

OFFICE OF TRANSITION STUDIES AND PLANNING
NORTHERN MARIANA ISLANDS
P.O. BOX 9
SAIPAN, AMERICAN MARIANAS 96950



Northern Mariana Islands

otsp news

PLANNING FOR THE FUTURE - A UNIQUE OPPORTUNITY IN NATION-BUILDING
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A REPORT FROM THE ACTING DIRECTOR
Steve Loftus

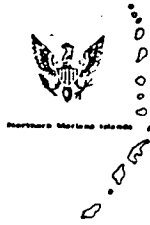
The Director, OTSP, Pete A. Tenorio, is off-island conducting business in Japan and Washington. His trip to Japan with the Director of Public Works, Tony Tenorio, concerns primarily the matter of financing a new power plant for Saipan. The discussions in Tokyo are the latest of a series of exploratory talks with reputable Japanese firms regarding equipment and financial terms. Following these discussions in Tokyo, the Director will be flying to Chicago to negotiate a contract with Hay Associates, whose bid to review the pay and classification system of the NMIG and to make recommendations to the new Government regarding revisions was judged to be the most advantageous. If these negotiations result in a contract with Hay they should be able to begin working with the Personnel Office of the ResCom around the middle of November. The final report will take approximately 90 days to complete, but should be of great value to the new Governor, the new NMG Civil Service Commission and to the leaders of the new bi-cameral legislature.

The biggest news concerns the proposed Commonwealth Constitution, it has been approved by default because the six months

given to the U.S. Government to act on it ran out of October 22. According to Section 202 of the Covenant the Constitution is deemed approved even though the U.S. Government takes no positive action. As many of you know, the failure of the U.S. Government to take formal action prior to the deadline resulted mainly from a belated legal interpretation of the Department of Justice that the President could not act positively without formal Congressional review and approval. Time did not permit such action given the press of other more urgent legislation. However, it should be noted that the interested Committees in both Houses of the U.S. Congress had been consulted and had raised no objections of substance to the Constitution. Therefore, had there been more time there is every reason to believe that the Constitution would have obtained the full and formal approval by both the Congress and the President.

In any case, our representative in Washington, Ed Pangelinan, reports that a formal Presidential proclamation noting the approval of the Constitution and designating January 9, 1978 as the effective date for it will be issued sometime during the week of October 25th. He also reports that responsible officials in the Interior Department, especially Mrs. Ruth

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Van Cleve, the Director of the Office of Territorial Affairs, are doing their best to arrange for a brief ceremony in the White House at the time the Presidential proclamation is made public.

Mr. Pangelinan also reports that the legislation establishing a Federal District Court for the NMI is making rapid progress in the Congress. It should pass the Senate and possibly the House prior to the end of this session. If not, the Congress should complete action on it early in its 1978 session. Mr. Pangelinan appears today before the House sub-Committee to provide testimony regarding the urgency of the bill.

In a telephone report last weekend, Mr. Pangelinan said that the President had signed HR 6550 - the Omnibus Bill for the Territories, which approves additional war claims payments, including Title I if the Japanese Government agrees to increase its contribution. The pertinent language concerning this matter is:

"In addition to amounts heretofore authorized pursuant to the Micronesian Claims Act of 1971 (85 Stat. 96), there are hereby authorized to be appropriated to the Secretary of the Interior such sums as may be necessary to satisfy all adjudicated claims and final awards made by the Micronesian Claims Commission to date under title I and title II of said 1971 Act, for full payment of such awards; Provided, That no sums appropriated pursuant to this section may be paid on awards pursuant to title I of said 1971 Act until, subsequent to the date of enactment of this section, the Government of Japan has provided to the Government of the Trust Territory of the Pacific Islands a contribution, which contribution may be in goods and services, which has a value as determined by the Secretary of Interior equivalent to not less than 50 per centum

of the total awards made pursuant to title I of said 1971 Act less \$10,000,000 from such total; Provided further, That prior to making any payment on an award pursuant to either title I or title II of said 1971 Act, the Secretary shall review such award and determine whether any portion of such award constitutes interest not authorized to be awarded under the said 1971 Act and shall exclude from his payment such amounts as he determines constitute such interest. The Secretary's determination of the proportion of any award which constitutes interest and the proportion which constitutes value shall be final and shall not be subject to judicial review."

Mr. Pangelinan expressed his delight at the success of this bill, which has been the object of a great deal of work in the Congress by him and other leaders of the NMI, and which could result in an additional \$9 million in payments to residents of the NMI.

This bill also provides for the consolidation of Federal program grants to the Territories, which if implemented will facilitate work of the new Government in this critical area.

According to Mr. Pangelinan, the staff of the Veteran's Affairs Committee of the House and representatives of the American Battle Monuments Commission were greatly impressed by the drawings and information submitted by OTSP consultants, the firm of Pacific Planning and Design Consultants, PPDC, regarding the proposed Memorial Park near Micro Beach. This presentation should contribute greatly to the final U.S. approval of funds required for the American War Memorial on Saipan.

We have also received a copy of a letter from an official of the Intergovernmental Personnel Programs of the U.S. Civil Service Commission stating that \$30,000 has been earmarked in FY '78 for



the NMI - to be used on an agreed training project designed to enhance the effectiveness of management in the new Government. OTSP plans to follow up on this.

This week Messrs. Sablan and Atalig visited Rota and Tinian with Ignacio Sablan and Antonio Camacho in order to meet with all Municipal employees regarding their future status in the new Constitutional Government. Although the constitution has a provision guaranteeing continuity of employment until the new government acts to the contrary, those workers whose functions are omitted by the Constitution, such as those working for the Municipalities, except the mayors, are understandably concerned about their future.

Regarding the work of the new Board of Elections, the OTSP was pleased to be able to make available \$20,000.00 to assist in the funding of the first Constitutional election. These funds had been earmarked by the U.S. Congress last year for this noteworthy event.

CONTINUITY OF EMPLOYMENT FOR EMPLOYEES OF MUNICIPAL GOVERNMENTS

Section 3 of the Schedule on Transitional Matters in the Constitution of the Northern Marianas provides that as of the effective date of the Constitution, all Municipal government employees shall be employees of the Commonwealth on the same terms and conditions of employment as were enforceable against the Municipal government. This guarantee of employment will continue until changed by law.

During the past few weeks, the NMG personnel office and OTSP have been conducting interviews with municipal employees in all three islands in the Northern Marianas. The employment data gathered from these interviews will be

used to prepare personnel action papers and placement of municipal employees in counterpart positions in the NMG.

It is anticipated that all preparatory work for transfer of municipal employees to the NMG will be completed by the early part of December. Placement and orientation would be conducted shortly thereafter.

THE ORGANIZATION OF THE EXECUTIVE BRANCH UNDER THE CONSTITUTION OF THE COMMONWEALTH OF THE NORTHERN MARIANAS

Pedro M. Atalig

Assistant Director for Public
Administration and Government Organization

The public administration and government organization planning study sponsored by OTSP proposes an organization for the new constitutional government that will give full opportunity for effective leadership, control and accountability by the new chief executive. This organization, if approved, will reduce the "over-bureaucracy" that exists today and is also tailored to the needs of the 15,000 people in the Commonwealth.

The following is a summary of the proposed executive organization and its functions, with an accompanying organizational chart:

Executive Office of the Governor

The Constitution establishes the offices of governor and lieutenant governor; they will be elected on the same ballot. The governor will be the chief executive of the Commonwealth. He will appoint department heads and members of the judiciary and most boards and commissions. He will have veto power over legislative actions (subject to a veto override) and may reorganize departments and agencies, subject to a legislative veto. The lieutenant governor has no constitutional duties and



responsibilities, except that of succession in the event of a vacancy in the office of governor. The governor will require a strong management and planning capability in order to effectuate his leadership and executive role. An executive office of the governor will be established with staff to the governor, including assistants for legislative program, public information and protocol, and two significant units: a Chief Administrative Officer (CAO), with responsibility for day-to-day management of the executive branch; and a planning-budgeting officer (PBO), with responsibility for Commonwealth-wide developmental and land use planning and coordination of agency planning; budgeting; and federal program coordinators. The CAO will hopefully develop a cadre of management specialists, conduct management audits of agencies and monitor remediation efforts, and develop and execute comprehensive training programs for upgrading capabilities of Commonwealth employees. (Training will be closely linked to supervision and management and for this reason is being assigned to the CAO.) The lieutenant governor may be assigned duties and responsibilities by the governor or by statute. A governor's council, comprising the governor, mayors and executive assistant for Carolinian Affairs (all constitutional offices) will be established to assure close coordination of needs and services on the individual islands of the Commonwealth. It is expected that a governor's cabinet will be established to insure effective communication between department heads and improved coordination throughout the executive branch. The office of the PBO would coordinate the implementation of approved plans and attempt to continue the comprehensive planning efforts initiated by the OTSP.

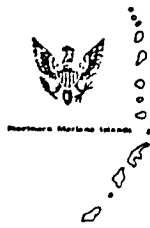
Liaison Offices

The Constitution created the elective office of Representative to the United States. Funds are provided to staff the representative's office in Washington and provide necessary housing and logistical support. Funds are also provided for a liaison office in San Francisco to facilitate federal grants applications with Region IX; plus a Hawaii liaison office where many Northern Marianas students are in school. The San Francisco liaison may be effectuated through a local contract and will be closely linked with the Washington Representative and with the federal program coordinator in the planning-budgeting office (see executive office of governor).

Staff Agencies

On the accompanying draft organization chart a distinction is made among staff agencies, line or operating departments, and independent boards or agencies. The following agencies will provide vital support activities of the Commonwealth government. The public defender's office is shown as an independent agency performing an operating function. The Civil Service Commission/Personnel Office (discussed separately below) is shown as a staff agency since it performs a staff function for the whole Commonwealth government.

1. Office of the Attorney General. This is a constitutional officer, appointed by the governor with the advice and consent of the senate. The attorney general's office will be the legal adviser to the government, will review proposed contracts, represent the government in civil cases in which the Commonwealth is a party, prosecute crimes against the Commonwealth, and administer codes of



conduct. It is anticipated that the office of attorney general will be the sole "law department" for all departments and agencies of the government, including the independent agencies and authorities. This is intended to reduce costs for legal services and assure a basic control over the activities of the government involving potential liability or legal obligations. (Where required, the attorney general would approve use of special counsel). The attorney general would have the principal responsibility for developing and maintaining a Commonwealth Code of Laws and a code of rules and regulations of departments and agencies. The office will undertake comprehensive revision of the laws governing the Commonwealth and will utilize contractual services for technical law revision work. The Attorney General will also advise the governor and legislature on implications of pending legislation, working closely with the assistant to the governor for legislative program. The office will have additional functions, including the constitutionally-mandated parole office and the Commonwealth's immigration and naturalization service. The Attorney General's office will register corporations, maintain the seal of the Commonwealth, and perform related functions.

2. Public Auditor. This is a constitutionally-created office. The public auditor will be a certified public accountant, appointed by the governor with the advice and consent of each house of the legislature. He will perform the financial audit function for all branches and instrumentalities of the government, including any agency of local government that may be created. The public auditor will have an important role in the development of accounts and the financial management procedures for the Common-

wealth. He will interface with federal auditors and will perform oversight and fiscal control functions. Technical auditing work by this office may be contracted.

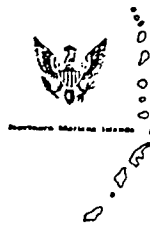
The item for federal controller involves reimbursement for audits performed by federal agencies.

3. Board of Professional Licensing. This board will have principal responsibility for establishing standards and requirements for and issuing, revoking or suspending licenses to professional persons. It will determine requisite credentials, contract for or administer exams as may be necessary, and accept licensing or certifications issued by other jurisdictions. It may enter into reciprocal agreements with other jurisdictions. Admission of attorneys to the Bar of the Commonwealth of the Northern Mariana Islands will not fall within the jurisdiction of the Board; that responsibility is vested in the judiciary. Certification of teachers and credentialing of persons in the medical arts may be assigned to the Board of Education and the Board of Public Health and Environmental Protection respectively. The activities of the Board of Professional Licensing are subject to specified constitutional provisions on existing licensees. The Board will be administratively attached to the personnel office.

4. Public Defender. This office provides legal services for defendants in criminal cases and litigants in civil cases who are not positioned to secure their own counsel (the civil jurisdiction is usually limited to indigents who are unable to utilize the services of Micronesian Legal Services, Inc.).

Civil Service/Personnel Office

The Constitution mandates a non-partisan



and independent civil service commission and a merit system, with appointment and promotion within the civil service based on merit and fitness demonstrated by examination or other evidence of competence. A three-man board is to be created. Under it a personnel office will implement board policies and rules. The personnel office will conduct recruitment, job classification, examination, placement, promotion, motivational and disciplinary aspects of a modern personnel management system. The Board of Professional Licensing will be administratively attached to the personnel office, as presently contemplated.

Department of Financial Administration

This department will be a line agency of the executive branch with principal responsibility for all financial functions of the Commonwealth government, excluding budget preparation (see Executive Office of the Governor - Office of Planning and Budgeting) and auditing (see Office of Public Auditor). It will administer all revenue functions. Although some collection of user charges may be decentralized to operating agencies, all monies collected will be turned over to the Department of Financial Administration. The Department will establish and maintain the accounts, allocate funds to agencies control expenditures within limits established by the appropriation acts, and provide financial statements to agency heads and the executive office of the governor. The Department is expected to be a major point of control on the proper use of public funds. Funds presently used by the chartered municipalities for municipal service delivery operations are included in this departments budget as a

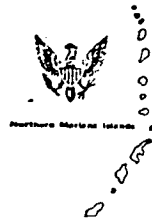
reserve and will be transferred to Public Works and other agencies as former municipal functions are absorbed.

Department of Emergency Services

This department will be a line agency of the executive branch with responsibility for police, fire protection and corrections. Each of the three functional areas will be organized into separate divisions within the Department. It is anticipated that the police chief will be the administrative head of the department as a whole unless the governor specifies otherwise. Substantial upgrading of all police, fire and corrections activities is anticipated. The police force, in addition to patrol, investigatory and related functions, will be responsible for motor vehicle inspections and assist in providing security services for public facilities and assistance in compliance and enforcement activities of other agencies. Standards for criminal justice administration, protection of juveniles in custody, and quality of traditional police functions will be pursued, with anticipated federal funds in concert with other agencies of the Commonwealth government (Office of Attorney General, Office of Public Defender, Commonwealth Trial Court, and Department of Community Affairs).

Department of Community Affairs

This department will be a line agency of the executive branch and will be the Commonwealth government. It will work closely with the Community Action Agency and will coordinate services for the aging, youth programs, welfare assistance programs as may be developed, and community recreation programs. It will assume local regulatory functions (licensing of local businesses and enforcement of standards) formerly exercised by the



chartered municipalities and may assume additional consumer protection functions.

Department of Economic Development

This department will be a line agency of the executive branch responsible for development of the private economy. Substantial economic development functions, involving loans for business growth, small loans to farmers and fishermen and to agricultural and marine cooperatives, will be institutionalized through a Development Corporation and funded through a Development Bank (see below). The Department will encourage the growth of tourism. A visitors services' office, presently organized as the Marianas Visitors Bureau, will retain its separate identity but it and the Department will coordinate their respective efforts to build tourism and services for tourists.

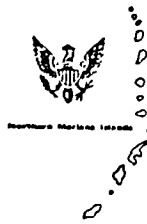
Department of Natural Resources

This department will be a line agency of the executive branch with responsibility for agricultural, marine development, land surveying, agricultural homesteads, and parks development. Included within the parks function will be programs of landscaping, island beautification and historic preservation. The Department will have principal responsibility over marine resources and submerged lands (public lands other than submerged lands are the responsibility of the Public Lands Corporation created by the Constitution). The Constitution contains special restrictions on the use of uninhabited islands. Those cultural and recreational purposes that are permitted on the island of Managaha by the Constitution are expected to be the responsibility of the Department of Natural Resources. The constitutional provisions of Article XIV, Section 3 on protection and preservation

and public access respecting places and things of cultural and historical significance, including artifacts, will be within the duties and responsibilities of this department. It is anticipated that cooperative arrangements will be developed with respect to the active parks use of public lands between the Department of Natural Resources and the Public Land Corporation.

Board of Education/Department of Education

The Department of Education will be a line agency of the executive branch comprised of five members with responsibility for elementary, secondary, post secondary, and special adult and vocational education and educationally-related functions and activities. The administrative head of the department is a constitutional officer, the superintendent of education, appointed by a representative board of education. They will be appointed by the governor with the advice and consent of the senate and will "formulate policy and exercise control over the public school system through the superintendent." The Department will operate the public school system. It will administer the scholarship programs for off-island college level education, and will foster higher educational programs. Under Article XV of the Constitution, "Every person in the Northern Mariana Islands shall have the right to free, compulsory and public elementary and secondary education within age and educational levels provided by laws. There shall be higher education and adult education within the Northern Mariana Islands consistent with the needs and resources of the people as provided by law." Provision of a coordinated system of public school, reference, and law libraries will be within the jurisdiction of the Board and Department. Further, it



is anticipated that any museum that may be established will be under the Board and Department to stress the educational benefits of museums.

Department of Health

This department will be a line agency of the executive branch with responsibility for public health, medical and surgical care, dental health services, environmental protection and health. The department will operate the public health clinics and dispensaries throughout the Commonwealth, Dr. Torres Hospital, and services and facilities for the mentally ill. It is expected to have additional duties and responsibilities in the area of environmental quality standards, testing, and compliance, pure water quality, sewage disposal, and solid and hazardous wastes. The department will be responsible for patient referrals to facilities in Guam and Hawaii. It is anticipated that substantial improvements will be made in the physical facilities for medical and surgical care and in the quality of health care delivery systems.

Department of Public Works

This department will be a line agency of the executive branch with responsibility for contract administration of capital improvement projects; operations and maintenance of public facilities; delivery of electric power; delivery of pure water; provision and maintenance of sewage disposal facilities; refuse collection and disposal (solid waste management); operation of the central repair shop; and operation of supply and procurement functions for the Commonwealth government. It is anticipated that by fiscal year 1979 central repair shop will be operating on a nonsubsidized or minimally subsidized basis with reimbursements to it by other

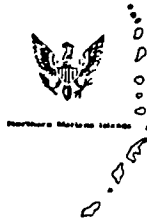
departments and agencies, or by private concerns, for any services provided by central repair. The cost basis for determining central repair charges will include labor charges, other out of pocket costs, and apportioned overhead charges. It is anticipated that utility services will be assumed by a public benefit corporation, a Marianas Public Services Authority. Initially, this will be responsible for Saipan electric power but would be established with the institutional and legal capacity to assume responsibility for other utility services with legislative approval.

Independent Agencies and Other Operations

In addition to the staff and line agencies of the executive branch, independent agencies will be established, principally those organized as public benefit corporations. Certain other governmental operations are included in this listing for reasons noted below.

1. Mayors. The Constitution establishes the elected offices of mayor of Saipan, Rota, Tinian and Aguigan, and the Islands North of Saipan. The mayors will have important ombudsman-type responsibilities on behalf of the people of their respective island or group of islands. They will have an opportunity to propose budgetary items and will participate in a governor's council (see above, Executive Office of Governor).

2. Public Services Commission. This independent agency will be established by law to review service standards and determine (or approve) rate structures for telecommunications services (under lease to a private corporation) and for other utilities. The commission is likely to contract for technical rate-making advisory services. It may participate in analyses of cost-bases for other pro-



prietary functions of the government in order to develop user charges that reduce or eliminate hidden subsidies.

3. Federal Law Revision Commission. Section 504 of the Covenant states that the President of the United States will appoint a Commission on Federal Laws to survey the laws of the United States and make recommendations to the United States Congress as to which laws of the United States and make recommendations to the United States Congress as to which of the United States not applicable to the Northern Mariana Islands should be made applicable and to what extent and in what extent and in what manner. Four of the commission members will be Trust Territory citizens who have been continuously domiciled for at least five years in the Northern Mariana Islands. The section further states, "The United States will bear the cost of the work of the Commission." The section by section analysis states, "However, the United States will not be responsible for the salary of the four commissioners who are domiciled in the Northern Marianas." It is not anticipated that these positions will be full-time. The Analysis further states, "It is understood that this provision means that the United States will pay for the staff work which will be necessary as well as for the expenses and salaries of the members from the United States."

4. Marianas Visitors Bureau. This entity comprises a cooperative public-private effort. It is discussed under Department of Economic Development (above).

5. Public Land Trust. Article XI, Section 4 of the Constitution establishes the Marianas Public Land Corporation which will have responsibility for the management and disposition of public lands other than submerged lands. The Public Land Trust (three trustees appointed by the

governor with senate advice and consent) will receive and invest all moneys received from the public lands (leases and the like) and transferred to it by the Public Land Corporation. The Corporation may retain the amount necessary to meet reasonable expenses of administration. For ten years the Trust is restricted to investments only in obligations of the United States and in a Marianas Development Bank.

6. Marianas Airport Authority. The authority is responsible for the Saipan International Airport and all other airports in the Northern Marianas. Its title may be changed and its functions enlarged to enable it to assume duties and responsibilities for operations of ports facilities.

7. Marianas Housing and Village Homestead Agency. It is anticipated that the present Mariana Islands Housing Authority would be reconstituted as the new agency with additional duties and responsibilities pertaining to village homestead programs and other low income housing programs, the latter utilizing special loan funds under the Covenant. The Constitution requires the Marianas Public Land Corporation to make available some portion of the public lands for a homestead program. The new agency is intended to avoid the proliferation of governmental institutions dealing with housing and renewal and community development facilities.

8. Board of Elections. The board would conduct regular general and special elections, including conduct of referenda and initiatives as authorized by the Constitution. It presently consists of nine members according to P.L. 5-19 from Saipan Rota and Tinian. It would have a small permanent staff, with temporary employees used during registration periods and as poll watchers.



9. Saipan Electrical Power Authority.

This public benefit corporation may be organized as a Marianas Public Services Authority but would initially be responsible for Saipan power (see discussion above under Department of Public Works; see also Public Services Commission, above).

10. Marianas Development Bank. It is anticipated that this bank would receive economic development loan funds, other than funds earmarked in the Covenant for specially designated purposes, as well as funds made available by investment of the Marianas Public Land Trust (see above). It would make loans to other governmental agencies and instrumentalities.

11. Marianas Development Corporation. This public benefit corporation would receive loans from the Development Bank, as well as potentially from other sources (Small Business Administration, Economic Development Administration), and make loans for economic development purposes; and those Covenant funds reserved for small loans to farmers and fishermen and to agricultural and marine cooperatives.

THE DEVELOPMENT OF A COMPREHENSIVE
PHYSICAL PLANNING PROGRAMS FOR THE
NORTHERN MARIANA ISLANDS

Pedro Sasamoto

Assistant Director for Physical Planning

Both OTSP and Pacific Planning and Design Consultants (PPDC) have visited several times the islands of Rota, Tinian, Saipan and Pagan throughout the entire planning efforts to consult and present to the people, the Administration and the elected leaders of these islands the status of the planning programs. One major area of concern in infrastructure planning is water resources and distributions. The following highlights the

findings and recommendations of PPDC and OTSP.

Saipan Water Supply and Distribution

The fresh groundwater of Saipan commonly has been classified as either basal, occurring in the form of a thin lens of fresh water floating on sea water, or high level, which saturates aquifers having relatively impermeable bottoms lying above sea level. Generally the daily production of water on Saipan is between 2.0 and 2.4 million gallons although it varies considerably during the dry season when yields from the well fields and springs to the north decreases.

The principal basal water regions of Saipan that are presently being exploited include the Isley-Kobler field area, Dandan immediately north of the airfield, and the Rapugau district lying west of Capital Hill.

The most important high level groundwater resource is found at Agag, lying on the east flank of Ogso Tagpochau. Other high level sources include Donney Spring and Tanapag springs.

A Summary of the quantity and quality of water pumped from each source is indicated in Table 1, it should be noted that this table does not include three wells recently developed, two in the Kobler Isley area and one in the Dandan region. These wells recently hooked into the system are pumping a combined rate of 160 gpm or approximately 200,000 gallons per day.

Although the water supply system comfortably produces an average of 2.2 mgd and at worst about 1.6 mgd toward the end of the dry season, still there appears to be a general water shortage. Yet less than 13,000 people live on Saipan, and if they consume at the luxury rate of 110 gpcd (gallon per capita per day) the average requirement would be 1.43 mgd, .75

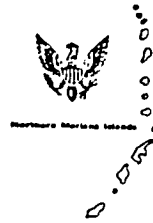
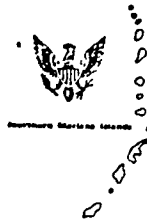


TABLE 1 SUMMARY
Saipan Water Sources
(averages)

		Pumpage, gpm		Chloride mg/l	Hardness mg/l	Solids mg/l
		Basal	High Level			
1.	Southern Region					
	a. Isley Well	9	70	200	280	600
		10	70	200	280	600
		11	70	300	300	850
	Maui	1	190	600	345	1,500
	Maui	1	270	600	345	1,500
	b. Dandan Well	7	28	800	500	1,800
	Total or wt. av.		698 (1 mgd)	478	400	1,260
2.	Hospital Well	H-3	47	400	400	1,100
3.	Northern Region					
	a. Rapugau Well	2	40	350	310	900
		3	50	350	310	900
		4	50	350	310	900
	Maui	4	55	350	310	900
	Maui	4	45	350	310	900
	Subtotal or wt. av.		240 (.34 mgd)	350	310	900
	b. Agag Well	45	120	30	275	350
		50	200	30	275	350
		75	80	30	275	350
	Subtotal or wt. av.		400	30	275	350
	c. Donney Spr.		210	30	275	350
	d. Tanapag Spr.		40	30	170	320
	Total or wt. av. (Northern System)		890 (1.27 mgd)	117	280	500
	Total (entire main system)		1,635 (2.34 mgd)			
4.	Kagman Well	78	35	75	320	460



mgd less than the average produced and about .4 mg less than the water produced during the dry season. The rate of 110 gpcd probably significantly exceeds actual usage on the island. In established middle class communities in Honolulu, where rainfall is less than 40 inches per year (one half that of Saipan), the houses are equipped with the complete range of water using amenities, and irrigated yards are the rule, the per capita consumption is only 115 gallons per day. The inescapable conclusion is that on Saipan water is being wasted, mostly through leakage in the distribution system but to some extent through careless behavior in the homes.

The standard of living on Saipan will undoubtedly continue to improve so that eventually a true per capita use of 110 gallons per day is expectable. A population of 35,000 people would require an average of 3.85 mgd and about 5.8 mgd for the maximum day. Thus it would be prudent to start planning immediately to bring capacity of the system to 5 mgd. Is there enough groundwater to supply this goal? There is no doubt that more than five times that quantity occurs as fresh water before mixing with the sea. Ordinary and innovative techniques should be able to intercept the required 5 mgd.

An achievable water mix should meet the standards of the Safe Water Drinking Act assuming similar standards as recently promulgated by the Trust Territory.

General recommendations for improving the water resource include:

- 1) Improve the Tanapag springs and Agag well fields.
- 2) At Rapugau well fields develop more basal water resources further inland and explore for parabasal waters.
- 3) Start a drilling exploration program for high level and parabasal water in limestone. The program should not be tied

to immediate plans for production.

4) Extend a transmission line to Chacha (Kagman) from San Vicente and develop additional well fields therein.

5) Initiate an inventory and data base program which will allow systematic analyses of the behavior of the water source over time.

Water Distribution

The existing water system in Saipan can be generally separated into five systems.

South System

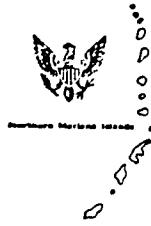
This large system supplies water to the villages along the West coast from Puntan Agingan to Oleai via 12", 14", 16" and other smaller distribution mains. Also included in this system are the areas of the Hospital, San Vicente Village and the Isley Airport. Water for the system is obtained from the Maui I, #9, #10, #11 wells in the Isley area, the Dandan well #7 and the Hospital Well #3. Water is stored for distribution in the Isley, San Vicente, Hospital water tower and Hospital reservoir.

Capitol Hill System

The Trust Territory facilities are supplied with water from Agag field wells Nos. 45, 50 & 75. Water is pumped to the 1 MG Capitol Hill Reservoir, Saipan's highest reservoir, at 890' elevation and transmitted by gravity via 6" and 10" line to the living quarters and facilities in the Headquarters area.

Navy Hill System

The residents of Navy Hill and the upper Garapan Heights are supplied with water from the Maui IV, Nos. 2, 3 and 4 wells. Water from the Donney and Tanapag Springs can also be blended into the main sources. The water is treated at the



Maui IV treatment plant and pumped to the Calhoun reservoir with a capacity of 500,000 gallons, situated at elevation 561 ft.

Central Coastal System

The coastal system supplies water to the villages from Oleai on the south to San Roque on the north. The sources of water for these villages are obtained from the same source as aforementioned for Navy Hill. However, the water is stored for distribution in the Puerto Rico reservoir which basically feeds the area along the west coast from Puerto Rico to Oleai. The water stored in the As Mahettog and Achugau reservoir generally serve the areas of Tanapag and San Roque.

Kagman System

This system is a separate system serving the Kagman areas lying on the eastern shoreline. The Kagman reservoir, located at 370' elevation has a capacity of 50,000 gallons and is supplied by good quality water from Well #76.

Assuming that 2.4 million gallons of water is produced daily and present day Saipan population of less than 13,000, the water consumption per capita for all uses would be 180 gallons per day. Consumption of water at this level is highly unlikely and indicates that leaks in the water transmission lines and lack of water conservation practices by citizens accounts for a good percentage of this loss. Previous studies have not been conclusive as it seems that both problems plague the system.

An effort to have all homes and commercial businesses metered was initiated and to date some 1,238 meters have been installed. Slightly more than 850 meters remain to be installed.

A cursory study and analysis of metered

residences indicated that consumption in metered homes during four selected months in 1976 and 1977 averaged 407 gallons per day. Assuming an average family size of 5 persons consumption is slightly over 80 gallons per person per day. Although it is not conclusive nor can it be until all homes and commercial establishments are metered and metered water consumption can be compared to production, it seems to indicate that much of the loss may be through either the main transmission line or the laterals.

Although a major study was conducted of the water system in 1968 and later in 1972 by Austin Smith and Associates the proposed master plan improvements have not been completed due to the lack of adequate funds. Patch up improvements have been initiated in Chalan Kanoa, Oleai, Susupe and San Antonio. Construction drawings are presently completed for San Roque, Tanapag and North and South Garapan. Five new areas are also under study and include Gualo Rai, Afetna, Fina Sisu, Chalan Kiya and Chalan Piao.

Recommendations

1) Individual metering of water services to all consumers appears to be effective and the program should be rapidly completed so that reasonable estimates of line loss can be made.

2) Planned improvements to the water distribution system as recommended in previous studies should be completed.

3) Fire protection is almost non-existent in many areas. Additional mains and increased storage by construction of new reservoirs and installation of more fire hydrants should be implemented.

4) An educational program should be implemented immediately to emphasize the scarcity of water and the cause of poor quality of water now and in the future.



Much water is lost through leaking faucets and badly maintained hose and pipe connections and indiscriminate water practices. Public education must be promoted to emphasize the importance of water conservation, the metering programs and citizens responsibility for proper maintenance of his home plumbing.

5) Water treatment plants at Isley and Maui IV have not been operated in the past or fully utilized by Public Works either because of a lack of trained personnel and the cost of chemicals necessary for plant operation. In the past this has not been a serious concern as most potable water is derived from catchment basins. As the water quality improves and an adequate supply is realized it may be necessary to re-evaluate the present policy of non-treatment.

Tinian Water Supply and Distribution

The domestic and agricultural (irrigation) water supply for the island of Tinian are utilizing the same water source but pumpage is occurring at different sites about 400 feet apart. The sites lie on the perimeter of Sisonyan Magpo, a fresh water marsh just slightly above sea level.

Domestic supply utilizes an infiltration gallery constructed by the military forces in 1944. Three pumps, two with an individual capacity of 180 gpm provide the water for the domestic system serving San Jose Village. Together the two pumps can handle approximately 290 gallons per minute. The third pump with a nameplate capacity of 325 gpm provides water to the MDC Ranch.

Water for the village system is pumped to a 87,000 gallon tank near Marpo where the water is then transmitted to the village in an 8 inch main line. In the village the line divides into 3 four inch

mains serving the village. These lines are all deadend and are not presently looped. The construction of laterals has been haphazard with families hooking into neighbors lines. Water pressure in many areas is said to be low most likely resulting from the haphazard lateral hook-ups.

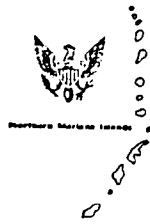
Irrigation water is presently being supplied from a dug well (Large Marpo Well) which was built before World War II by the Japanese. The dug well is equipped with a 1,000 gpm pump that is used periodically to supply water to approximately 100 acres of cropland. A 12 inch irrigation pipeline serves the farmland area. The desire is to construct additional pipeline and a reservoir to improve and irrigate additional cropland.

There are no immediate water source problems facing Tinian but it should be cautioned that the unusually productive Marpo site has limits which should be established before domestic and irrigation needs outpace sustainable yield. The following improvements are suggested for the Tinian Water Supply.

1) A study to determine the sustainable yield of the aquifer should be conducted to assess the capability of the well field to provide additional irrigation waters. Records on Water Quality should also be kept.

2) The Village of San Jose should be provided with a water reservoir to provide both adequate pressure and water supply during emergencies when water transmission lines and electrical power service is disrupted. Site should be located as near as possible to the central area of the distribution system. A one million gallon tank would provide emergency water for 5 days supply at the present consumption rate.

3) The present 4 inch lines serving the village should be looped so that a



proper hoop up of laterals can be implemented. A new 4 inch line will be required to serve the proposed MIHA subdivision.

4) Installation of water meters at all residences and commercial establishments.

5) A new chlorinator needs to be installed.

Rota Water Supply and Distribution

Presently Rota's water caves provide sufficient quantities and excellent quality of water to meet present or projected water requirements for potable water. Whether or not the present water sources will be capable of providing for the requirements of both potable water and irrigation water will depend on future population growth and consumption practices of the people. The present desire of the people is to increase the crop land area under irrigation. What must be realized is that both the potable water system and the present irrigation system rely heavily on the same water source, Matanhanon water cave.

Only limited flow measurements of the spring have been taken and suggest the following flow parameters.

Mean Daily Flow 1.85 mgd (1280 gpm)

Absolute Maximum 5.39 mgd (3740 gpm)

Minimum Daily Flow .50 mgd (350 gpm)

The Matanhanon spring adequately supplies the village of Songsong at this time, but its low flow could satisfy no more than 5,000 people at a per capita consumption of 100 gallons per day.

At the present time the people of Rota are not paying for their water consumption and also no visible evidence of water conservation is practiced. Although the present system accepts as much as .48 million gallons daily it is doubtful that more than 150,000 gallons daily is being consumed. Thus with improvements to the

physical distribution system, the main water line from the cave, coupled with improved water conservation practices, additional water could be made available for irrigation usage and an irrigation reservoir.

Suggested improvements to the water supply system include

1) Construction of a 1.5 million gallon reservoir which would provide emergency water to the present village population for 12 to 15 days and with increase of the village population to 3,000 persons would still provide emergency water supply for five (5) days. The 1972 HA&E masterplan suggested an elevation of 107 meters. Our study indicates that the elevation of the tank should be somewhere between 65 and 75 meters in order to reduce the static pressure in the distribution lines and laterals.

2) Completion of and tying in of the distribution system which is presently emplaced in Songsong (presently funded for \$50,000 in 1978) will help to reduce water loss.

3) Construction of a new transmission water line from the Water Cave to the village.

4) Installation of water meters at all residences and commercial establishments and in some instances pressure regulators.

5) Installation of a new chlorinator.

6) Installation of a water gauging station at the main water cave. (The previous station of U.S.G.S. has been removed).