

BUREAU OF PLANNING
GOVERNMENT OF GUAM
P.O. BOX 2950
AGANA, GUAM 96910

A REPORT ON THE LAND USE CONDITIONS
AND LAND PROBLEMS ON GUAM

By: Robert K. Coote
Bureau of Land Management
August 1950

2-40.102

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LAND-USE CONDITIONS AND LAND PROBLEMS ON GUAM

By Robert E. Coote
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U. S. Department of the Interior

August 1950

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Pacific Division
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Dept. of Interior
Dec. 1, 1950

UNITED STATES
DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Washington 25, D. C.

August 14, 1950

Hon. Carlton Skinner
Governor of Guam
Agana, Guam, M. I.

My dear Governor Skinner:

Herewith is a report on the Land-Use Conditions and Land Problems on Guam. In it I have endeavored to summarize land use on Guam, past and present, to consider those factors bearing on future land utilization, to determine the problems underlying land use and development, and to suggest a program looking toward a solution of those problems.

Because of the limited time available for the actual field work, the paucity of reliable data, and the fluidity of the land situation, it has not been possible to work out the program in all necessary detail. However, it is hoped that in recognizing and isolating the problems and setting forth the broader aspects of a program to meet those problems, there has been provided a basis for the formulation of the required detailed procedures by the administrative staff as time and circumstances will allow.

Sincerely yours,

Robert K. Coote
Assistant Chief
Division of Land Planning

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FOREWORD

This study, made at the request of Governor Carlton Skinner, was undertaken to determine the problems underlying the current land situation on Guam and to formulate a program looking toward their solution. The field work was performed from June 9 to July 11, 1950, during which time various field examinations of most of the Island were made, both from the ground and from the air, and many records and other source material were examined. Interviews were had with numerous Government and Navy officials as well as with other residents conversant with the land situation, all of whom gave generous assistance.

Between the beginning of the study and the completion of the manuscript several significant events have taken place. The war in Korea has no doubt brought about some reversal of the trend which saw Guam reverting gradually to a peacetime economy. On August 1, by Executive Order, the administration of civil government passed from the Navy Department to the Department of the Interior, and on August 2 the President signed the Organic Act granting to Guamanians United States citizenship, a bill of rights, and local powers of self-government.

The military situation may intensify the current land problems and delay their solution. At the same time, under local powers of self-government granted by the Organic Act, the Guamanians may be expected to facilitate their solution.

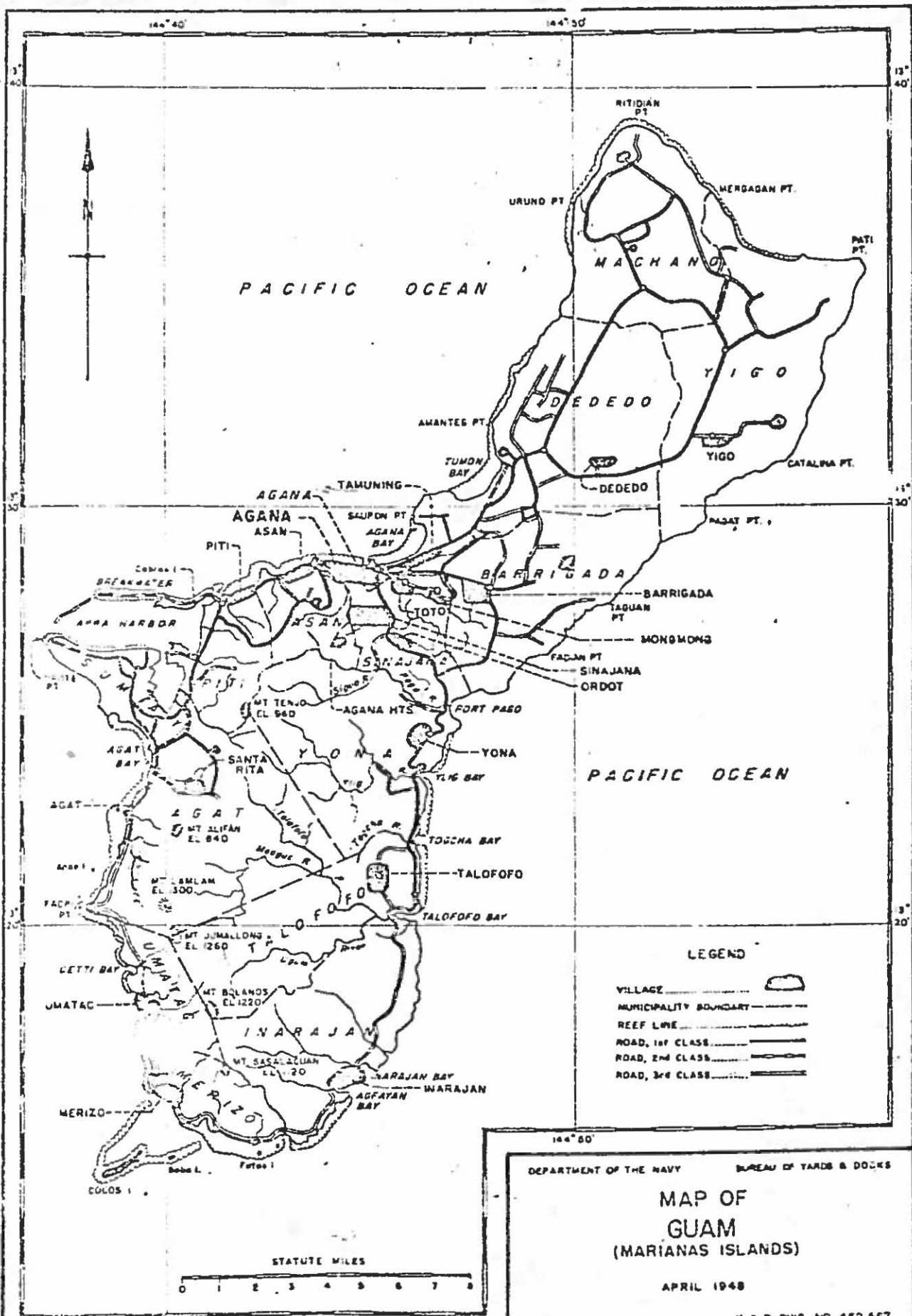
Robert K. Coote

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LAND-USE CONDITIONS AND LAND PROBLEMS ON GUAM

Introduction

Guam, the southernmost of the Marianas Islands, lies some 14 degrees north of the Equator, about 5,100 miles west of San Francisco, and 1,350 miles east of Yokohama. It is about 30 miles long, constricted in the center to a width of about 4 miles, with the southern and northern parts broadening out to a maximum width of about $8\frac{1}{2}$ miles. The northern part is mostly a level plateau with a general elevation of about 500 feet. The southern part, while quite mountainous, includes large areas of savanna or grasslands and more limited areas of arable lands along the coasts and in the river valleys. The total area of the Island is about 225 square miles, or 144,000 acres.

Guam has a pleasant tropical climate. Temperatures range from 70 to 90 degrees, being fairly even throughout the year. Average annual rainfall is about 87 inches, three-fourths of which falls during the wet season starting in June and lasting through November. Humidity is high during the rainy season. Destructive typhoons are infrequent.

The population of Guam in 1940 was 22,290 divided among 15 municipalities. Preliminary estimates for 1950 indicate a population of 58,754, which includes a high percentage of non-natives temporarily on Guam for military and construction purposes.

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Population by Municipalities

	<u>1940</u>	<u>1950</u>
Agana	10,004	791
Agat	1,068	4,654
Asan	656	3,093
Barrigada	875	11,532
Dededo	1,196	6,333
Inarajan	1,076	1,494
Machanao	275	684
Merizo	866	1,085
Piti	1,175	1,892
Sinajana	1,236	9,159
Sumay	1,997	6,131
Talofofo	456	914
Umatac	430	580
Yigo	324	9,026
Yona	<u>656</u>	<u>1,386</u>
Total	22,290	58,754

As a result largely of war needs, Guam has a modern harbor, some 80 miles of two-, three-, and four-lane hard-surfaced highways plus about 65 miles of improved secondary roads, a telephone system, electrical power plants (diesel), water and sanitary systems, and other modern public utilities. Educational, medical, and public safety facilities are being developed. There has been a substantial expansion of retail trade and service enterprises.

Changes in land pattern.—World War II brought about major changes in the land pattern of Guam. Occupied by the Japanese in 1941 and reoccupied by the armed forces of the United States in July 1944, the capital city of Agana and many of the villages were destroyed. As the Island was turned into a major military base for the prosecution of the war in the Pacific, a large part of the land area was taken over for military purposes. Farm lands were turned into airfields; villages which escaped destruction during the actual fighting, were moved elsewhere. Except for the south portion of the Island, which remained virtually unchanged, the whole land utilization pattern was subjected to a rapid and drastic alteration. Most of the resulting problems of land use and land ownership are attributable directly or indirectly to the war. Some, no doubt, would exist irrespective of the war but they have been made acute by wartime activity. If left unresolved they could effectively circumscribe and retard Guam's economic growth, now in a transition period, and could impede the successful functioning of civil government.

Problems.--One of the major problems stems from the loss of land and improvements suffered by Guamanian people during the occupation by the Japanese, the reoccupation by United States forces, and the post-reoccupation development of a large military base. During the Japanese occupation the Guamanians lost little land but did suffer considerable destruction of their homes. The American reoccupation, including the pre-occupation bombardment, resulted in the almost complete destruction of the capital city of Agana and some coastal villages including Piti, Sumay, and Agat in which lived over two-thirds of the Guamanian population. Following the reoccupation of the Island, a large military base for further action against Japan was rushed to completion. From less than 1,000 service personnel in 1940 the military establishment grew to more than 30,000. This required the taking for military purposes of almost the entire north part of the Island together with other scattered areas elsewhere. Land takings have continued to date, resulting in uncertainty among many of the Guamanians as to whether they will be left in possession of their land.

It has been difficult or impossible to identify land ownership. Prewar land records were not of the best. During the war many of these records were lost or destroyed. Confusion as to ownerships operates against a normal land utilization. This confusion is intensified by a deficiency of adequate surveys and maps.

Primarily because of the difficulties of land identification, not all owners have as yet been fully compensated for lands taken through condemnation proceedings. While funds have been deposited with the Court to compensate for such takings, inability to identify the land owners either by reason of lack of records or lack of surveys has made distribution of the funds impossible. As a consequence, many owners have lost their land or portions of their land but have been unable to secure cash settlement or to secure other land in exchange.

The disruption of agriculture poses another serious problem. A considerable acreage of good agricultural land has been taken for military use. Most will remain within military reserves. Much of that which may be returned to private ownership has been rendered unfit for crop production. The loss of this agricultural land has necessitated the use of poorer land in its stead or has forced the former operators to abandon farming and accept wage employment. Agriculture has also been plagued with the loss of implements and farm buildings as a direct result of wartime activity. Also, during the war there was a substantial reduction in poultry and livestock numbers and a loss of fruit trees. Agriculture has also been disadvantaged through the cancellation and suspension of leases of government land for agricultural purposes. These lands are now used under short-term permits, a very unsatisfactory method of land tenure.

There has been serious depletion of the physical land resources through uncontrolled and accelerated erosion. No steps have been taken since the war to improve pasture lands.

A peculiar deterrent to postwar land development has been the singular attachment which Guamanians have for their land and a reluctance to part with land even at an attractive price.

All these aspects of the land situation combine to make an administrative problem of the first magnitude. The accumulation of land matters requiring immediate attention severely strains all branches of the Civilian Government dealing with land. Whereas, in the normal course of events it would be necessary to process few condemnation suits annually, there is now a backlog of condemnation proceedings. Whereas, normally the expansion of government facilities such as schools, fire stations, water and sewer, power, roads, and the like could be projected from year to year, the accumulated need for these facilities requires that they be furnished now. The same is true of the need for surveying and mapping, for the rehabilitation of agriculture, for soil conservation, for land recordation. All represent an abnormal accumulation of work out of all proportion to that which normally would be expected within a land area the size of Guam.

Estimates of land requirements.—With the economy of the Island in a transition period, realistic estimates of land requirements are difficult. The two major demands on the land area of the Island will come from the Military and from agriculture. Other uses such as for residential, business and industry, municipal, and possibly for recreation, will require varying amounts of land but in acreage terms the requirements will be relatively small compared to the two major uses.

Before the outbreak of hostilities in Korea it appeared that the requirements of the Military had been largely satisfied. The trend had been toward returning some lands to private ownership. At this writing it is too early to predict what effect the deteriorating world situation will have on future military requirements. As of June 1950 the breakdown of the lands on Guam as between the Military, the

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Government of Guam, and lands in private ownership was approximately as follows:

LAND TENURE - GUAM - 1950

(Estimated in Acres)

Military Lands^{1/}

Permanent holdings	43,341		
Temporary holdings	<u>5,787</u>	49,128	34%

Government of Guam Lands

Government sites for schools, police stations, roads, etc. (leasehold)	815		
Public lands	<u>29,603^{2/3/}</u>	30,418	21%

Private Lands

Urban	2,600		
Rural	<u>61,854</u>	<u>64,454</u>	<u>45%</u>

TOTAL		144,000	100%
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^{1/} Used by or reserved in fee or easement.

^{2/} Mainly public domain but including lands acquired through non-payment of taxes and by purchase.

^{3/} Part of the public domain may be claimed as private lands. No determination possible until completion of surveys.

Undoubtedly there will be additional land required for urban development as the population grows. A doubling of the area now included within the cities and villages would amount only to slightly more than 5,000 acres.

Commerce and industry may well utilize increasing amounts of land in the near future. Guam occupies a strategic position in the Pacific, being on the main trade routes serviced by shipping and airlines. With unsettled conditions prevailing to the West there exists a distinct possibility that industrial and commercial enterprises will find Guam attractive as a stable area from which to conduct business. Already there is a great deal of interest being shown and at least preliminary investigations are underway by industry looking into the possibilities for the establishment of such diverse enterprises as hotels, beverage plants, coconut desiccating plants, fish processing, furniture manufacturing, and auto assembly plants. One or more of these seems to be assured if sites can be found on Guam for their establishment. In the aggregate, however, prospective industrial and commercial enterprises will require relatively small amounts of land.

Agriculture is still the most important civilian land use on the Island both in terms of acreage and in its direct and indirect influence on the life of the Guamanians. It is generally considered that there is a shortage of agricultural land. Evidence of this lies in the fact that some 200 applications are now pending under the rehabilitation program for farm tracts. On the other hand, with jobs plentiful and wages high there is a general reluctance to return to agriculture as the sole source of livelihood. There are now about 600 part-time farmers. Several factors have a bearing on future agricultural land use. Prior to the war the production of adapted crops, poultry and livestock was adequate to meet the local demand. Production could be increased several-fold without exceeding present local demand. However, this does not mean necessarily that additional acreage would be required. Prewar agriculture was largely performed with hand labor and there was an absence of modern agricultural machinery and methods. With proper machinery, larger-scale enterprises and better techniques, the level of production could no doubt be increased without using additional acreage. At the same time, there is a tendency to use increasing amounts of imported foodstuffs of all kinds. Prior to the war there was a substantial production of rice, an important item in the Guamanian diet. No rice is now grown. For many years copra was produced for export and constituted the chief cash crop. The export of copra gradually declined until in 1940 less than 100 tons were exported, although the potential production was around 3,000 tons. No copra has been exported since the war. However, with the price of copra now at an attractive level any material decrease in job opportunity might well result in the resumption of export trade in copra. There is also the possibility of local consumption for the manufacture of desiccated coconut, coconut oil or soap.

In addition, there are a number of tropical crops which seem to be adapted to production for export. Finally, the numbers of poultry and livestock could well be increased since the demand for eggs, fowl, beef, and pork far exceeds the present supplies.

Postwar Rehabilitation

With the ending of hostilities and the creation of a major military base many Guamanians found themselves without housing and without land upon which they might rebuild. The entire city of Agana, in which lived some 10,000 people before the war, was totally destroyed as were the villages of Agat, Sumay, Piti, and Asan. Others had to vacate their homes to allow for military construction.

As an initial step toward the rehabilitation of the native population, the Naval Government set up temporary housing units to which the people moved. Then the Congress of the United States enacted several laws for the relief of those Guamanians who had suffered loss or injury as the result of the war.

Public Law 224 of the 79th Congress, the Meritorious Claims Act, authorized the payment of claims for personal and real property loss or damage and for injury and death. The adjudication of claims under Public Law 224 was assigned to a Land and Claims Commission appointed by the Secretary of the Navy. It is reported that as of June 30, 1950, settlement of claims under this Act has been virtually completed.

Public Law 225 of the 79th Congress as passed November 15, 1945, the Land Transfer Act, authorized the transfer of lands owned by the United States to the Naval Government of Guam for sale to residents of Guam for their rehabilitation and resettlement. The Land and Claims Commission handled the land transfer work for the Navy and a Land Transfer Board was created to handle the work for the Naval Government. The Land Transfer Board is now comprised entirely of civilian employees of the Naval Government of Guam.

In carrying out Public Law 225, it was necessary to acquire by condemnation proceedings privately owned lands, to survey and subdivide these areas, and to sell the lots to displaced persons among the Guamanian people. This program, as far as it relates to village lots, is better than 75 percent completed. The following list shows

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the number of government-owned lots which have been made available by subdivision and either sold or are in the process of being sold to Guamanians under the provisions of Public Law 225:

<u>Villages</u>	<u>Lots</u>
City of Agaña	113
Asan Village	103
Barrigada Village	273
Dededo Village	188
Piti Village	60
Santa Rita	148
Sinajana	439
Talofofo	150
Yona	194
Total	1,668

In addition to the applications for village lots there are now pending approximately 200 applications for rural tracts. None of these have been acted upon nor is any program now underway to make rural tracts available.

The funds used for this program were a portion of those authorized and appropriated by Public Laws 301 and 594 of the 79th Congress.

The work of the Land and Claims Commission, pursuant to Public Law 225, was performed under a set of rules and regulations issued by the Naval Governor of Guam on May 6, 1946, as approved by the Secretary of the Navy. Supplemental regulations were issued by the Naval Governor in January 1948. These regulations provided that lands were to be sold or otherwise transferred to residents of Guam who were dispossessed of their land by expropriation by the United States; the price of the land was to be the fair market value as determined by one or more qualified appraisers; the Commission could decline to sell if the sale would not contribute to the purpose of the Act; moneys due from sales were to be paid by the purchasers direct to the Bank of Guam for deposit to the account of the "Naval Government of Guam (Land Transfer Account)"; deeds were to be issued in the name of the Naval Government of Guam by any member of the Commission authorized to execute such deeds by the senior member of the Commission.

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In addition to the foregoing regulations, or by interpretation thereof, the Commission promulgated informal rulings from time to time. For example, sales of lots were restricted to married persons or those with dependents. Procedures varied from village to village, with the residents of the several villages having a voice as to the procedures for the particular village. In some instances controversial cases were debated in the village meetings and action taken by the Commission in line with the desires of the villagers.

The bulk of the village lots or tracts were sold at the cost of acquisition. To arrive at this price the area of the taking was subdivided and the value of each lot was set as its proportionate part of the cost of the taking. Accordingly, most lots sold at very low prices which may not have been the fair market value of the tract at the time of sale. However, the procedure seems to have been in keeping with the intent of the Land Transfer Act.

The moneys paid to the Bank of Guam for government land and government houses are now on deposit with the Bank of Guam, recently sold to the Bank of America. Whether these funds can be used by the Government of Guam for continuation of the land transfer program has not been decided.

As to continuing the land transfer program under authority of Public Law 225, the Judge Advocate General of the Navy has held that the Government of Guam can take over those functions formerly carried out by the Naval Government of Guam. The Government of Guam has not yet taken this same position.

Land for Military Use

Prior to World War II the military establishment on Guam was small, consisting almost entirely of the Naval Station which was staffed by less than 1,000 transient personnel. Including the lands actually used by the Naval Government for civil functions, only a relatively small amount of land was required for military purposes.

After the reoccupation of Guam by United States forces in July 1944, the military establishment rapidly increased many-fold. Installations of all kinds were rushed to completion by all arms of the services. Of necessity, whatever lands were required, both public and private, were taken by the Military subject to future compensation with little regard for ownership. As a result of these takings, large segments of the Guam population were displaced, villages which had survived the reoccupation were moved, and farm lands were converted to airfields, camps, warehousing and storage areas, and to other military uses.

As of June 30, 1950, the land owned by or leased by and reserved for the armed forces amounted to 49,128 acres, about 34 percent of the total area of the Island. This acreage is made up as follows:

Private lands acquired or to be acquired	24,278 Acres
Government lands owned prior to World War II	17,485 "
Lands reclaimed by dredging	<u>1,578</u> "
Total	43,341 "

In addition, the following lands are to be retained by the armed forces for an indefinite period:

Private land under leasehold	4,352 Acres
Government land	<u>1,435</u> "
Total	5,787 "

This drastic program of land conversion to military use has affected and will continue to affect the lives of the Guamanian people. It has created a shortage of land which in turn has caused rapidly increasing land values; it has removed a considerable acreage of agricultural land from a predominantly agricultural economy; it has caused widespread displacement of the population as is evidenced by the respective census figures for 1940 and 1950. Surprisingly enough, however, there was found little tendency on the part of the Guamanians to question those takings which were necessary for the prosecution of the war and for the maintenance of an adequate military establishment subsequent to the war. Even those Guamanians who have suffered most from the military land acquisition program have not objected to the takings when the need has been demonstrated. However, from a layman's point of view, there seems to be some evidence that not all the area taken has been actually required and that, in some instances, other lands could have been substituted. There is a feeling that under the guise of military necessity there have been some unwarranted land takings.

Irrespective of what has already transpired, it is quite probable that Guamanians could adjust in time to the present pattern of military land holdings. However, this pattern continues to change. From time to time some military lands are found to be no longer needed for military use and are returned to their former owner. In many cases they have been so altered that they are no longer adapted to their original use, such as for farming. Guamanians are faced with the problem as to just what to do with these lands. At the same time additional farm lands are still being taken for military use. A case in point is the current acquisition of an area in the Municipality of Barrigada for a radio station. This area of good agricultural land

is being farmed by some 100 families, plus an additional 50 families residing in the area. It will be necessary for these families to move. Not only will they have to find a new place to live but additional cropland will be lost. At the same time, other non-agricultural land, equally suitable for radio facilities, which could be used for that purpose without any material disturbance of the local residents is available. No doubt, in some instances a real need for a particular location makes necessary additional takings. However, it would appear that there is now sufficient land owned or controlled by the Military to make additional takings unwarranted except in those cases where, because of especial adaptability, there is no reasonable alternative.

There has been considerable criticism of the settlement of land claims arising from military takings. Compensation has been slow in many cases and where settlements have been offered there has been some dissatisfaction with the amounts awarded. There has been considerable delay in settling claims. Much of this delay, however, has been unavoidable. Funds have been deposited with the Court to cover the estimated value of the several takings. However, because of the lack of land records and surveys it has been impossible to establish all prior ownerships. Until that is done it will be impossible to settle all claims. The establishment of ownerships will necessitate a survey, mapping, and land recordation program of considerable magnitude.

As to the dissatisfaction with the amounts awarded where ownerships were known, this appears to have been caused mainly by a misunderstanding or unawareness of the basis for establishing the awards. As far as can be determined, the value of the lands was established by competent appraisers employed by the Navy, who used standard appraisal methods to arrive at a fair market value for the land at the date of the taking. Most of the land taken was, at the date of the taking, inaccessible and of relatively low value. As a result of military development some of these lands are now within built-up areas, fronting on paved roads, and are now worth many times what they were in their original condition. The subsequent increase in value has been largely the result of the improved conditions created by the Military.

Perhaps the most severe criticism that can be leveled at the whole land acquisition program is that the Guamanian people were given very little information about what was proposed or why it was done or how it was being done. It is quite probable that had they been better informed there would have been much greater cooperation and less criticism of the program.

Land for Agriculture and Forestry

Guam has three general types of agricultural land. The area best suited to general crops is very limited, consisting of level coastal and valley areas. In these areas the soil is a heavy clay type of good depth. Some of the shallow limestone soils which occur generally in the north half of the Island have a more limited usefulness for agriculture. A large area of rolling grassland in the southern part of the Island is suitable for grazing. There has been no detailed soil surveys on Guam. However, it is estimated that the area suitable for row crops probably does not exceed 3,000 acres. The area of shallow limestone soils and of grazing lands is, of course, much more extensive.

Just prior to World War II it is estimated that there were between 15,000 and 17,000 acres under some form of cultivation. Approximately 2,500 acres were planted to general crops such as corn, rice, cassava, arrowroot, taro, yams, and vegetables including beans, melons, tomatoes and pumpkins. From 12,000 to 13,000 acres were planted in coconut trees. Many of these were on the shallow limestone soil areas of the northern plateau. There were other scattered plantings of a variety of fruits including breadfruit, mangoes, papayas, avocados, bananas, lemons and oranges, and pineapples. Some 1,500 head of cattle were pastured on the extensive grasslands.

At that date approximately 2,450 families derived their living chiefly from farming. This was mainly in the form of produce realised for their own consumption or for exchange among themselves, since very little agricultural produce actually went to market. There was little mechanized farming since agriculture was practiced on a small, family-farm basis.

During the war farms were drained of manpower; tools and implements were lost or destroyed. There were extensive poultry and livestock losses, and much of the agricultural land was unattended. Since the war, agriculture on Guam has made a slow but steady and substantial recovery. During 1949, more than 1,700 acres were planted by nearly 600 full-time farmers and nearly 700 part-time farmers. Substantial increase has also been achieved in the numbers of poultry and livestock, although their numbers are still well below prewar levels. The replacing of fruit trees destroyed during the war or during the hurricane of November 1949 will be a much slower process. There have been increasing supplies of seeds, tools, and equipment available. There have also been importations of breeding cattle and of feeder pigs and breeding hogs. An incubation project has made available baby chicks for distribution.

The agricultural future of Guam depends both on marketing and production factors, few of which can be appraised accurately at this time. It is difficult to say whether marketing or production poses the greater problem. True, present agricultural production falls far short of meeting local demands for fresh fruits and vegetables, for poultry and feed. In the immediate future, then, it would appear the problems of agriculture are largely those of production. However, in order to facilitate the movement of agricultural produce from the producer to the consumer it will be necessary to provide much better facilities for the processing, storage, and distribution of this produce than now exist. The mere fact that local demand exceeds local supply does not mean therefore that this whole market can be secured for locally grown produce with current marketing facilities. Aside from the lack of marketing facilities there is also the changing pattern of consumer preference to be considered. Processed foods from Stateside have become an increasingly large part of the diet. However, should there be any interruption to shipping or a decrease in the amount of shipping space available for the importation of food to the civilian population, the demand for local produce would rise sharply.

In addition to the products of agriculture which can be marketed locally there are those which might be produced for export. For many years before the last war copra was the leading cash crop. However, because of low prices and low yields exports of copra decreased from around 2,500 tons in 1936 to about 1,650 tons in 1940. Less than 100 tons were exported in 1941 and no copra has been exported since the war. With the current price for copra in San Francisco at around \$175 a ton, copra production for export would again be an attractive venture if labor were available. There is also the possibility of a favorable market being created for desiccated coconut, fresh whole nuts, and other products of the coconut tree. With a substantial part of the arable land on Guam devoted to coconut tree plantings, use of coconut products is very important in the agricultural economy of Guam. Other adapted crops offer possibilities for export if markets are developed. One of the more interesting of these is cacao which it is believed can be produced commercially on Guam.

As to production factors, while those dealing with the physical aspects of agriculture, mainly land, are difficult to define precisely, those dealing with management or farming practices are even less susceptible to definite appraisal. Agriculture on Guam has been more of a way of life than a commercial enterprise. The majority of the farm tracts and plantings were small, with all the work being done by the family. There was little use of agricultural machinery; most of the work being performed by hand labor with hand

tools. There was little use of fertilizers or of insecticides and fungicides although these were often required. Harvesting was accomplished by hand. Livestock were produced mainly on the individual farms. Stock were generally small and suffered from ticks and other diseases and pests, control of which was not generally practiced. Poultry and swine were chiefly from native scrub or mongrel stock.

While there has been considerable improvement since the war, there is still room for substantial production increases through better agricultural methods, the use of fertilizers, insecticides and fungicides, and the improvement of livestock and poultry without increasing the area under cultivation. If the present trend continues this can be expected within the next few years. At the same time, additional lands are being brought under cultivation. What the ultimate acreage of land on Guam capable of agricultural production will be has not been estimated. There has been no scientific soil survey or land classification of the Island. It is known, however, that not all the land suitable for cultivation is being farmed. As far as can be determined without some kind of a technical inventory the potential areas of additional cropland are scattered widely and are in the main of small size. Probably the bulk of this acreage would represent an expansion of presently cultivated areas. Possibly a substantial additional acreage for cultivated crops could be brought into production through the inter-planting of coconut groves with seasonal vegetable crops such as corn, feed grains and root crops, or used for pasture. The main difficulty here would be lack of adequate moisture since the lands used for coconut plantings are mainly those with the light limestone soils which are inclined to be droughty. Some of the lowland areas could, no doubt, be reclaimed by drainage and by the supplying of supplemental irrigation during the dry season. Much of the land formerly used for rice production now lies fallow.

The grazing lands located mainly in the southern part of the Island are far below maximum carrying capacity. These lands in general are rolling to rough, comprising the eastern slopes of a series of small mountains which reach a maximum elevation of 1,335 feet. This is an area of thin, light volcanic soils which have been severely eroded. The native grasses consist predominantly of sword grass (*Miscanthus japonicus*) which is very low in forage value. It is estimated that the approximately 1,500 head of cattle now grazed on these grasslands could be increased to somewhere between 5,000 and 10,000 head. This, however, would require a planting of other forage grasses and shrubs for additional feed and for stabilization of the soil and the providing of additional stock water facilities. A very rough breakdown of the rural non-military land on Guam would show about 3,000 acres suitable for row crops, 15,000 acres for coconuts and seasonal inter-tilling, 50,000 acres of pasture land, and 23,000 acres of forest and wasteland.

A soil conservation and general land rehabilitation program is badly needed to control erosion and to increase the carrying capacity of the pasture lands. There has been some experimentation with various varieties of plants looking toward erosion control. Test plantings were made of a variety of grasses, of some species of vines, and of *lucaena glauca*, a legume locally called tangantangan. While all plantings made fair growth through the rainy season, only the *lucaena glauca* and the molasses grass survived in a vigorous state. *Lucaena glauca* has now been extensively planted on the Island as an erosion control measure.

Forest lands.—During the war what remained of the Guam forests were practically destroyed. While never extensive during modern times, the forests were of some economic importance as a source of lumber and firewood and of even greater importance for the watershed protection which they afforded. As late as 1926, Guam forests produced more than 38,000 board feet of timber from government lands and nearly 47,000 board feet from private lands. Two public forest reserves were maintained by the Naval Government on which yearly plantings of adapted species were made.

The timber species which occur most frequently on Guam are Faia and the two forms of breadfruit tree (*Artocarpus communis*), locally called dugdug and lemai. Faia has properties similar to red oak. It is hard and strong but of only medium durability. Lumber from the breadfruit tree is moderately hard and of only medium durability. Ifil (*Intsia bijuga*) is the most desirable local species, being hard, dense, and extremely durable. However, it has been intensively cut for years and only scattered, inferior specimens are left. Other species such as Yoga, a soft, brash, non-durable wood; Angao, an inferior member of the teak family, and other species of uncommon occurrence make up the scattered timber on Guam.

A Guam statute designed for the perpetuation of the timber resources requires that permits be secured before any timber is cut, whether on public or private land; provides for minimum diameters by species to be cut; requires the licensee to plant at least double the number of trees of the same species as he desires to cut; and provides regulations for removal of the timber, prevention of fire and the like.

It is improbable that any large acreage on Guam will be devoted exclusively to forests. However, there is a pressing need for reforestation in scattered areas, particularly in those areas tributary to the Island's water supply.

Land for Industry and Commerce

During the past decade Guam has undergone significant changes in its economic and social structure. As a result, the framework has been laid for a material expansion of industry and commerce on the Island. Once remote and relatively inaccessible, Guam has taken on importance as a main way-station on the sea and air routes of the whole Pacific area. A modern harbor now allows dockside transfer of freight and passengers in contrast to the old system of lightering from ships anchored off shore. Modern airfields are used by commercial airlines providing regular and frequent service. Modern communications link Guam with the world. Locally, the population has more than doubled the prewar figures. There is employment not only for all Guamanians able to work but also for some 20,000 imported laborers. To keep pace with the growth of population and the growth of payroll there has been an expansion of retail business and of the various service industries.

Before the war business was located mainly in the capital city of Agana. Reconstruction of Agana, destroyed during the war, has lagged behind commercial development, with the result that a new business has located elsewhere. Just north of Agana in the town of Tamuning this development is taking place on both sides of the new Marine Highway. For the present, Tamuning seems destined to be the trading center of the Island. South of Agana, between Agana and Apra Harbor, there is considerable new development along the Marine Drive, particularly in the town of Piti. This, however, consists largely of amusement enterprises. Some commercial development is springing up east of Agana on Route 4. At the same time, Agana itself has an impressive list of establishments, stores, cafes, service stations and supply houses in addition to the government buildings. Land values, especially for the better business locations, have increased several-fold over prewar levels. However, the land values do not appear to have been a major deterrent to the establishment of business. Lack of facilities—power, water and sanitary—will plague business development for some time to come. In the main, however, there are adequate lands available for estimated business and commercial requirements.

Of equal or perhaps greater significance to the Island's economy is the possibility that new industrial enterprises will be located on Guam by off-Island interests. With world conditions creating a state of uncertainty over much of the Orient in the Philippine Islands, Guam is becoming increasingly attractive as a place from which to do business. It has the stability which comes from being under the American Flag; it has excellent transportation and communications facilities. These advantages have attracted the attention of a number of prospective enterprises. Among the types of enterprises now being considered for location on Guam are hotels,

beverage plants, coconut desiccating plants, fish and fish processing, furniture manufacture and assembly, petroleum storage and distribution, auto assembly, construction, and communications. Some of these projects have advanced to the point where construction would start within the next few months if sites were available. Site requirements range from a city lot to upwards of 20 acres. Some of the sites must be located near harbor facilities, which means that they must be located at Apra Harbor. Others require locations on an arterial highway near the maximum concentration of highway traffic. This would mean a location along the Marine Drive somewhere between Apra Harbor north through Agana and Tamuning.

A preliminary, and far from precise, estimate of the near-future requirements for prospective new industrial and non-retail commercial enterprises which might be located on Guam is as follows:

Apra Harbor area	12 Acres
Tamuning Bay vicinity	20 "
Agana and Marine Drive (Piti through Tamuning)	<u>18</u> "
Total	50 "

With the exception of the small area now used for the commercial port, all land surrounding Apra Harbor is controlled by the Navy. Any material expansion of industrial or commercial enterprises at Apra Harbor will require the release of additional land to civilian jurisdiction. Elsewhere there appears to be sufficient vacant land of a suitable character to more than meet these prospective near-future requirements for industrial and non-retail commercial lands. However, there is a reluctance on the part of the Guamanian people to sell any land, a reluctance which is so deep-seated that it may be very difficult to overcome. The Guamanian people are also reluctant to negotiate leaseholds for a sufficiently long period to enable the industry to write off the required capital investment. There is also some evidence that local businessmen will resist the intrusion of outside or off-Island capital.

There exists the possibility for production and manufacture of native products for local consumption and for export. For instance, it is believed feasible to produce cacao on a commercial scale. Preliminary investigation indicates that for a commercial cacao operation 70 acres would be required for the initial planting, 20 acres of which would be for nursery stock and 50 acres for producing stock. To date there is no definite program for establishing this enterprise. The large area devoted to coconut trees on Guam gives interest to certain proposals dealing with coconut products.

Prior to the war copra was the main export commodity. Many of the coconut trees have been destroyed or damaged to the point that commercial production of copra on anything like the prewar scale will require new plantings on areas not heretofore devoted to the purpose. The present price for copra is quite favorable. However, there is a lack of labor which must be overcome before the commercial production of copra will again be possible. Other coconut products, however, such as desiccated coconut, might be processed locally. There were three factories making soap from copra, of which one is still in operation. Before the war an effort was made to stimulate the weaving of articles from Agaga, the Pandanus palm. A tile factory was not too successful because of a reportedly inferior product.

Land Administration

The problems of land administration confronting the Guam Government have multiplied during the postwar period out of all proportion to the area involved. Several factors have contributed to this situation. First, the Government must deal with land administration at all levels—city, county, state and even federal. Secondly, the whole land use structure of the Island was materially altered or directly affected by events which occurred during the war and during the postwar years. Reconstruction of a stabilized land pattern has lagged far behind other changes which have taken place. Thirdly, the land laws and regulations were designed for an entirely different economy and way of life. They are ill adapted to cope with the requirements of a commercial and business era such as Guam is now entering. And, finally, the sheer accumulation of pending land matters—legal, registration, taxation, surveys, mapping, and zoning—places an unduly heavy burden on the Government staff charged with land administration. This backlog must be substantially reduced before a normal level of land operation can be reached.

The legal aspects of land administration are complicated by the transition from military to civilian government. Not only must the day-to-day problems occasioned by the transfer be met promptly but there is an urgency to the need for formulation of new land laws, regulations and procedures more in keeping with civilian concepts of land administration. Many legal problems must be met and dealt with in most of the following responsibilities now facing the Government of Guam.

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Registration.--The present system of land registration on Guam, though following closely the prewar system, has been entirely redesigned to use modern methods and equipment. The new system has all come into being since March 23, 1949, when the first postwar instrument was accepted for recordation. Prior to the war the only instruments recorded were deeds. These were abstracted and the abstract only was recorded in longhand. Any encumbrances were recorded by marginal notations only. There were no indexes by land descriptions; the only index was by grantees.

Under the present system all instruments presented are typed in full and the exact copy recorded. Not only are deeds recorded in this manner but also assignments, releases, mortgages, and miscellaneous instruments. Photostating in lieu of typing was tried but photostats did not stand up well because of the tropical climate. Indexes are now maintained by property designations broken down by municipalities, whether urban or suburban, and, in the case of unsurveyed property, by place names.

The system now in use is sound and workable but is still being developed. There is a lack of personnel which to a considerable extent hampers its operation. There are two main items in connection with land registration to which special attention should be given:

The present land registration act provides for the registration of title and for recording registered property. It does not provide for recording unregistered property. However, unregistered land is being recorded under the old Cadastral Survey and Land Registration Act although no copies of this Act can be found. Some clarification of this authority is advisable.

The remaining public domain (formerly Spanish Crown lands) should be registered. Most of the public domain within the villages has been registered by the Naval Government. The United States has also registered some of these lands in its own name. Also, land forfeited for non-payment of taxes has been registered. However, the bulk of the public domain, which is largely suburban, has neither been surveyed nor registered. Any program looking to the management of these lands will require that they be identified and registered.

Taxation.--No property tax has been levied subsequent to 1941. For many years prior to that date there was a tax on real estate amounting to 3 percent annually of the appraised value of urban properties, 1 percent on suburban land, and 3 percent on improvements. Appraisals were made every three years by a board of three property owners appointed by the Governor. Assessed values

were very low and were far from uniform for similar properties in different localities. For example, suburban tracts in Barrigada were assessed in 1941 at about \$18 per hectare; in Inarajan at \$12 a hectare; in Sinajana at \$12 a hectare; at Umatac at \$10 a hectare. These values were far below actual values.

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Surveys and mapping.—Land surveys on the Island of Guam have followed the metes and bounds system. Prior to World War II surveys were very inadequate, adding greatly to the confusion incidental to military land taking. In general, land is measured by the metric system and land areas are described in terms of hectares (2.471 acres), ares, and centares.

The first organized practical system of surveys established on Guam was the Butler Survey of 1911-1913. At that time, certain triangulation stations were established. There were prior preliminary surveys made around 1902 by the Coast and Geodetic and Army engineers. In 1945, there was a survey made by the Lands and Claims Commission. This survey abolished the old land coordinates and established a plane rectangular coordinate system with a plane azimuth based on East Longitude Meridian $144^{\circ}-41' -55.42''$ and assigning a value of 50,000 meters North and 50,000 East for the intersection of that meridian with North Latitude $13^{\circ}-28' -20.87''$. For computation purposes, these values were the same as assigned to that geographic position by the survey of 1915; however, a physical difference of approximately 4 feet exists.

The stations of "Tenjo" and "Lee No. 7" were selected as a base line to commence the triangulation system. Plane rectangular coordinates were computed for these stations by the polyconic method of grid projection from their given geographic position as previously computed by Butler. In 1948 and 1949 additional work was done on the triangulation net by the Pacific Island Engineers and a Report on Island-Wide Triangulation Guam, M.I., was submitted to the Department of the Navy on March 15, 1949. Under this project additional triangulation stations were established and existing stations were rechecked. Stations established by both surveys are in use. There is some variation between the values assigned certain stations by both surveys but this has not proved to be a serious matter.

The grid established by the Lands and Claims Commission (1945) is based on a series of land squares. A land square measures 5,000 meters on a side and contains 2,500 hectares. The land squares are divided into four sections containing 625 hectares each. The sections, in turn, are divided into 25 units, each unit containing 25 hectares. This grid has not been marked on the ground. It is used to describe the general location of land by reference to the land unit, section, and square. Legal descriptions of land are by metes and bounds.

While in some respects it might be helpful to actually monument the rectangular grid on the ground, such a procedure is considered to be impractical. Most of the land in private ownership is held in tracts that are small and irregular, a pattern which does not lend itself to a rectangular system. The areas of unsurveyed lands being rough and mountainous or jungle would prove difficult and costly to survey using a rectangular system nor would such a system of surveys result in commensurate benefit.

Since, however, most land matters, including land titles and registration, land claims, and land assessments for tax purposes, require that the land be surveyed it is essential that the present system of cadastral surveys be extended as rapidly as funds and personnel permit to cover all unsurveyed parts of the Island. The need of this is exemplified by the situation with respect to non-military roads. Rights-of-way for the roads were originally taken and are now held under leasehold condemnations. Without surveys it is impossible to determine what tracts or portions of tracts have been taken for the roads. Consequently, no settlement with the land owners can be effected until the roads and the lands which they cross are surveyed.

No cadastral surveys are now being made. The Navy's Base Development Department is making surveys of military lands and facilities only. The Department of Public Works, Government of Guam, has only one survey party. The entire time of this party is occupied with surveying public service sites and facilities.

The best estimates indicate that about 20 percent of the Island remains unsurveyed. Not all of this requires survey in the immediate future. To survey that part for which there is a pressing need would require an estimated five-party years, an average party consisting of a trained and competent surveyor and four helpers. Probably three survey parties in addition to the one now employed by the Department of Public Works could operate to good advantage at the present time.

Adequate maps are as important as adequate surveys. There has been prepared a Cadastral Map, in two sheets, scale 1:2500 (Marianas Area Dwg., 10099 and 10100), covering the Island which shows about 10,000 parcels of surveyed land platted in place. There are an estimated 4,000 tracts which have not been surveyed. Besides being incomplete, this map is at too small a scale to provide land descriptions.

There has also been prepared a series of cadastral maps of Guam by land sections and land units. The scale of the land section sheets is 1 inch equals 100 meters. The land unit sheets are at a scale of 1 inch equals 20 meters. These maps were prepared in 1945 and have not been kept current. The tracings have deteriorated to the point where prints cannot be made from them. To bring these maps up to date and prepare new tracings would require three draftsmen for from nine months to a year.

These cadastral maps were prepared in part from old land descriptions and old original property plats which survived the occupation. These records are now filed with the Base Development Department of the Navy according to military areas and by municipalities. Their preservation should be the concern of the Government of Guam.

Planning and zoning.—Some little land planning and zoning is now being done in an informal manner. At one time a Guam Planning Commission was active in the redevelopment of the city of New Agana and the town of New Agat, both of which were destroyed during the war. For these, master plans were prepared. New Agat has been redeveloped in part according to the plan. The city of Agana has been laid out according to the new pattern. Streets and sidewalks, and power, water and sanitary facilities have been installed. Some reconstruction has taken place. However, most of Agana is still vacant because the problems arising from the very complicated pattern of former land ownerships have not been resolved.

The present planning and zoning authority is totally inadequate to guide developments which are taking place rapidly elsewhere on Guam. For example, a major commercial and business area is developing in the town of Tamuning. This growth has been without adequate planning guidance. There has been a zoning law proposed which, after consideration by the Congress, has been used by the Government as the basis for informal zoning regulations. The proposed law, however, was much too complicated and detailed for Guam requirements. However, if the development pattern of prewar Agana, with its small irregular lots and narrow streets and lack of facilities, is not to be repeated elsewhere, adequate planning and reasonable zoning requirements should be enacted into law.

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Public Domain Lands

As considered here, the public domain lands are defined as those lands formerly belonging to the Spanish Crown which were acquired by the Federal Government when Guam was ceded to the United States by the Treaty of Paris in 1898. The public domain does not include those lands, formerly in private ownership, which became public lands through purchase, condemnation, or because of non-payment of taxes.

The public domain lands have been called variously "public lands", "government lands", or "Naval Government lands". This has both resulted from and led to some confusion as to their status. There is no doubt that the public domain lands on Guam are lands of the United States to the same extent as other lands acquired by the Federal Government by cession or purchase. When the United States acquired Guam from Spain it succeeded to the property rights of the former Sovereign including the fee and ownership of all public, government, or crown lands. Since acquiring Guam the Federal Government has not delegated to any Guam Government jurisdiction over the public domain lands as it did in the case of Hawaii.

There are no exact figures as to the area of the public domain lands acquired under the Treaty of Paris. An early estimate of 36,000 acres is at best a rough approximation. More recent figures cited by the Navy indicate government land owned prior to World War II to be 50,000 acres. This, however, included lands acquired through non-payment of taxes, by purchase, and reclaimed by dredging. The exact existing amount of public domain lands, that is, what remains of former Spanish Crown lands, will not be known until surveys have been completed and claims to private ownership have been adjudicated and registered. Through the years of Naval Government there has been a decrease in the area of the public domain lands due to claims of ownership based on use and occupancy. Many of these claims have been validated and the title to the land registered in the name of private owners. From time to time claims to private ownership arise when some government use is to be made of supposedly public domain land.

It is known that the public domain lands are located chiefly in the northern plateau where shallow and porous soils limit agriculture to certain crops and certain seasons, and in the mountains and rolling and broken parts of the southern part of the Island where their use is largely limited to grazing. In short, they are, as would be expected, the poorer lands of the Island.

There has never been any comprehensive body of public land law under which these public domain lands were administered. Naval Government management consisted in the main of leasing small homesteads to residents of Guam for residential and agricultural purposes, and supervising the sale and cutting of timber from the public domain lands. Some conservation work was encouraged, particularly with regard to forestry, and a little experimentation was done with grasses, vines, and shrubs looking to revegetation and soil conservation.

The public domain lands have been leased in the past for both cultivation and grazing under provision of Chapter V, Title V, Homesteads, of the Guam Code. In 1939 some 6,000 hectares of public domain lands were under lease. However, in 1946 all leases were cancelled in anticipation of the use of those lands for resettlement of the persons who were displaced by the military developments. Some public domain lands are now being used under year-to-year, revokable permits.

The utilization and conservation of the public domain lands requires a program which cannot be formulated in its entirety until further information becomes available. From what is known now of the character of these lands, it is improbable that there will be any large areas suitable for agricultural homestead entry. There is, however, some obligation on the part of the Government to provide farmsteads for those persons who lost their farm land because of military takings. Satisfaction of some 200 of these pending claims might well require all the remaining arable public domain lands. Here again, however, this is only an assumption that can be confirmed or disproved only by examination and classification. On the north part of the Island, in a section known to contain a considerable area of the public domain, there exist many coconut plantings together with small patches of corn, bananas, and vegetables, indicating the possibility for more extensive cultivation within this area. There is an extensive expanse of grazing lands in the south-central and southeastern parts of Guam within the area generally assumed to be public domain land. Much of this is badly eroded, the bare red erosion scars being a striking feature of the landscape. These lands have a dual utility for grazing and for watershed protection because here one of the major water developments and water catchment areas is located.

Parts of the public domain will, no doubt, require a reforestation program. Further investigation will be required to ascertain what areas are suitable for forest planting. Some lands also should be set aside for recreational use since there are areas which have unique scenic, historic, and recreational values.

It would appear that the public domain lands of Guam, because of their relatively small extent and great distance from continental United States, can best be administered by the Government of Guam. Quite possibly, examination and classification will show that the major part of the public domain lands are of such a character that they should be retained in Government ownership in order to obtain the best possible management. A body of public land law should be enacted by the Guam Congress with the consent and advice of the Secretary of the Interior.

A Land Program

A land administration program for Guam must be timely, designed to cope with existing land problems, the solution of which is urgent. It must be comprehensive, formulated to achieve the best ultimate possible utilization of the land resources of the Island. It must be flexible. These requirements are complimentary since on the proper solution of the immediate problems will rest future attainment of sound land utilization goals.

The size of Guam is not a fair index of the magnitude or complexity of its land administration problems. Though these may be somewhat in miniature, nevertheless, the problems cover the same range as exist in other much larger land areas. In addition, there is an accumulation of land administration matters resulting from or deferred because of wartime conditions. And finally, new concepts of land administration and new responsibilities are developing because of Guam's changing economy.

Because of limitations on funds and personnel available for a land administration program not all the things that require doing can be done at once. To attempt it would require that a large land administration organization be put together to operate for a relatively short time and then be cut back to a permanent force as projects were completed. The alternative is to spread the program over a longer period, concentrating initially on the most pressing problems while gradually developing the required basic land administration tools and working towards optimum land utilization.

All the items or projects or activities which go to make up a land program must be carried out more or less concurrently. Therefore, in the following list of items the order of listing does not indicate necessarily relative importance, nor does it constitute a timetable for the initiation and progress of the work. On the contrary, because of the interdependency of many of the activities, the initiation and progress of each phase must be timed and programmed on an integrated basis.

Complete surveys and maps.--The present system of surveys by metes and bounds based on a triangulation system of control is well adapted to the Island. No advantage can be seen to adopting a rectangular or other system. Approximately 10,000 parcels of land have been surveyed and platted on cadastral maps. It is estimated that there are 4,000 unsurveyed tracts. The unsurveyed area consists in large part of the poorer, rougher, and less valuable parts of the Island, much of which is public domain land. It is desirable that all the lands on the Island be surveyed eventually. While this is not a large undertaking, it is more than can be done quickly by such technical personnel as may be available for the work. Therefore, the survey program for the immediate future should be directed to those unsurveyed lands which are involved in condemnation proceedings where-by the Government has acquired either the leasehold or the fee in tracts needed for Government use. These sites and the road rights-of-way should be surveyed in order that they may be identified as to area and location. Where the rights-of-way run over unsurveyed lands these lands should be surveyed for identification purposes. It is estimated that this immediate survey work will require the equivalent of five survey-party years. A minimum of two and probably three survey parties should be used.

The cadastral maps of Guam were prepared by the Base Development Department of the Navy and were maintained in a current status until sometime in 1945. Since then no work has been done on these cadastral maps and, as a consequence, they are now badly out of date. The tracings have deteriorated to the point where additional prints cannot be made from them. The survey data must be brought current and new tracings must be made. Cadastral maps should show courses and distances of the boundaries of the individual parcel. It is estimated that this work will require the services of three draftsmen for a period of about one year. Accurate cadastral maps are absolutely necessary in connection with legal, engineering, and registration functions of the Government as they pertain to land.

Negotiate lease or purchase of lands for Civil Government.--The Government of Guam now uses an estimated 815 acres of private lands which have been taken by leasehold condemnation proceedings for highway rights-of-way, school sites, police and fire stations, and other public purposes. At the time these lands were taken by condemnation there was probably no alternative to such a procedure, since the urgency of the situation precluded the slower method of acquisition by negotiated lease or negotiated purchase. However, now that more normal conditions prevail every effort should be made to negotiate the lease or purchase of all the sites required for Civil Government use.

Pay land claims.--Largely because of the difficulty of identifying lands and land owners, compensation for lands taken for Civil Government functions has not yet been paid in many cases. As rapidly as identification can be accomplished the settlement of these claims should be made, not only as a simple matter of equity but also as a means of bettering public relations.

Plan townsites.--Most of the work connected with the creation of new townsites since the war has been done under authority of the Land Transfer Act. It is entirely probable that some continuation of a program of this kind will be required. This will entail at least the extension of some of the present townsite areas or it may require the laying out of some new townsites. Certain minimum provisions should be made for access roads, for water, power, and sanitary facilities. Particular attention should be given to townsites which may be located on the public domain lands.

City of Agana.--A special land problem is that posed by the city of Agana. Destroyed during the war, the area formerly occupied has been resubdivided according to an entirely new plan to provide larger and more uniform lots and blocks. Paved streets and sidewalks have been constructed according to this new plan and municipal facilities have been installed. Since the resubdivision was made without regard to the former property boundaries the new lots in some instances are made up of parts of several ownerships; some lots have been denied street access, and other lots have been taken in whole or in part for streets. As a consequence, the lots as now laid out cannot be acquired and the rebuilding of Agana is at a virtual standstill.

Several solutions have been considered. The most desirable would be voluntary adjustments among the owners, which would require some owners to dispose of their holdings. This they are reluctant to do.

The proposal has been advanced also to have the Government of Guam acquire through condemnation proceedings the properties which are tied up in multi-ownerships and then have the Government proceed to sell lots according to the new subdivision plan.

The Guam Congress has recently appointed a Commission to examine the problem and recommend a solution. Further action is now awaiting the findings and recommendations of this Commission.

Levy a real estate tax.--Reinstitution of a tax on real estate should be predicated on a scientific, fair, and uniform assessment of all real property on the Island. Under ordinary assessment practice property is supposed to be rated at its full true value. However, since property values on Guam are, in some cases, now at exceptionally high levels and some revision of present market values may be expected, it is recommended that values for assessment purposes be set at 50 percent of fair market value, and the tax rate be adjusted accordingly. Particular attention should be given to the assessment of new commercial and industrial developments, as at Tamuning.

Enact planning and zoning legislation and building regulations.--It is not necessary that the use of private land be rigorously regimented. However, the public interest requires certain minimum standards for land utilization, particularly in the urban districts. Chapter VII of the Civil Rules and Regulations, Code of Guam, contains quite comprehensive provisions with respect to building permits, building construction, building lines, subdivisions, the display of lot numbers, and collateral matters. This chapter was repealed by Guam Congress Bill No. 22, approved June 21, 1948. In its stead there was substituted a much less comprehensive and less detailed set of regulations which placed the major responsibility for their enforcement in the Commissioners of the several municipalities. The city of New Agana and the town of New Agat were excepted from the provisions of Bill No. 22 which provided instead that construction of buildings at those places should be in conformity with the "Zoning Ordinance and the Building Code of Guam." This ordinance and code were included in a bill entitled "A Planning Act" which was considered by the Guam Congress but which failed to pass. Accordingly, there is now no planning or zoning ordinance or building code for New Agana and New Agat. The bill as modified during consideration by the Congress is still unnecessarily detailed and better adapted to a highly urbanized Stateside area than to Guam.

Register land titles.--Titles to all the land on Guam should be registered, including title to the public domain land. It is recognized that this requires the completion of surveys and that the registration of all the public domain will have to await the registration of all private land areas. Many of the land problems will disappear once all tracts on the Island are identified and registered. To this end the registration of land titles might be made compulsory.

Classify the public domain lands.--The public domain lands should be examined as to their character and classified as to their use capabilities. Such a classification is requisite for any management program. In all probability a satisfactory classification can be made using aerial photography, with sufficient ground checks to assure the accuracy of the classifications. No doubt, there are some areas of the public domain suitable for agricultural use which will lend themselves to some form of homestead settlement. Other areas are suitable for grazing and some should be reforested. Some lands having particular scenic, historic, or recreational values should be reserved. Classification would also provide a basis for a conservation and land rehabilitation program.

Institute a land conservation program.--Some of the lands on Guam are suffering severe and accelerated erosion. Much of the grazing land is far below its potential livestock carrying capacity, Guam's forests have practically disappeared. A conservation program looking to erosion control, watershed protection, range rehabilitation, and reforestation should be instituted in the near future. Much basic information must be secured as a preliminary phase of such a program. It is suggested that technical assistance be secured. Consideration should be given to the establishment of a soil conservation district under the Federal Soil Conservation Law. Enabling legislation could be modeled on similar laws in the States.

Enact law for the administration of the public domain lands.--It is entirely possible that the major part of the public domain lands, because of their character, location, and limited use capability, should be retained and managed in public ownership. This, however, can only be determined by a study of the lands and of their relationship to the whole land utilization situation on Guam. There may be some of the public domain land which is suitable for agricultural homestead entry. If this is so, a homestead law should be enacted. The general principle of a homestead law is to provide a tract of land whereon a homesteader can maintain a residence for himself and family, to the exclusion of one elsewhere, and secure his main support from the agricultural use of the land. Ordinarily, as a condition to securing title, there must be continuous residence in a habitable house on the tract and the cultivation of a prescribed acreage over a stated period of years. Since the custom on Guam heretofore has been to live in a village and farm a tract of outlying land, usually on a daily commuting basis, elimination of the on-homestead residence requirement might be desirable. Homestead tracts should only be opened to entry after they have been classified as suitable for that purpose. The homestead tract should be of such size as would, under conditions existing on Guam, provide reasonable assurance that a homesteader could derive a livelihood from the agricultural use of the land. Heretofore, public domain lands have been leased for

agricultural purposes. Whether they continue to be leased or whether they should be allowed to pass into private ownership will depend in large part on the character and the amount of public domain land suitable for agricultural use.

The principle of leasing the public domain land is well established on Guam. Chapter V, Title V, Homesteads, of the Guam Code provides for the lease of public domain for both cultivation and for grazing. All leases were cancelled just after the war and such lands as are now being used are being used under short-term permits. Legal provision should be made for the leasing of public domain land not only for agriculture and grazing but for such other purposes for which it might be suitable, such as for business and industry.

There is no provision for the sale of public lands in the Guam Code. Although there is little likelihood of any large-scale program developing for the sale of public domain land, there will be, no doubt, some occasions when sale will be the only feasible method of disposition. Legislation is needed authorizing the sale of public lands and improvements. This should incorporate the principle of sale at public auction to the highest bidder at not less than the appraised price. However, in connection with the rehabilitation of those who have lost their lands because of government takings, it may be desirable to provide for sale to certain preference applicants.

From time to time proper management of the public domain land may require the exchange of public domain land for private land. Authority should be provided to allow such exchanges on an equal-value basis with enough flexibility to allow the Government to take into consideration public benefits in arriving at land values for exchange purposes.

Legislation for the reservation, survey, and sale of townsites may be required to allow the creation and disposition of such townsites from the public domain land or on other lands acquired by the Government of Guam. Ordinarily, these townsites could be expected to develop under private auspices. However, as in the case of the subdivision of tracts at Verizo, additional authority and regulations may be needed. Claims to ownership of the public domain by reason of use and occupancy have in the past been recognized upon proof of such use and occupancy, and title to the land has been registered in the claimant. Ordinarily, claims of adverse possession do not run against the United States. It may be desirable to clarify this point by legislation.

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