenance of houses, they were not yet faced with proliferation of slums and overcrowding of houses as in the rest of the world. On the other hand, diseases like tuberculosis, filariasis, leprosy, yaws, malaria, intestinal parasitism - all of which are preventable - were taking their high toll; and nutrition, education and community development had more dramatic appeal to most people.

It was not until 1961 that the subject of housing was given more importance first at the SPC Urbanization Advisory Committee Meeting held at Honolulu, Hawaii, and then at the WHO/SPC Refresher Course on Integrated Rural Health held at Apia, Western Samoa. At the Conference on Rural Health, organized by the Commission at Papeete, Tahiti, in 1963, a number of working papers described housing conditions in some islands and their relationship to endemic tuberculosis.

Also in 1963, at Suva, the Commission convened a Conference on Low-Cost Housing in the South Pacific, at which, unfortunately, housing sanitation was barely touched on since it did not specifically appear on the agenda. In 1965 the SPC Seminar on Village Hygiene and Health Education held at Vila, New Hebrides, proposed housing sanitation as the subject for a future seminar. But since a Housing Conference was already scheduled to take place in 1966 at Nouméa, New Caledonia, at which it was strongly urged that items concerning the sanitary aspects of housing occupy a prominent position on the agenda, a Seminar on Housing Sanitation with regard to both physical and mental health did not take place until 1968 at Niue Island.

Traditional Houses

Throughout the South Pacific local materials have been widely used by many generations to build their homes, primarily as a shelter for the people and their belongings from the elements. So climate has been the most important factor to determine the design of the house. All else has been considered superfluous or sophisticated: natural lighting, ventilation, surface-area, privacy, water supply, waste disposal, vermin proofing, and even a proper cook-house. But these traditional houses were at least suitable for their occupants. Table II gives a brief description of these houses in the islands within the South Pacific Commission area, and also the trend in present-day housing.

Table II - Traditional Houses

Islands	Floor Plan	Main Materials			Present-day trend (excluding shanty towns which use anything from cardboard to biscuit tins)
		Roof	Wall	Floor	
American Samoa	Oval (fare)	Cane leaves	Pandanus mats	Coral, Timber	50 years as a U.S. naval base. Navy surplus and imported materials used extensively
British Solomons	Rectangular	Palm leaves	Palm leaves, Bamboo	Timber	Timber, metal and asbestos cement sheets are replacing the traditional materials in the main centres
Northern Cook	Rectangular	Pandanus leaves	Coconut leaves	Coral, Sand	Coral stone and lime now used in masonry or concrete for walls.
Southern Cook	Rectangular	Coconut leaves	Sticks, Coconut leaves	Coral, lime concrete	Timber houses with verandahs have been built for many years. Recent ones are built in concrete, metal and asbestos cement sheets, and other imported materials.
Fiji	Rectangular (bure)	Grass, Reed, cane and sago leaves	Grass, Reed, fern, cane leaves	Earth, plaited bamboo	Local timber is used extensively now. Other materials used are burnt bricks, concrete and metal sheets (old and new)
French Polynesia	Oval and Rectangular (fare)	Pandanus & coconut leaves, grass	Pandanus & coconut leaves, bamboo	Coral, sand, timber	The Tahitian fare is still very popular as an expensive show-piece, but most new houses are built with imported materials which are cheaper.

Islands	Floor Plan	Main Materials			Present-day trend (excluding shanty towns which use anything from cardboard to biscuit tins)
		Roof	Wall	Floor	
Gilbert & Ellice	Rectangular	Pandanus leaves	Coconut leaf mats	Coral, timber	Asbestos cement and concrete houses covered with corrugated iron roofs are becoming popular in the main centres.
Guam	Rectangular	Coconut leaves	Plaited bamboo	Timber	US military base (30,000 men in 1964). There is hardly any genuine traditional housing left. Houses now are built in concrete and imported materials
Nauru	Rectangular	Grass, pandanus leaves	Coconut & pandanus leaves	Coral sand	Corrugated iron and asbestos cement sheets only are used nowadays.
New Caledonia	Round and now Rectangular	Grass bark	Rammed earth, Coconut leaves, grass bark	Earth coral	Corrugated metal sheets are widely used now. Concrete is becoming very popular, particularly in the town area.
New Hebrides	Rectangular	Coconut and palm leaves	Reed, bamboo	Earth	Corrugated metal sheets and timber widely used
Niue	Rectangular	Pandanus leaves	Coconut leaves	Coral, sand	Since the 1959 & 1960 hurricanes, concrete and asbestos cement, houses covered with metal sheets have been built all over Niue.
Norfolk	Rectangular	Corrugated iron sheets	Local pine timber, stones	Local timber	"Bounty" mutineers settlement. Asbestos cement sheets are also used now.
Papua & New Guinea	Rectangular	Grass, sago leaves	Grass, sago bamboo & coconut leaves	Earth, timber	Local timber is used extensively and so is imported iron and asbestos cement sheets. Concrete is becoming popular in town areas.
Pitcairn	Rectangular	Pandanus & Coconut leaves, grass	Local timber	Local timber	Thatch roof being replaced by corrugated iron sheets.

Islands	Floor Plan	Main Materials			Present-day trend (excluding shanty towns which use anything from cardboard to biscuit tins)
		Roof	Wall	Floor	
Tokelau	Rectangular	Pandanus leaves	Plaited pandanus leaves	Coral, sand	Since 1966 hurricane now houses have been built with imported materials.
Tonga	Oval (fale)	Coconut leaves	Pandanus leaves, bamboo	Coral, sand	Timber and metal sheets are replacing the traditional materials, particularly in areas recently damaged by hurricane.
US Trust Territory	Rectangular	Pandanus and coconut leaves	Pandanus and coconut leaves	Timber earth	Houses for Government workers are all built with imported materials. Metal sheets are used extensively in native houses.
Wallis & Futuna	Oval	Grass, pandanus leaves	Coconut and pandanus leaves	Gravel, earth	Only a few houses are using some corrugated iron sheets.
Western Samoa	Oval (fale)	Cane leaves	Pandanus mats	Coral, timber	Metal sheets are being widely used. Other materials used are timber and concrete.

High-density housing was unknown in the South Pacific because the population was small in relation to the fertile land available. There were no urban centres with their inevitable and undesirable attractions. So people lived happily on their land in houses that were suited to their way of life, without having to worry about paying rent or mortgage.

The local materials used were not durable and had to be repaired or replaced frequently; they could not also withstand cyclones which most of the Pacific Islands are subjected to. But these presented no difficulty at all because the materials were there for the picking and the skill was available locally.

Attempts to improve upon the native houses have produced sub-standard Western-type buildings, unsuitable for the climate. The replacement of the thatch roof and wall by iron sheets has been most unfortunate. In summer the house is hot and uncomfortable; and in winter the temperature varies so much between day and night that the incidence of respiratory diseases has gone up considerably, resulting in a higher rate of infant mortality from pneumonia.

So it can hardly be said that this change has brought any improvement to the traditional house. Besides the building, which used to cost nothing in materials, is creating a hardship for the wage-earner who does not get much money in any case. It can be argued that the iron sheets last longer, but the traditional materials can be renewed every few years without any difficulty or hardship, as both the materials and skill are available practically free of charge.

Unfortunately, the tendency in all major islands is to change over to what is commonly called "European" house - more as a status symbol than anything else. Of course, the house would be a compromise between social needs and economic possibilities, but always at the expense of sanitary facilities.

Where new houses are built by government or other public bodies, better materials like concrete blocks or bricks are often used, but in most cases the health needs are still ignored, particularly when the local health authority is not consulted.

Heating, Lighting and Ventilation

Native houses present two extremes: in the warmer islands the house consists mainly of a thatch roof with no permanent wall linings, giving maximum lighting and ventilation; in the cooler islands the house has both thatch roof and walls with small openings, and is therefore dark and badly ventilated. Where heating is required, it is usually an open fire in the middle of the closed house.

Both types are gradually disappearing to give place to smaller ones built with imported materials in many stages, because the owners do not have the cash. So in many cases the completion of the building may take up to ten years or more, as evidenced by so many buildings partly completed or abandoned all over the South Pacific. Meanwhile, the whole family and their more or less permanent guests live in a confined space, very often draughty, cold and damp - just the right environment for spreading respiratory, skin and other diseases.

Water Supply

Except for five or six towns in the whole of the South Pacific, where there is a piped and treated water supply which every now and then runs dry, all the other places have many water problems regarding quantity, quality and convenience. In recent years much effort has been made by many governments to solve in part their water problem in town, but it will take a great many years before the villages are catered for - except in Tongatapu, Tonga, where there has been very substantial help from UNICEF. Table III lists the various types of water supply in the individual islands.

Table III - Water Supply

Islands	Source	Distribution	Treatment
<u>American Samoa</u>			
Pago Pago & Bay Area	surface	reticulation	Yes
Others	rain	cistern	No
<u>British Solomon</u>			
Honiara and administrative centre	surface and ground	reticulation	No
Others	surface and rain	river, cistern	No
<u>Cook</u>			
Northern	rain	cistern	No
Rarotonga	surface	reticulation	No
Mauke	ground	reticulation	No
Others	rain & ground	cistern	No
<u>Fiji</u>			
Suva and main centres	surface	reticulation	Yes
Others	surface and rain	reticulation and cistern	No
<u>French Polynesia</u>			
Papeete and main centres	surface	reticulation	No
Others	surface and rain	reticulation and cistern	No
<u>Gilbert & Ellice</u>			
Tarawa and main centres	rain and ground	cistern	No
Ocean	ground	reticulation	No
Others	rain	cistern	No

Islands	Source	Distribution	Treatment
<u>Guam</u>			
Agana and suburbs	ground	reticulation	Yes
Others	rain and ground	reticulation and cistern	No
<u>Nauru</u>	rain and ground	cisterns	No
<u>New Caledonia</u>			
Noumea and main centres	surface	reticulation	Yes (Noumea)
Others	surface and rain	river and cistern	No
<u>New Hebrides</u>			
Vila & Santo	surface	reticulation	No
Others	surface and rain	river and cistern	No
<u>Niue</u>			
Alofi	rain and ground	reticulation and cistern	No
Others	rain	cistern	No
<u>Norfolk</u>	rain and ground	cistern	No
<u>Papua & New Guinea</u>			
Port Moresby	surface	reticulation	Yes
Lae & Rabaul	surface and ground	part reticulation	Partly
Others	surface, ground and rain	river and cistern	No
<u>Pitcairn</u>	rain	cistern	No

Islands	Source	Distribution	Treatment
<u>Tokelau</u>	rain	cistern	No
<u>Tonga</u>			
Tongatapu	ground and rain	reticulation and cistern	No
Others	rain	cistern	No
<u>U.S. Trust Territory</u>			
Saipan	ground, surface and rain	reticulation and cistern	Yes
Others	surface and rain	cisterns	No
<u>Wallis and Futuna</u>	surface and rain	reticulation and cistern	No
<u>Western Samoa</u>			
Apia	surface	reticulated	No
Others	rain and ground	cistern	No

Catching rainwater has provided a convenient method to supply water to individual homes and small communities, and is indeed very popular in the South Pacific. But it is not common knowledge that it is the most expensive way of providing water for domestic purposes, as has been shown during the planning and implementation of water supply scheme in the Cooks, Gilbert and Ellice, Niue and Tonga by the World Health Organization and the South Pacific Commission, jointly and separately; and in Guam, Papua and New Guinea, and U.S. Trust Territory by their respective governments.

Besides, the rainwater is unsafe because it contains all the dust and impurities (bird droppings, rat excreta, dead insects, etc.) washed from the roofs and other catchments into the storage tanks. The quantity is also inadequate in time of drought, because it is prohibitive to build enough storage capacity to cater for any long dry spell.

Another great health hazard is the breeding of mosquitoes, responsible for filariasis and transmission of virus diseases in many Pacific Islands, in non-protected rainwater tanks and other artificial containers.

The trend for the past few years has been to use groundwater as much as possible. Whole schemes or pilot projects have been implemented in the British Solomons, Cooks, French Polynesia, Gilbert and Ellice, Guam, New Caledonia, Niue, Papua and New Guinea, Tonga, U.S. Trust Territory and Western Samoa. Besides being stored and protected in natural underground reservoirs, the extraction of this water by means of wells, boreholes and infiltration galleries, with subsequent distribution by gravity or by pumping with wind, electric and diesel power, has proved to be the most economical and safest way of supplying water to these Pacific islands. In case there should be any doubt about the quantity of groundwater available, it would be interesting to note that in the islands of Hawaii, which are outside the South Pacific Commission area but nevertheless in the Pacific, 70 million gallons of groundwater are extracted daily for domestic use, and another 300 million gallons for agricultural purposes, although most of the latter percolates back into the aquifer.

In some low islands and atolls, where the Ghyben-Herzberg freshwater lens is objectionably brackish, solar stills have been tried successfully for both communal and individual supplies in a joint University of California/South Pacific Commission project. The islands where such stills have been installed are: Cooks (Northern), Fiji (Viwa), French Polynesia (Tuamotus), Gilbert and Ellice (Tarawa), Nauru, New Caledonia (Loyalty), Papua and New Guinea (Fishermen), and U.S. Trust Territory (Majuro).

It is interesting to note that in some islands no freshwater is available at all and their inhabitants are none the worse for it, because in their way of life there is no necessity for freshwater. They are in very good health - much better than that of the people living in what are commonly called 'more fortunate islands'. The only time these people are sick is when a boat has called at their islands - then they all have a touch of influenza or other viral disease for a week or so!

Unfortunately, such islands are becoming more and more in the minority. Since the advent of so-called 'civilisation' there is a great need for water in most islands, and of course they cannot get it because it has to be paid for. With the economy of the Pacific islands mostly geared to the production of raw materials, which must necessarily be cheap, the day when each household will have a piped supply of wholesome water - to promote and maintain the health of its members - is very remote indeed. Meanwhile, their health must deteriorate because of the poor quality of the water they have to use.

Waste Disposal

Even if in the past, latrines were unknown in the Pacific area, intestinal parasitism was not much of a public health hazard because of local customs and beliefs. For example, in most islands people did not leave their faecal matter exposed because they believed that some sorcerer could use it to cause them harm. So they either evacuated in the sea, or if they defaecated in the bush or on the beach, they always dug a small hole first and then covered it as soon as they had finished. In other islands the people had regular traditional treatment like purgation with plain seawater or some medicinal plants to keep down the worm infestation.

Another beneficial factor resulted in the houses being scattered over large areas of land, so that the people could either conceal their wastes easily or evacuate in the sea in reasonable privacy. But when towns were created at the time of foreign settlement in the Pacific, or native villages were grouped together by the government, the people were forced to change their habits. A few latrines were built over the sea below the high-water mark or inland with open pits. People not using them when nature called were fined or imprisoned, but they were never culturally prepared for using them. So they stopped evacuating in the sea and hid in the bush to defaecate. Because they had to elude the policemen's eyes their only concern was to finish their business as quickly as possible. So they stopped digging the small holes they had been doing for generations. This indiscriminate defaecation in relatively small land areas of the towns and groups of villages brought the human wastes containing infestive eggs, that hatch into larvae, within closer reach of the people, who invariably trod on these larvae with their bare feet thus acquiring infestation by ankylostoma. Moreover, flies had access to pathogenic germs in the faeces and propagated intestinal diseases in the whole community.

In the 1920's, Dr. S.M. Lambert, of the International Health Board of the Rockefeller Foundation, carried out intensive work in many Pacific islands with special reference to hookworm infection, and reported that only a few privies built over the sea were provided for the natives. Bush natives defaecated anywhere and everywhere. Dysentery was the great scourge among the natives and was responsible for most of the deaths among them.

Regarding hookworm infestation he gave the following figures:

<u>Islands</u>	<u>Percentage Infected</u>
American Samoa	52 (mostly ascaris)
British Solomons	85
Cook	70
Fiji	85
Gilberts	10 (nearly all people defaecated in the sea)

<u>Islands</u>	<u>Percentage Infected</u>
Ellice	50
New Guinea	60
New Hebrides	94
Tonga	46
Western Samoa	85.

It would be interesting to compare some of the above figures with those given by participants to the Seminar on Helminthiases and Eosinophilic Meningitis, organized by the South Pacific Commission at Nouméa in 1967.

<u>Islands</u>	<u>Percentage infected</u>		
	Hookworm	Ascaris	Trichuris
Cook - Rarotonga	9	36	60
Fiji	40	11	3
French Polynesia	38	13	44
Gilbert	10	0	21
Ellice	52	0	30
Nauru	0	0	13
New Caledonia	97	96	98
New Hebrides	26	1	24
Papua	74	59	37
New Guinea	92	10	16
Pitcairn	0	0	0
U.S. Trust Territory	7	0	11
Western Samoa	16	31	32

Dr. Lambert recommended the construction of latrines in these islands to stop soil pollution and as a first step to control the helminthic diseases. Some islands have adopted the open pit to which flies could get access and then contaminate food and drink. Most of these latrines are so dirty that people refuse to use them and go back to the bush. Others have built over-sea latrines on wooden piles, connected with the shore by rickety and dangerous bridges. Old people and children seldom venture on these, and at night time no one of sound mind would risk his life on them.

Another regrettable point is that those over-sea latrines are at best an eye-sore that puts off all tourists from swimming in the otherwise tempting water of many islands. Then there is also the danger of contaminating the shell-fish that the natives usually eat raw.

One important and valuable improvement to latrine construction in recent years is the use of the water-seal bowl in American Samoa, Fiji, New Caledonia, New Hebrides, Papua and New Guinea, Tonga, U.S. Trust Territory and Western Samoa. This type of latrine gives all the

advantages of a modern hygienic toilet at very little cost and without using too much water for hand flushing. But its proper use and maintenance by the islanders will remain the ultimate dream of the health educator for a very long time.

A public health hazard caused indirectly by the use of water-seal latrines is the breeding of mosquitoes, responsible for the transmission of filariasis and dengue, in the open water barrels placed near the latrine for flushing purposes.

Background to Mental Health Programme

Preventable diseases arising from bad housing sanitation are universal and in the South Pacific they are no different from the rest of the world, except as they affect mental health.

In the slums of Asia, Africa, Europe, North and South American, bad sanitation has more or less been a way of life with their inhabitants for many generations. They have been born and bred in such a social environment, so they do not have to adjust themselves to it. Conditions that would shock people from the luckier strata of the society are only normal to them and are not very likely to be or to become a source of mental disturbance. But it is a different story with the South Pacific !

As far back as 1952, the South Pacific Commission advocated the collection and circulation of information pertaining to mental health, but did not consider the problem particularly urgent. But in 1953 the Commission did recognize that the mentally sick were constantly increasing in numbers, owing to the radical changes occurring in the region. It recommended that sociologists and medical officers should together investigate the influence of cultural changes on the mental health of island peoples, but it still decided to restrict its activity in this field.

In 1963, at the Conference on Rural Health held at Papeete, and in 1964, at the Seminar on Rural Health held at Goroka, Papua and New Guinea, it was pointed out that there was good reason to be alarmed at the state of mental health in the region. But it was the Sixth South Pacific Conference, held in 1965 at Lae, Papua and New Guinea, which urged that greater priority be given to mental health problems arising from urbanization and migration of people to urban centres. Subsequently, the Commission approved some research in this field, and a preliminary opinion survey among the Melanesians in Noumea, New Caledonia, was carried out in 1966 by Dr. G. Zeldine to ascertain whether there were any psycho-sociological tensions from urbanization through the study of housing problems and adjustment to urban life.

Shortly after the survey the psychiatrists employed by the Governments of Fiji, New Caledonia and Papua and New Guinea met to discuss mental health problems in their respective territories, and recommended the appointment of a mental health specialist by the Commission and the holding of a training seminar on mental health. In 1967, the Training Seminar on Mental Health, which was the first one ever held in the area on this subject, took place at Noumea, New Caledonia. Participants from American Samoa, Fiji, New Caledonia, Papua and New Guinea and U.S. Trust Territory attended the meeting.

Also in 1967, a Seminar on Health Problems of Coral Atoll Populations was held at Tarawa, Gilbert and Ellice Islands, at which the disruption of family life occurring during the drift from outlying islands to urban areas, and its effect on moral values and social sense, preoccupied the Seminar and gave rise to several appropriate recommendations.

In its 1968 Estimates the South Pacific Commission approved the recruitment of a specialist (transcultural ethno-psychiatrist) to assist territories in the training of personnel and in the prevention of problems resulting from the rapid acculturation of island peoples.

Independently, the Public Health Services of New Caledonia as a result of the survey made by Dr. Zeldine in 1966, has opened a Mental Health Centre which collects and analyses mental health information and treats out-patients since January 1967, as a first step to control urbanization problems in New Caledonia.

Mental Health and Housing Sanitation

The 1966 Preliminary Opinion Survey on Urbanization of Melanesians in Noumea had no more ambitious object than to obtain the average views of that community on the degree of psychological comfort derived from life in Noumea. It should be noted that the data were collected from a comparatively small sample of the Melanesian population (2½%), but, among other things, they revealed the unsatisfactory housing conditions due to poor sanitation and their effect on the mental well-being of the occupants.

These bad conditions were confirmed by a house to house survey subsequently carried out by the "Mission d'Étude Socio-économique" in Nouméa. It found 2,388 households, representing 8,138 persons or 20% of the whole population, badly housed. Considering that Nouméa is by far the richest town in the whole of the South Pacific, it can be inferred that housing conditions are just as bad, if not worse, in the other islands.

Also the island groups of the South Pacific have remarkably similar social and economic problems, and have many interests in common. So from the mental health point of view they can be considered as an entity where traditional values are crumbling under the impact of 'western' cultural standards, whatever the economic and political system may be. Therefore, the data collected for Noumea have been widened to include housing conditions in the other South Pacific islands as well.

- (1) The area of the dwelling is too small for the people it houses. Many families have moved several times since their arrival in town - in constant search for an adequate-sized house. But their choice is forcibly limited by the rent they can afford to pay. So even if they are earning good money they have to think carefully before engaging 25% or more of their wages on rent alone. As a result severe overcrowding ensues, with its inevitable ill-effects on both physical and mental health.

Another consequence of overcrowding is the impatience that the head of a household displays more and more towards the traditional role of temporary host which is required by custom. But whether he likes it or not it will be a long time before he can live in a house free from any form of communal life. A recent case reported in the press showed that 30 people are living in one house. Obviously the young head of the family could not be responsible for such a large family. One can imagine what the noise and bustle in such a house would do to his morale when he comes home tired from work !

- (2) The exorbitant rent that the head of the family has to pay for a sub-standard house is a constant worry for him. Together with the high costs of food and clothing, let alone the new needs associated with town life, he cannot make ends meet and is thus submitted to constant economic pressure which he is not used to endure.

His only hope is to get one of the low-cost houses that both public and private developers are building, but he usually finds that even such a house is not meant for those most in need of it. It is either too small for the size of his family, so he will not be better off as overcrowding in a well-built or badly-built house is equally bad; or the rent is more than he can afford, because in the South Pacific such houses are built for the upper segment of the so-called low-income bracket, in order that the rent could be economic. So the poor will be badly housed for many years to come.

It is indeed very difficult to understand why subsidized rent could not be adopted in the South Pacific as it is done in the developed countries. There the workers get much higher wages and yet they can pay sub-economic rent for decent houses, because housing is considered more as a social rather than an economic matter. It is only when a worker and his family are well housed that their minds can grow healthily. In turn their output becomes more efficient, either at work or in the home, which in the long run should be a good economic proposition for the country.

- (3) The insanitary conditions in which most "migrants" live in the slums of the town and in some labour lines have been described by many investigators as shameful. One argument put forward that the indigenous habits and customs are clearly contrary to healthy and sanitary living is just a weak excuse for doing nothing about providing decent housing for the workers, who are contributing to the prosperity of the industrial concerns employing them. There are fine examples of labourers' estates in some islands where the provision of housing for every grade of employee is compulsory.

The exact words from the report of the Zeldine survey describing the state of repairs of some houses are:

"stench and flooding from drains, stench of latrines, crowding in unhealthy blocks, lack of space, lack of running water and electricity, dilapidated building, grievous lack of ventilation and light".

Other complaints include unpleasant neighbours, bad neighbourhood, too much noise, lack of water closet or latrine. It is not surprising that most people do not feel like going home after work. Instead they gather in the bars or on the streets, resulting in heavy drinking, very often more as a symbol than as a vice or addiction, and prostitution caused by the low ratio of women to men among the migrants.

The saddest part, of course, is when the young are exposed to such freedom and temptations. There is no doubt that they can easily lose their self-control and will-power, particularly when they see so many bad examples of crime on television and at the pictures, thus bringing a substantial increase in juvenile delinquency cases.

(4) The difference in housing standards between the have and the have-not is a serious source of discontent among the indigenous people, who usually belong to the latter category. They cannot understand why people coming from outside live in beautiful houses in the best residential areas while they stay in squalid shacks in shanty towns, most of them separated from their families who have to stay behind because they cannot find suitable accommodation for them in town. So they spend their spare time brooding over what they feel is unfair and unjust, resulting in jealousy and racial tensions. In that state of mind he is very attentive to subversive elements that push him to stake his claim for a better share of what life has to offer. But even if he does not succumb to this propaganda, his ultimate aspirations are to shed his own culture and adopt the European way of life in its entirety with all its comfort and privileges. But he is bound to remain an alien to the new culture, and during the process he sustains a cultural shock leading to emotional and mental stress that can be disastrous and dangerous to him.

(5) The difference in sanitary facilities between the expatriate and native houses also has an adverse effect on the mind of the indigenous people. The former is provided with one or more built-in flush toilets with septic tank, while the latter has nothing except some dangerous looking latrines over the sea at a hundred feet or so away. The indigenous people cannot help noticing the discrimination and many of them rebel against using the latrines. Instead, they wait until dark and then go to defaecate near the expatriate houses. So even if the best sanitary facilities are provided for the good houses, soil contamination is general. This is reflected in the expatriate population of one island having as high a hookworm infection rate as 72%.

The same situation arises regarding water supply. Expatriate houses are provided with large rainwater tanks for cooking and drinking purposes, and ground-water extracted from protected wells by electric pumps are distributed by water tenders to the houses for bathing, washing and toilet flushing. The indigenous people collect rainwater in open 44-gallon drums, and if these are empty, which happens most of the time, they go with their buckets to fetch water from unprotected shallow wells. No wonder the Medical Department could not get the co-operation of the people either to cover their drums to prevent the breeding of mosquitoes, or to

protect the areas surrounding the wells from contamination. So refuse pits are dug very close to the wells, and no doubt people defaecate there at night. Cases of expatriates having dysentery and other gastro-intestinal troubles are not infrequent. Once some groundwater samples were analysed and found to contain nearly 2,000 coliforms per 100 ml!

Conclusion

In the South Pacific the physical health problems resulting from bad housing sanitation are more or less of the classical pattern. Although they have not reached alarming proportions as in the Caribbean, the South and South-East Asia, they should be prevented from becoming unmanageable, as has already happened in most countries in those areas. Both a short-term improvement plan and a long-term development plan should be drawn for the whole of the South Pacific, but they should be practical, reasonable, real - this sort of dream is allowed in this region because time is still on our side. Housing authorities should be set up to control rental of private dwelling houses, to clear slums and re-house the occupants in subsidized housing estates, designed to suit the environment and built as far as possible with **locally-available** materials that have been made more durable by special treatment. Housing loans should be available to finance the construction of and extensive repairs to private houses. Many governments in the region have already taken the first steps along these lines, but their efforts could be co-ordinated in such a way that they can benefit, directly or indirectly, all the island groups in the area. This is where the South Pacific Commission has a very important role to play and has indeed made some achievements in the right direction. There is still a lot more to do, and, as everywhere else, there are the limitations, but at least the planning should be done long in advance so that the various administrations know where they are going and do not repeat many sad mistakes already committed elsewhere.

But it should always be remembered that along with technical development which will raise the economic level of the area and ultimately provide all the necessary services for sanitary living, there will also be social changes that may lead to emotional and psychological disturbances. So these mental health implications need very careful study because of the simple, yet complex traditional life of the island peoples. To them the city concept did not exist in their cultural tradition, and towns were only born at the time of the European settlement. So the decision to migrate from the village to the town must be a major one, but all over the South Pacific there is sufficient inducement that would favour this migration. These include better or more facilities for employment, education, medical care, public transport, services such as electricity and running water, entertainment, shopping, variety of contacts, richer personal life and brighter future for the children in a modern world.

Unfortunately, many migrants do find that they cannot easily adapt themselves to the urban life for various reasons: insanitary housing conditions for which excessive rents are paid; all money earned is spent before the bare necessities of life are satisfied; no money left for the pleasure and amenities that first attracted them to town; new diet is not satisfying enough because of the relatively small quantity and the high price; costly habits arising from association with bad people (alcohol, prostitution, etc.); expensive and complicated clothing that has to be washed regularly; frequent infectious diseases that make them stay away from work with loss of wages; and friction among different ethnic groups.

So the "feeling of not belonging" is forever present among most migrants. The link with the traditional environment remains so strong that they always hope to return to their village or remote island, which they consider as their true home. One statement made by a migrant "that the reason he wishes to return to live in his village is to seek his freedom" should become the basis of the long-term plan to safeguard the mental health of the Pacific islanders. The essential benefits of town life should be provided for people in the rural areas to induce them to stay there and live a healthy, contented life. Considering that in the past most of them have had "nothing!... nothing!" - with apology to one migrant for borrowing his words - this is not asking too much...

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Subdivision A.8 - Hygiène et assainissement en pays tropicaux

Section A.8.1 - L'habitat

L'HYGIENE DE L'HABITAT DANS LE PACIFIQUE SUD
ET SES REPERCUSSIONS SUR LA SANTE MENTALE

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RESUME

Chevauchant la ligne internationale de changement de date, les îles fabuleuses du Pacifique Sud s'étendent du 40^e de latitude est au 40^e de latitude ouest. Elles sont réputées pour leur population heureuse et insouciantes et c'est, en effet, ce qui apparaît d'abord au touriste en quête d'exotisme. La zone d'action de la Commission du Pacifique Sud comprend les Samoa Américaines, les Samoa Occidentales, le Protectorat britannique des îles Salomon (Guadalcanal), les îles Cook, les îles Fidji, la Polynésie Française (Tahiti), les îles Gilbert et Ellice, l'île de Guam, Nauru, la Nouvelle-Calédonie, le Condominium franco-britannique des Nouvelles-Hébrides, l'île de Niue, la Papouasie et Nouvelle-Guinée, le Royaume de Tonga, le Territoire sous tutelle américaine des îles du Pacifique, les îles Norfolk, Pitcairn, Tokelau, et enfin, les îles Wallis et Futuna. Au cours de ces quatre dernières années, l'auteur, ingénieur de santé publique de la Commission, a travaillé dans toutes ces îles (à l'exception des quatre dernières énumérées), dans les domaines du ravitaillement en eau, de l'évacuation des matières usées, de la lutte contre les vecteurs de maladies et de l'habitat. Tout comme ses collègues oeuvrent dans d'autres disciplines, il doit faire face à des problèmes sociaux et sanitaires découlant de l'exode des populations des régions rurales et des îles excentriques vers les centres urbains.

La superficie totale des îles du Pacifique Sud n'est que de 560.000 km² (la Papouasie et Nouvelle-Guinée couvrant déjà à elles seules 467.000 km²) disséminés sur des millions de kilomètres carrés d'océan. La population globale se chiffre à 3.370.000 habitants, dont 2.000.000 pour la Papouasie et Nouvelle-Guinée et 470.000 pour les îles Fidji. Pendant des générations, et jusqu'à l'arrivée des premiers colonisateurs, les insulaires vivaient heureux et leur comportement était adapté au milieu géographique. Depuis, les valeurs traditionnelles se désagrègent sous l'influence du mode de vie occidental, d'où des désordres tant sur le plan physique que psychologique qui peuvent être désastreux pour les insulaires.

L'un des problèmes les plus importants auquel l'insulaire est mis en présence est celui de l'habitat : il doit substituer à son habitation

traditionnelle, qui répondait aux impératifs du climat et de la coutume, le logement occidental de série, véritable réservoir d'infection, ce qui compromet sa santé et celle de ses voisins. Ce mode d'habitation est également une source constante de tension nerveuse, des conflits raciaux éclatent, des brouilles surgissent dans les familles, l'individu est dans un état constant d'énervement, il se sent mal à son aise et cela peut affecter son équilibre mental. Voici les raisons qui ont incité récemment la Commission du Pacifique Sud à s'intéresser de plus près aux aspects sociaux, économiques et sanitaires de l'habitat.
