

第6章 結論・提言

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6-1 結論

タンザニア国に於ける中波ラジオ放送は、広い国土に対し効率的に情報を伝達する唯一の手段である。

本計画におけるナッチンゲア(リンディ)、ソングアの置局は、将来の中波ラジオ放送網を全国的に形成するための重要拠点であり、この両地域における番組制作センターとしての機能も十分に備えている。

本計画の完成によってナッチンゲア、ソングア2局から放送される番組は、今まで不安定な短波放送のみに頼っていた地域の住民に対し適時適切に各分野の情報を与えることになり、タンザニア国の農業の振興や人造りのうえで役立ち、ひいては国の発展に大きく貢献するものと期待される。

タンザニア国の直接の実施機関であるRTDはその番組構成、運営体制、要員構成などからみて本計画に基づく放送網の拡充に対して充分に対応可能であり、完成後の設備の維持運用について問題ないものと考えられる。

6-2 提言

(1) 番組制作の一元化

現在RTDにおけるラジオ放送は自主制作の番組のほか、広報や教育などの番組の一部はそれぞれその分野を担当する省庁(農業、保健、文部など)で制作されている。

しかしながら、プロジェクト完成後のラジオ放送を有効に活用するためには、放送番組の質的向上をはかり、多くの国民が喜んでラジオ放送を聴取するようにすることが望ましい。

このためには、番組の企画立案の段階までは各省庁で行うとしても、番組制作については専門家が高度な制作技術を駆使できるRTDに於いて実施することが最善の方法と思われる。

また現在は各担当省庁で行っている放送番組に対する聴取者意向調査を、全てRTDが直接うけとめ、今後の番組の内容や構成の面で反映していくことが番組の充実につながるものと思われる。

(2) ローカル放送への取組み

現在RTDに於いては、放送番組は全てダルエスサラームにあるRTD本部から送出され、各地方局はこの番組の中継のみを行っている。

しかしながらタンザニア国は広い国土を有しており、各地の気候風土も異なり、風俗習慣や行事もそれぞれ特色を持っている。

したがって、ローカルニュースや地域毎の生活情報などの身近な話題と共に各地の気象に合わせた農業技術指導や風土に関係した保健衛生情報などを放送することにより、視聴者がラジオ放送に対し親近感を増すことが期待できる。

1988年に完成されたドドマ、キゴマ放送局に加えて本計画の完成によりリンディ、ソングアの2地域にも地方番組放送制作センター(演奏所)が設置され合計4地域で自局番組制作、放送が可能となる。RTDではアルーシャ、ムワンザ、ムベアの三都市に番組制作センターを完備した後、合計主要7地域から全国中継放送およびローカル放送の出来る体制に移行したいとしているが現時点では少なくとも遷都計画が遂行されているドドマからの全国中継放送、およびダルエスサラーム本部を含めて5地域の既設番組制作センターでローカル放送を試験的に導入し、徐々に全国中継/ローカル放送体制を確立するよう配慮されたい。

(3) 受信機の普及対策

本計画の効果をより発揮させるためにはラジオ受信機の普及に努め、より多くの国民がラジオ放送を聴取できるように努めなければならない。

このためタンザニア政府は、中波1バンドのラジオ受信機など低価格の受信機の国内生産を増して、その利用を推進するとともに、販売経路を改善するなどして、国民が容易に安価に購入できる様に努力をしようとしているが、特に材料の輸入に必要な外貨割当政策も含めて、具体的な計画化を図り早急に増産計画を推進する必要にせまられている。

またラジオ受信機の電源として広く使用されている乾電池に代って、太陽電池の活用など維持経費の節減を計ることも一案と思われる。

(4) タンザニア側負担工事の実施

タンザニア側の負担工事については4-3工事区分に示す通りであり、中でもリンディ、ソングアに於ける演奏所の建設は本計画スケジュールに間に合うよう計画的に遂行される必要がある。さらに着工前の送信所の整地と商用電源の引込みをはじめ演奏所側の放送機器据付のための配線路の準備やTPFC回線引込みなどは、本計画の円滑な推進のためには不可欠な前提条件である。従ってタンザニア国に於いては1988/89会計年度に続いて1989/90会計年度の特別開発経費の予算取得は重要である。また、現地負担工事の促進化のためRTD関係技術者をナッチングア、ソングアの建設現場に派遣し、その施工監理を厳重に行う必要がある。

(5) 技術要員確保のための研修体制の充実化

RTDは要員確保・養成のための研修体制の活用には努力を傾注しているが、応募者の多いC級資格所有者の確保・養成を中心とする研修体制の一層の充実化と綿密な計画化が必要である。

引続くラジオ放送網拡充計画を遂行していくためには、退職者の補充を含めて必要とする要員の割出し(年度毎の採用人数)、訓練期間、職場実習期間を十分考慮し5か年計画を作成し着実に実施することが必要である。

(6) 中波ラジオ放送網拡充長期計画について

RTDは5か年計画(1988/89~1992/93)中において、ナッチングア、ソングア100kW放送局建設後に、モロゴロに100kW、ジョンズコーナーに50kW、タボラに50kWの送信所を置局する計画を立てている。

しかし、全国中波放送区域を人口密度分布地図上に設定してみると次のようなことが分かる。(図6-2-1参照)

- 1) ナッチングアとソングア放送局の完成後、全国中波放送区域は54dB μ V/m電界内で全人口の約79%となる。
- 2) このうち、ムワンザ50kW送信所による放送区域は、ビクトリア湖の水上传搬特性を考慮に入れるとカゲラ州の殆どとマラ州の一部が放送区域となる。
- 3) モロゴロ州はドドマ放送局およびダルエスサラーム放送局の放送区域内に入る。

従ってナショナル中波ラジオ放送網拡充計画において、とりあえず全国放送区域を100%とする一義的目的を達成する最も効率的な方法は次の各地を優先順位として置局計画化するのが妥当と考える。

- ① タンガ 20kW局
- ② タボラ 50kW局
- ③ ジョーンズコーナ 20kW局 (IFRB登録では50kW)

なお、上記置局計画を実施する前に総合的なラジオ放送事業拡充長期計画を確立するために、IFRBに登録されている置局計画の見直しをするとともに各省庁で担当制作している番組制作設備老朽化および不足状況ならびにRTD本部も含む既存放送局の老朽化設備更新も含めて、総合的なフィージビリティスタディをする必要がある。

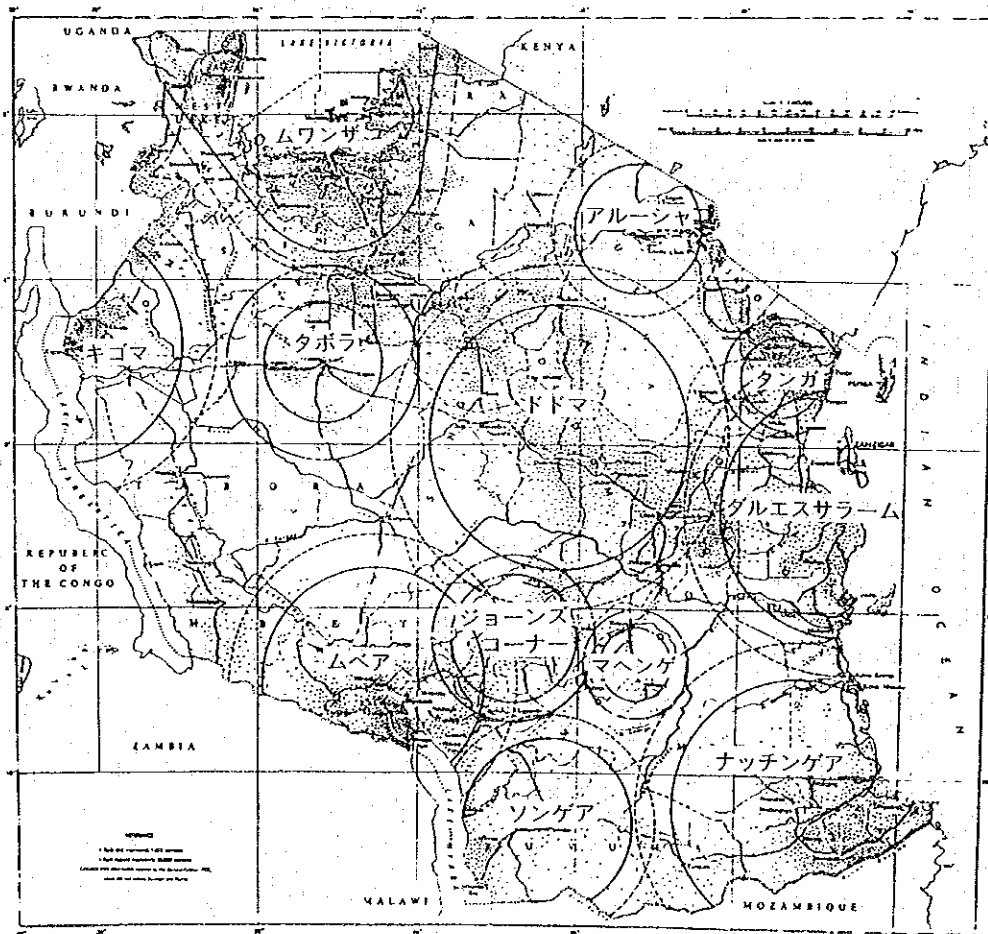


図6-2-1 効率的な中波ラジオ放送網拡充推進案

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I 協 議 議 事 錄

MINUTES OF DISCUSSIONS

ON

THE DEVELOPMENT PROJECT

FOR

MEDIUM WAVE RADIO BROADCASTING NETWORK

IN

THE UNITED REPUBLIC OF TANZANIA

In response to the request of the Government of the United Republic of Tanzania for Grant Assistance for the Development Project of Medium Wave Radio Broadcasting Network (hereinafter referred to as "the Project"), the Government of Japan decided to conduct a Basic Design Study on the Project and entrusted the study to the Japan International Co-operation Agency (JICA). JICA sent the Basic Design Study Team headed by Mr. Satoru ITOH, Special Advisor for International Cooperation, Ministry of Posts and Telecommunications from the 16th January to 12th February, 1989.

The team had a series of discussions with authorities concerned of the Government of the United Republic of Tanzania and conducted a field survey.

As the result of the study both parties agreed to recommend to their respective Governments that the major points of understanding reached between them, attached herewith, should be examined towards the realization of the Project.

Dar es Salaam, 9th, February 1989

伊藤 哲

Mr. Satoru ITOH
Team Leader,
Basic Design Study Team
JICA

~~MBAGA~~

Mr. F. D. MBAGA
Deputy Principal Secretary,
Office Of the Prime Minister
and First Vice President

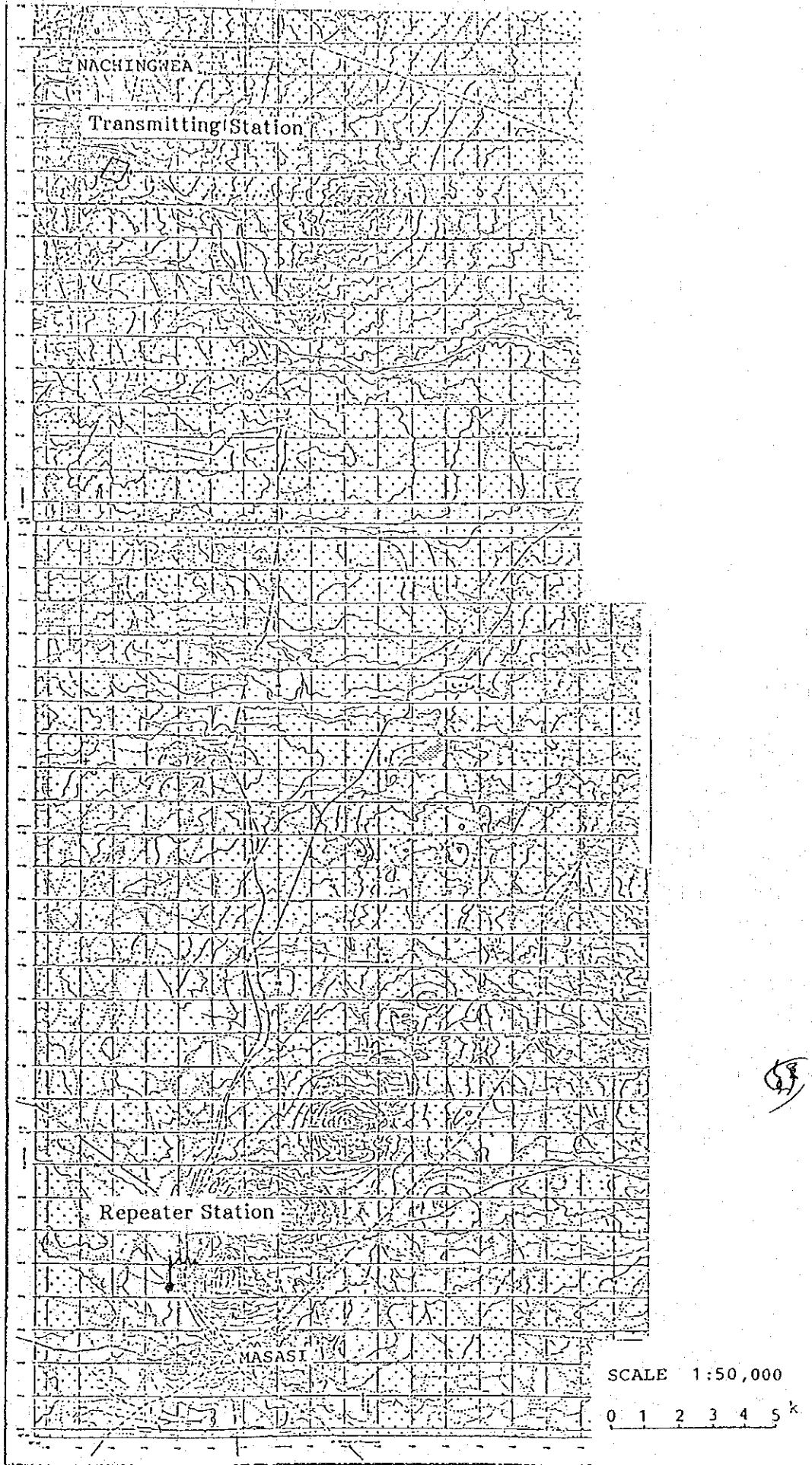
ATTACHMENT

1. The objective of the Project is to develop medium wave radio broadcasting network in the United Republic of Tanzania.
2. The proposed sites of the Project are prepared by the Government of Tanzania as attached in Annex-1.
3. The implementing Agency for the Project is Radio Tanzania Dar es Salaam under the Office of The Prime Minister and First Vice President.
4. The request made by the Government of Tanzania are shown in Annex-2.
5. The team will convey the intention of the Government of Tanzania to the Government of Japan that the latter will take the necessary measures to cooperate in implementing the Project within the scope of the Japanese economic cooperation in grant aid.
6. The Government of Tanzania understood Japan's Grant Aid System explained by the Team which includes a principle of use of a Japanese consultant firm and a Japanese Company for implementation of the Project.
7. The Government of Tanzania will take necessary measures as listed in Annex-3 on condition that the grant assistance by the Government of Japan is extended to the Project.

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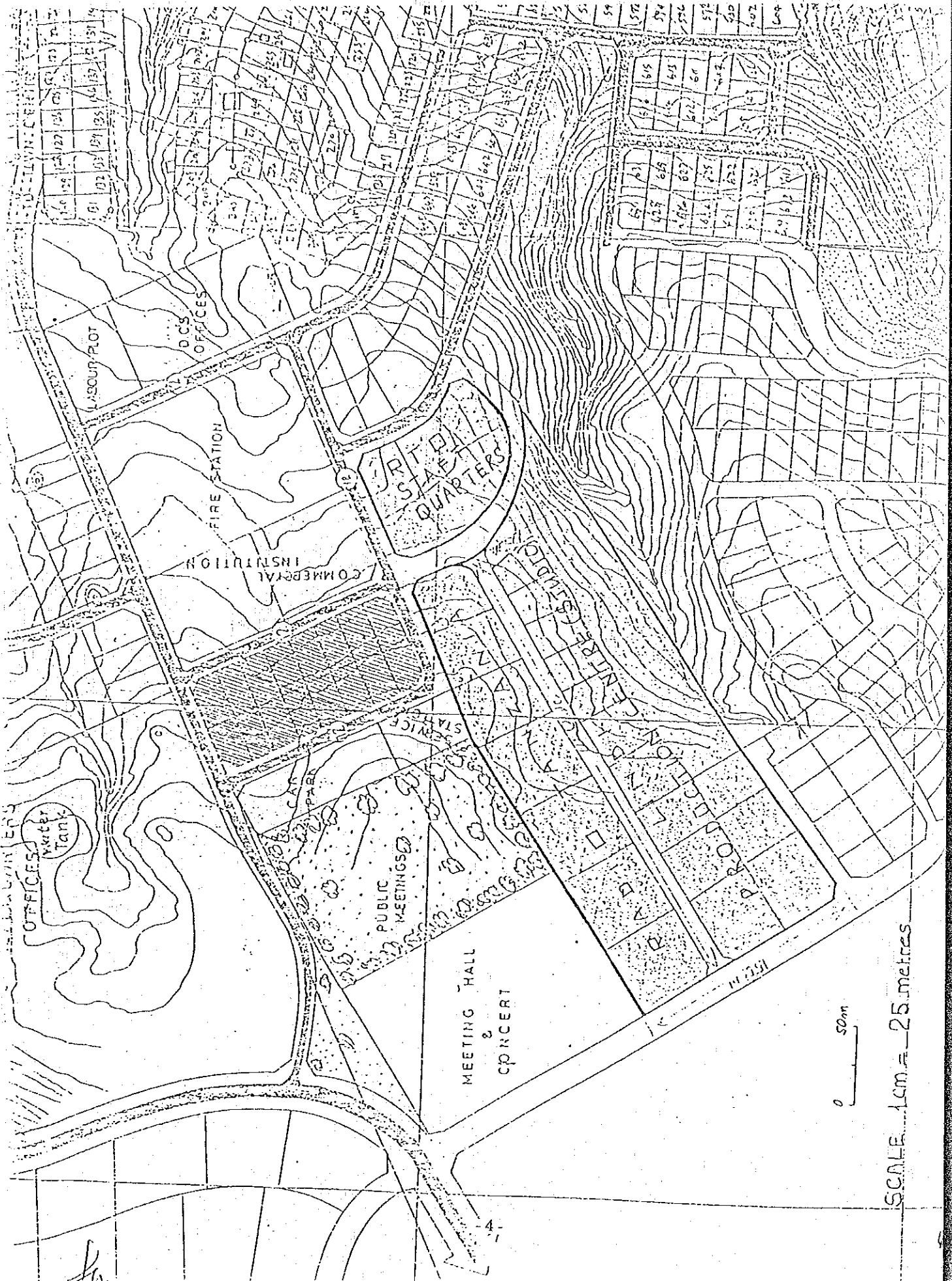
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Annex 1-1-(1) Proposed Sites for Nachingwea Transmitting Station and Masasi Repeater Station



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Annex 1-1-(2) Proposed Site for Lindi Studio



0 50m

SCALE 1cm = 25 metres

h

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Annex 1-2 Proposed Sites for Songea Studio and Transmitting Station

39° 35'

Grid North

0 1 km 2 km

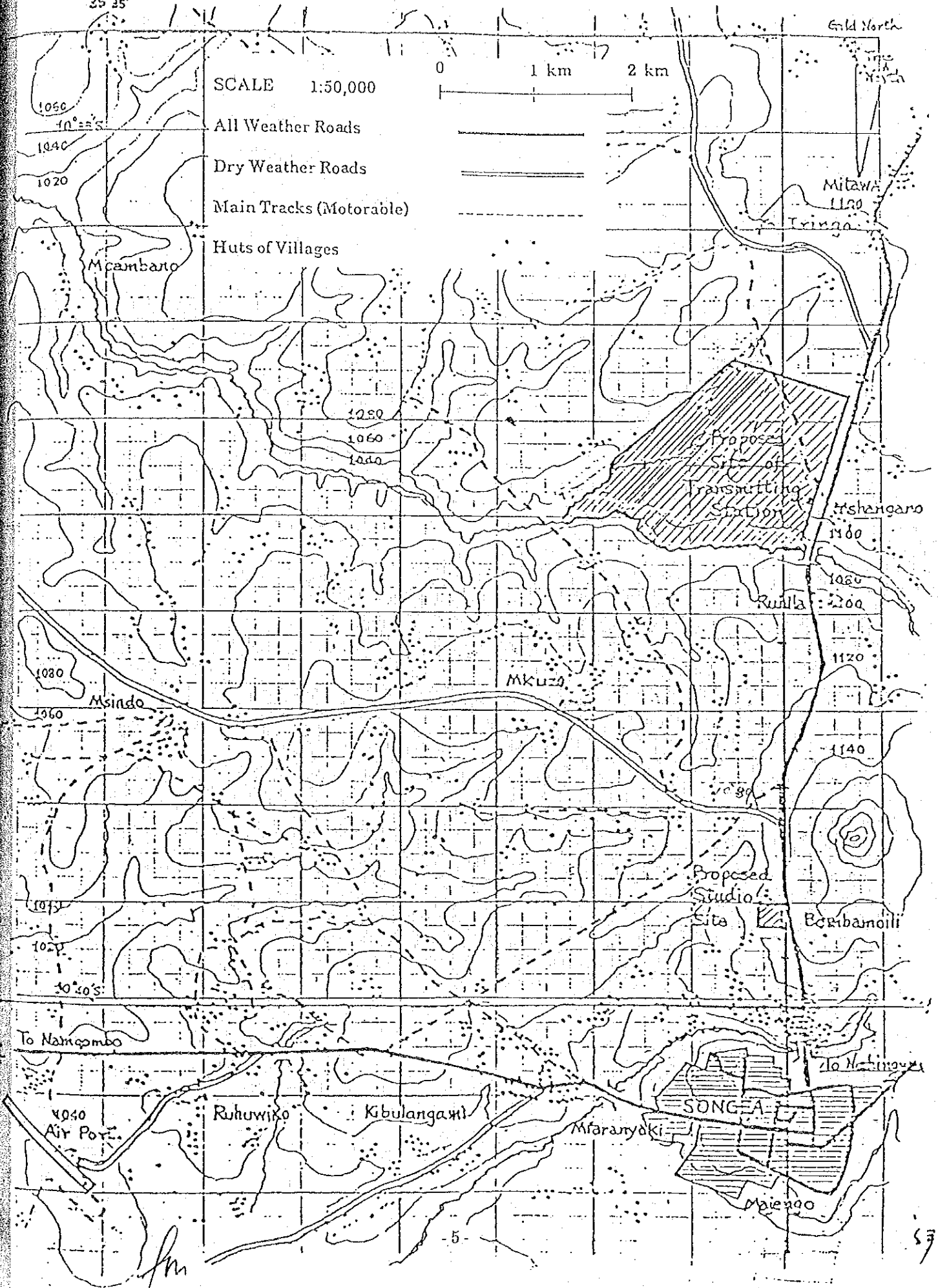
SCALE 1:50,000

All Weather Roads

Dry Weather Roads

Main Tracks (Motorable)

Huts of Villages



Annex-2

1. Facilities for Nachingwea Project

- (1) 100kW/10kW MW Radio Transmitter
- (2) Antenna and Feeder
- (3) Receiving Equipment
- (4) Power Supply Equipment
- (5) Measuring Equipment
- (6) Transmitting House
- (7) Programme Transmission Link (from Masasi TPTC Office)
- (8) Repeater Station
 - 1) Repeater Equipment
 - 2) Station House
- (9) Studio Equipment
- (10) Power Supply Equipment for Studio
- (11) Tool & Vehicles for Maintenance
- (12) Spare Parts
- (13) Installation Materials



2. Facilities for Songea Project

- (1) 100kW/10kW MW Radio Transmitter
- (2) Antenna and Feeder
- (3) Receiving Equipment
- (4) Power Supply Equipment
- (5) Measuring Equipment
- (6) Transmitting House
- (7) Studio to Transmitter Link
- (8) Studio Equipment
- (9) Power Supply Equipment for Studio
- (10) Tool & Vehicles for Maintenance
- (11) Spare Parts
- (12) Installation Materials

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Following arrangements will be taken by the Government of Tanzania.

1. To secure land necessary for the Proposed Sites
2. To carry out site preparation such as clearing, filling, leveling and demolishing the existing facilities, if necessary, before commencement of construction works
3. To complete all necessary civil and electrical works at Lindi and Songea Studio Sites prior to the commencement of installation of studio equipment
4. To provide facilities for distribution of electricity (transform from 33kV to 11kV, but in case of Nachingwea Transmitting Station transform from 33kV to 415V), water supply, drainage, telephone line, programme transmission lines and other incidental facilities to the proposed sites
5. To ensure prompt unloading, tax exemption, customs clearance at ports of disembarkation in Tanzania and prompt internal transportation therein of the products purchased under the grant
6. To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in Tanzania with respect to the supply of the products and services under the verified contracts
7. To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contract such facilities as may be necessary for their entry into Tanzania and stay therein for the performance of their work
8. To maintain and use properly and effectively the facilities constructed and equipment purchased under the grant
9. To undertake incidental civil works such as gardening, fencing, constructing gates, guard house and parking lot and exterior lighting, if needed

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10. To take necessary measures for security in the Sites
11. To bear all the expenses, other than those to be borne by the Grant, necessary for construction of facilities as well as for the transportation and installation of the equipment
12. To maintain in good condition the road between Masasi town and Nachingwea Transmitting Site during the construction period

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II 調査団の構成

総括(団長)	伊藤 哲	郵政省通信政策局国際協力課 国際協力調査官
放送計画兼計画管理	浅見 加奈子	郵政省通信政策局国際協力課 郵政事務官
放送網計画	松田 泰志	全日本テレビサービス(株) 海外事業本部
送信設備	堂内 正三	◇
アンテナ設備	長瀬 彰	◇
局舎及び施工計画	粟飯原 充	◇
積算	園田 浩	◇

III 調査日程

月/日	(曜)	摘 用
1/16	(月)	● 成田発(BA-006)(松田、堂内、長瀬、粟飯原団員)
1/17	(火)	● ロンドン経由(BA-069)
1/18	(水)	● グルエスサラーム着 ● 日本大使館、JICA事務所表敬および打合せ
1/19	(木)	● 総理府、大蔵・経済企画省およびRTD表敬訪問 ● 総理府およびRTDに対しインセプションレポートおよび質問書を提出、説明およびRTD実情調査
1/20	(金)	● 文部省、厚生省、農業・牧畜省にてラジオ放送利用計画、利用実態および社会開発計画の調査 ● 建築関連資料収集 ● ボーリング調査契約 ● RTD実情調査
1/21	(土)	● 労働、マンパワー開発計画省および関連技術教育機関にて国家開発要員育成計画等調査 ● 建築関連資料収集 ● RTD実情調査
1/22	(日)	● 収集資料整理およびサイト調査準備
1/23	(月)	● 総理府関係資料収集・RTD調査 ● 松下電器にて受信機普及調査
1/24	(火)	● グルエスサラームからマカンバコへ移動(車) (松田他3名の団員およびRTDカウンターパート2名)
1/25	(水)	● マカンバコからソングアへ移動(車) ● 州知事を表敬訪問・関係機関責任者と調査内容打合せ ● ソングアサイト調査
1/26	(木)	● ソングアサイト(スタジオおよび送信所)調査 ● 潜在電界強度測定、比抵抗測定
1/27	(金)	● 送信所サイトでボーリング調査立会 ● 電力公社、水道公社等より資料収集 ● 園田団員グルエスサラーム着・RTD打合せ
1/28	(土)	● ソングア市からマサシ市に移動 ● 園田団員グルエスサラームからナッチングアへ移動(空路) ● ナッチングアにて積算資料収集
1/29	(日)	● ナッチングア送信所サイト調査 比抵抗測定、潜在電界強度測定等

月/日	摘	用
1/30 (月)	<ul style="list-style-type: none"> ● ナッチングア送信所サイト調査 ● ナッチングア関係機関訪問、資料収集 ● マサシTPTC調査 ● マサシ中継局サイト調査 ● リンディ州知事表敬・関係機関調査資料内容打合せ ● 積算資料調査 ● リンディ演奏所サイト調査 	
1/31 (火)	<ul style="list-style-type: none"> ● リンディ関係機関(電力、TPTC、港湾、建設)調査、資料収集 ● 積算資料調査 ● ムトゥワラ市内関係機関(電力等)調査、資料収集 	
2/1 (水)	<ul style="list-style-type: none"> ● リンディ市内関係機関調査、資料収集 ● ムトゥワラ港湾施設および関係機関調査 ● リンディおよびムトゥワラ市内にて積算資料収集 	
2/2 (木)	ムトゥワラ市からダルエスサラームへ移動(空路)	
2/3 (金)	<ul style="list-style-type: none"> ● 伊藤団長、浅見団員ダルエスサラーム着 日本大使館およびJICA事務所表敬 ● RTD打合せ ● 各省庁および各関係機関(電力公社、TPTC、松下、フィリップス等)資料収集 ● 積算資料収集 ● 団内打合せ 	
2/4 (土)	<ul style="list-style-type: none"> ● 総理府表敬訪問 ● RTD打合せ ● 各省庁および各関係機関(電力公社、TPTC等)で資料収集 	
2/5 (日)	<ul style="list-style-type: none"> ● 団内打合せ ● 収集資料整理 ● 園田団員帰国(LH-581→LH-702) 	
2/6 (月)	<ul style="list-style-type: none"> ● 電力公社、TPTC訪問・資料収集 ● RTD協議 	
2/7 (火)	<ul style="list-style-type: none"> ● 伊藤団長、浅見、松田団員：アナ・マッキンダ国務大臣表敬 ● 総理府、電力公社、TPTC等関係機関訪問・資料収集 ● RTD協議 	

月/日	摘 用
2/8 (水)	<ul style="list-style-type: none"> ● 職業訓練校見学訪問 ● 総理府にてミニッツ(案)協議 ● RTDにて最終協議
2/9 (木)	<ul style="list-style-type: none"> ● ダルエスサラーム市内の小学校ラジオグループ聴取見学訪問 ● 総理府にてミニッツ署名 ● 大使館、JICA事務所報告
2/10 (金)	<ul style="list-style-type: none"> ● 団長以下5名の団員帰国 ● ダルエスサラーム発(SR-293)
2/11 (土)	<ul style="list-style-type: none"> ● チューリッヒ経由(SR-162)
2/12 (日)	<ul style="list-style-type: none"> ● 成田着

IV 面談者リスト

在タンザニア日本国大使館

中村 昭一	特命全権大使
田中 三郎	公使
金子 正彦	一等書記官
波田 一正	専門調査員

国際協力事業団在タンザニア事務所

戸井田 宣雄	所長
飯塚 駿介	次長
本村 洋	

Office of the Prime Minister and First Vice President

Hon. Anna S. Makinda	Minister of State.
Mr. Fadbili Mbaga	Deputy Principal Secretary
Mr. A. M. Ngororo	Director of Information Services
Mrs. H. I. Kundya	Acting Director of Information Services

Ministry of Finance, Economic Affairs and Planning

Mr. Francis C. Byabato	Assistant Commissioner
Mr. P. J. Mbena	External Finance Officer
Dr. Kigoda Mokiwa	Senior Economist (DEV PLAN)
Mr. N. K. Mlalilaki	Government Statistician (Bureau of Statistics)
Mr. M. Owino	

Radio Tanzania Dares Salaam

Mr. David G. Wakati	Director of Broadcasting
Mr. J. Seleka	Acting Chief Engineer
Mr. E. T. K. Mangulla	Assistant Chief Engineer
Mr. Salim S. Nkamba	Senior Programme Organiser
Mr. K. Mpenda	Chief Editor
Mr. John H. Simtaji	Senior Manpower Management Officer
Mr. P. I. Mhumbira	Special Advisor
Mr. Peter Mamu	Engineer (Project)
Mr. X. Mwangole	Engineer (Project)
Mr. T. A. Usi	Engineer (Training)
Mr. Lhristupher E. M. Magola	News Editor
Mr. R. Mgaya	Accountant
Mr. Y. A. Mwakyeja	Foreign Purchasing Unit

Ministry of Education

Mr. J. B. Akwisombe	Programme Producer (Adult Education)
Mr. Peter Kibwana	Head School Broadcasts (School Education)
Mr. Willian A. Mbindi	Primary Education

Ministry of Health and Social Welfare

Mr. Richard J. Muro	Health Education Specialist
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Ministry of Agriculture and Livestock Development

Mr. Janet Mwenda

Mr. Nyangi

Ministry of Labour and Manpower Development

Mr. Lawrence M. Mashanita	Director of Establishment
Mr. J. Ruzumyamhato	Director of Manpower Planning
Mr. J. Nyakirangani	Director of Training and Manpower Allocation

In Songea

Mr. C. N. Keenja	Regional Development Director
Mr. H. Z. Riwa	Regional Planning Officer
Mr. R. S. Ndunguru	Regional Land Development Officer
Mr. Mwasyeba Emmanuel	Planning Officer
Mr. Alfred F. Fuko	Acting Town Director (City Council)
Mr. P. C. Masumbuko	Town Engineer (City Council)
Mr. Beda B. Labule	Town Engineer (City Council)
Mr. Chacha S. Mwita	Regional Engineer
Mr. Christia Hilary Chale	Technical Building I
Mr. Kifaru	Regional Police Command
Mr. Yohana W. Nchimbi	District Sales Manager (RTC)
Mr. H. S. Kombo	Regional Manager (TANESCO)
Mr. J. T. Kababi	Regional Water Engineer (Water Supply Department)
Mr. B. T. Whero	Hydrogeology Technician (Water Supply Department)

Mr. G. D. Mwigira

Regional Director (TPTC)

Mr. Mtopa

Chief Executive Engineer (TPTC)

In Nachingwea

Mr. H. J. Komba

District Director

Mr. G. A. Linga

District Administration Officer

Mr. A. H. Miraji

District Engineer

Mr. E. L. Mahuwdi

District Engineer

Mr. Kepenji M. R.

Area Manager (TANESCO)

Mr. Mtumwe Niyusuph

Technician (TANESCO)

In Lindi

Mr. C. Rutaihwa

Regional Development Director

Mr. Mbatian Jaffu

Land Assisstant

Mr. Kissila O. J. P.

Town Planner

Mr. Daud Mfwangavo

Regional Planning Officer

Mr. Jika Athumani

Acting Building Inspector

Mr. Ubwa M. K.

Regional Engineer

Mr. Manase S.

Acting Regional Manager (TANESCO)

Mr. Mwege O. S.

Head Telecommunication Engineering (TPTC)

Mr. Mokiwa P. A.

Regional Water Engineer
(Water Supply Department)

Mr. R. M. Muhabuki

Hydrologist (Water Supply Department)

Mr. Monjega Y. F. A.

Water Department

In Masasi

Mr. Geoffrey J. Hamisi	District Administrative Officer
Mr. Bakari M. Dialala	Land Officer
Mr. Mgogo	Manager (TANESCO)
Mr. G. P. Nguku	E. G. Station Supervisor (TANESCO)
Mr. E. S. E. Ndali	Post Master (TPTC)

In Mtwara

Mr. M. D. Mkumbwa	Regional Development Director
Mr. C. J. Makula	Regional Manager (TANESCO)
Mr. Salvation L. M. Lugoe	General Manager (RTC)
Mr. J. Mungure	Port Manager in Mtwara Harbour Authority
Mr. H. Muwanya	Accounts Supervisor Revenue in Mtwara Harbour Authority

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3. SPEACH BY THE MINISTER FOR FINANCE ECONOMIC AFFAIRS AND
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4. HALI YA UCHUMI WA TAIFA KATIKA MWAKA 1987
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5. ECONOMIC AND OPERATIONS REPORT FOR THE YEAR END OF 30TH JUNE,
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Ⅵ カ ン ト リ ー ・ デ ー タ

Census Results in Brief

Male Population, Mainland, 1988	11,012,647
Female Population, Mainland, 1988	11,521,111
Total Population, Mainland, 1988	22,533,758
Male Population, Zanzibar and Pemba, 1988	314,864
Female Population, Zanzibar and Pemba, 1988	325,714
Total Population, Zanzibar and Pemba, 1988	640,578
Male Population, The Republic of Tanzania, 1988	11,327,511
Female Population, The Republic of Tanzania, 1988	11,846,825
Total Population, The Republic of Tanzania, 1988	23,174,336
Annual Average Intercensal Growth Rate, Mainland, 1978 - 1988	2.8
Annual Average Intercensal Growth Rate, Zanzibar and Pemba, 1978 - 1988	3.0
Annual Average Intercensal Growth Rate, Tanzania, 1978 - 1988	2.8

1. Summary of Findings

A Population of almost 23.2 million

The Mainland population observed in the 1988 census was 22,533,758, while the total population of Zanzibar was 640,578. Thus, the total population of the United Republic of Tanzania, according to the 1988 census, is 23,174,336.

In the previous (1978) census, the total Mainland population in 1978 was 17,036,499. The total population of Zanzibar was 476,111. The total for the United Republic of Tanzania was 17,512,610.

Mainland's Growth Rate goes down, Zanzibar's goes up

The 1988 Census indicates a Mainland growth rate for the period 1978/88 of 2.8 percent, which is lower than the previous intercensal period, while Zanzibar's growth rate has increased slightly to 3.0 percent during the 1978/88 period. The 1978 census gave an average annual growth rate for the period of 1967/78 of 3.2 percent for the Mainland and 2.7 percent for Zanzibar.

The latest figures for the world as estimated by the United Nations in the 1986 Demographic Yearbook published in 1988, reveals an average annual population growth rate of 1.7 percent. The average annual population growth rate for Africa and Eastern Africa is higher, 2.9 and 3.1 percent respectively. And, finally, looking at the 1980 estimates for a few individual neighbouring countries, we find that Kenya had an average annual growth rate of 4.0 percent, while the estimates for Zambia and Zaire were 2.8 and 2.6 percent respectively.

An Average of 26 Persons per sq.km.

Based on a land area of 881,289 sq. km, the Mainland population density of 19.3 persons/sq.km. in 1978 has increased to 25.5 persons/sq.km. in 1988. With a land area of 2,460 sq. km, the population density of Zanzibar has increased from 201 persons/sq.km. in 1978 to 260 persons/sq.km. in 1988.

The average population density for the world, according to the United Nations' 1986 Demographic Yearbook, is 36 persons/sq.km, while the density for Africa and Eastern Africa are 19 and 27 respectively. Looking at 1980 estimates for a few individual neighbouring countries, we find that Kenya had a population density of 36 while Zambia and Zaire had a density of 9 and 13 persons per sq.km, respectively.

Lower Urban Growth Rate in 1978 - 1988 compared to 1967 -1978

In the 1978 census it was observed, that the urban population of Tanzania Mainland experienced a very rapid growth, though its urban population was still relatively small. The proportion of urban population in Mainland increased from 6.39 percent in 1967 to 13.78 in 1978 at an average annual growth rate of 8.87 percent. In Zanzibar, the proportion of urban population increased from 28.63 percent in 1967 to 32.55 percent in 1978 at an average annual growth rate of 3.85 percent.

Current figures from the 1988 census indicate a lower growth rate of the urban population when compared to the urban growth experienced from the 1978 census. Details will be given in future publications.

According to the 1980 United Nations' estimates, proportions of urban population for some of the African countries were considerably higher. The urban population in Kenya was estimated to 15.5 percent, while estimates for Zaire and Zambia were 34.2 and 43.0 percent respectively.

Households

The 1988 census figures confirm the predominancy of large households, especially in rural areas. The results give an average size of households of 5.3 for Mainland and an average size of 4.7 for Zanzibar.

The observed average size of households in 1978 was 5.0 persons for Mainland rural areas, compared to 4.5 persons for Mainland urban areas. The average household size in 1978 for Zanzibar urban and rural was 4.2 persons.

Sex Ratio

The 1988 census results give a sex ratio of 96 for Mainland and 97 for Zanzibar, meaning that for every 100 females there were 96 and 97 males, respectively. Hence, there is an even sex distribution of the total population.

The derived sex ratio for Mainland in 1978 was 96, while the comparable figure for Zanzibar was 99.

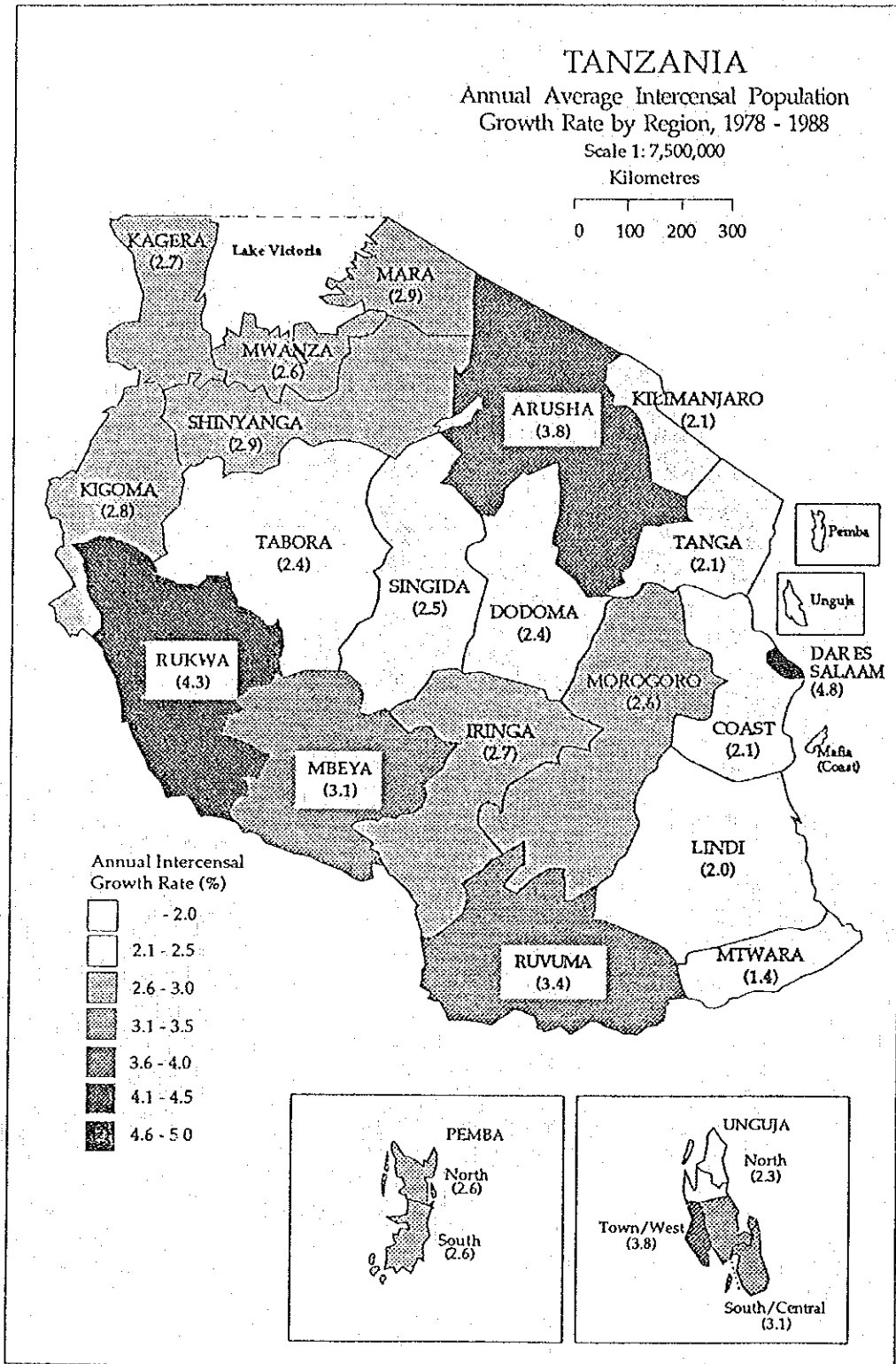


Table 1: CENSUS POPULATION AND INTERCENSAL GROWTH RATES BY REGION.
 Regions arranged by census classification

Region	Population (Number)					Annual Average Intercensal Growth Rate	
	Census 1967	Census 1978	Projections 1978-88	Census 1988	Deviation ¹	1967-78	1978-88
Dodoma	709,380	972,005	1,274,000	1,237,819	-36,181	2.9	2.4
Arusha	610,474	926,223	1,321,000	1,351,675	+30,675	3.8	3.8
Kilimanjaro	652,722	902,437	1,193,000	1,108,699	-84,301	2.9	2.1
Tanga	771,060	1,037,767	1,340,000	1,283,636	-56,364	2.7	2.1
Morogoro	682,700	939,264	1,237,000	1,222,737	-14,263	2.9	2.6
Coast	428,041	516,586	611,000	638,015	+27,015	1.7	2.1
Dar es Salaam	356,286	843,090	1,723,000	1,360,850	-362,150	7.8	4.8
Lindi	419,853	527,624	645,000	646,550	+1,550	2.1	2.0
Mtwara	621,293	771,818	934,000	889,494	-44,506	2.0	1.4
Ruvuma	395,447	561,575	758,000	783,327	+25,327	3.2	3.4
Iringa	689,905	925,044	1,193,000	1,208,914	+15,914	2.7	2.7
Mbeya	753,765	1,079,864	1,469,000	1,476,199	+7,199	3.3	3.1
Singida	457,938	613,949	791,000	791,814	+814	2.7	2.5
Tabora	502,068	817,907	1,236,000	1,036,293	-199,707	4.4	2.4
Rukwa	276,091	451,897	684,000	694,974	+10,974	4.5	4.3
Kigoma	473,443	648,941	851,000	854,817	+3,817	2.9	2.8
Shinyanga	899,468	1,323,535	1,839,000	1,772,549	-66,451	3.5	2.9
Kagera	658,712	1,009,767	1,451,000	1,326,183	-124,817	3.9	2.7
Mwanza	1,055,883	1,443,379	1,889,000	1,878,271	-10,729	2.8	2.6
Mara	544,125	723,827	932,000	970,942	+38,942	2.6	2.9
Mainland	11,958,654	17,036,499	23,371,000	22,533,758	-837,242	3.2	2.8
Kaskazini-Unguja	56,360	77,017	..	97,028	..	2.3	2.3
Kusini-Unguja	39,087	51,749	..	70,184	..	3.1	3.1
Mjini-Magharibi	95,047	142,041	..	208,327	..	3.7	3.8
Kaskazini-Pemba	72,015	106,290	..	137,399	..	3.6	2.6
Kusini-Pemba	92,306	99,014	..	127,640	..	0.6	2.6
Zanzibar	354,815	476,111	625,000	640,578	+15,578	2.7	3.0
Tanzania	12,313,469	17,512,610	23,996,000	23,174,336	-821,664	3.2	2.8

¹⁾ Actual population according to the 1988 census, compared to the population projections

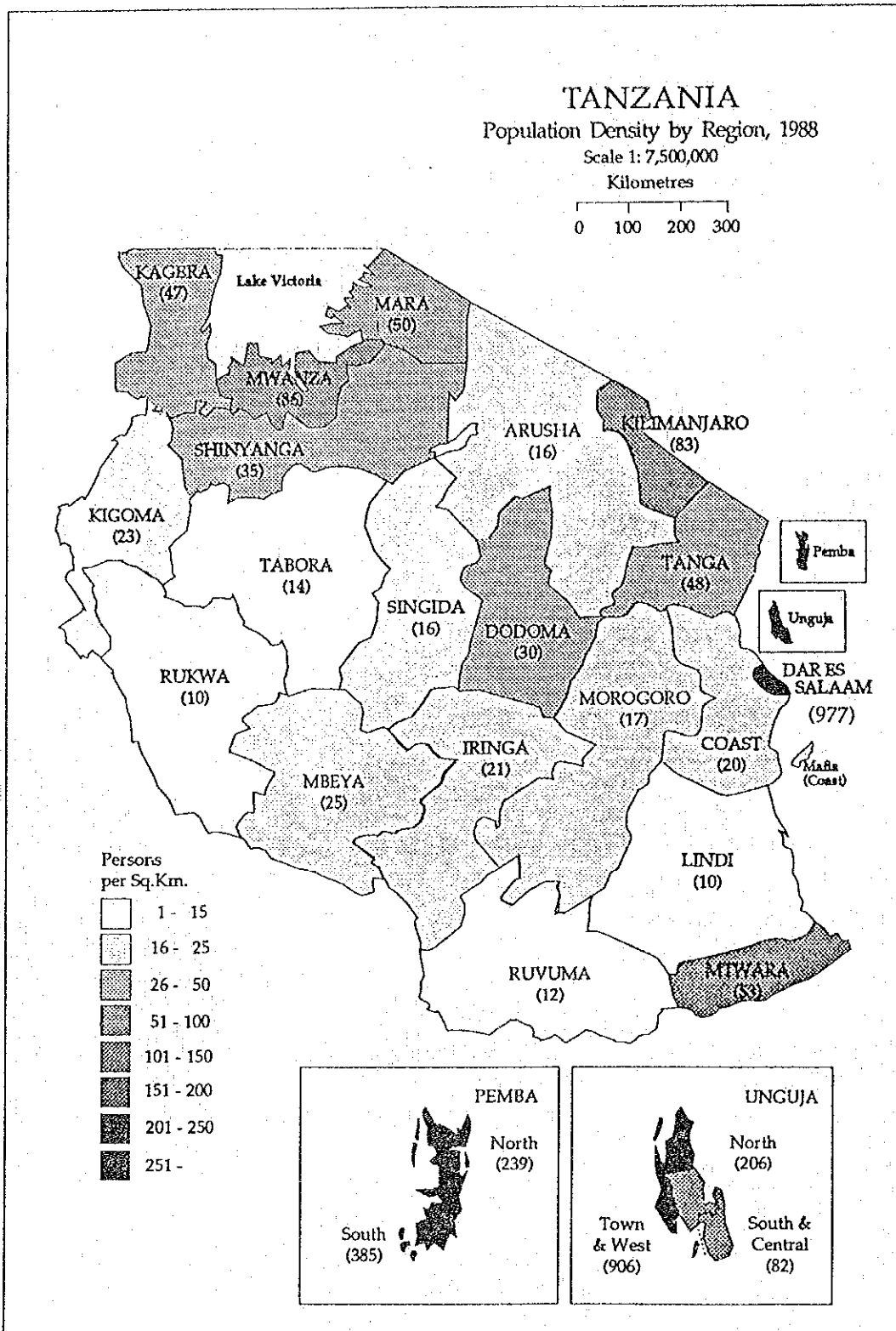


Table 2: Population Density and Household Size by Region 1967, 1978 and 1988

Region	Land area (Sq. Kms)	Density ¹			H'hold Number 1988	H'hold Average Size (Persons)		
		1967	1978	1988		1967	1978	1988
Dodoma	41,311	17	24	30	244,684	4.4	4.7	5.0
Arusha	82,306	7	11	16	249,436	4.8	5.3	5.4
Kilimanjaro	13,309	49	68	83	205,302	5.0	5.3	5.4
Tanga	26,808	29	39	48	249,147	3.8	4.7	5.1
Morogoro	70,799	10	13	17	227,705	4.2	4.7	5.3
Coast	32,407	13	16	20	128,218	..	4.3	4.9
Dar es Salaam	1,393	256	605	977	314,304	..	4.1	4.3
Lindi	66,046	6	8	10	138,070	3.7	4.4	4.6
Mtwara	16,707	37	46	53	198,726	3.8	4.3	4.4
Ruvuma	63,498	6	9	12	146,874	4.0	5.2	5.3
Iringa	56,864	12	16	21	248,479	4.5	4.5	4.8
Mbeya	60,350	12	18	25	297,636	4.8	5.0	4.9
Singida	49,341	9	12	16	148,937	4.1	4.6	5.3
Tabora	76,151	7	11	14	180,129	4.5	5.0	5.7
Rukwa	68,635	4	7	10	130,759	4.7	5.1	5.3
Kigoma	37,037	13	18	23	146,961	4.5	5.5	5.8
Shinyanga	50,781	18	26	35	279,690	5.7	5.8	6.3
Kagera	28,388	23	36	47	269,626	3.9	4.5	4.9
Mwanza	19,592	54	74	96	292,962	5.7	6.0	6.4
Mara	19,566	28	37	50	143,246	6.0	6.2	6.7
Mainland	881,289	14	19	26	4,240,891	4.5	4.9	5.3
Kaskazini-Unguja	470	124	169	206	23,347	3.2	3.9	4.1
Kusini-Unguja	854	47	62	82	15,284	3.1	4.1	4.5
Mjini-Magharibi	230	428	640	906	42,142	3.7	4.2	4.9
Kaskazini-Pemba	574	157	232	239	29,324	3.5	4.4	4.6
Kusini-Pemba	332	226	242	385	26,300	3.5	4.5	4.8
Zanzibar	2,460	149	201	260	136,397	3.5	4.2	4.7
Tanzania	883,749	14	20	26	4,377,288	4.4	4.9	5.2

¹ Inhabitants/Sq.Km., according to the relevant area the particular year.

VI-2 基本経済指標

	1976年	1981年	1982年	1983年	1984年	1985年	1986年	1987年	1988年
1. 人口 (百万人)	16.3	18.6	19.2	19.8	20.5	21.2	21.9	22.6	22.5*1
2. 国内総生産 (GDP)									
年別物価 (百万 TShs)	21,652	43,906	52,546	62,608	78,143	108,083	143,034	198,101	287,200
'76年物価基準 (%)	2,652	23,301	23,439	22,882	23,656	24,278	25,158	26,142	27,318
3. 1人当りの生産高									
年別物価 (TShs)	1,328	2,361	2,737	3,612	3,812	5,027	6,531	8,765	
'76年物価基準 (%)	1,328	1,253	1,221	1,155	1,154	1,129	1,149	1,157	
4. 物価指数 ('77=100)	85.1	196.9	253.9	322.6	439.2	585.4	775.2	1,004.4	1,410.4
5. 貿易収支 (百万\$)									
(i) 輸出 (%)		-509	-533	-528	-615	-707	-790	-796.95	-791.95
(換金農作物)		570	369	347	335	317	355	388.65	438.05
(ii) 輸入 (%)		(268.12)	(283.58)	(281.13)	(235.98)	(242.38)	(224.57)	(225.65)	
(食料輸入)		1,079	902	875	950	1,024	1,145	1,185	1,230
		(575.5)	(383.8)	(177.5)	(331.2)	(303.0)	-	-	-
外貨手持高 (百万\$)		-4,202.0	-5,347.4	-7,517.3	-8,861.9	-14,464.1	-17,458.3	-24,700.0	

出典: Mpango Wa Maendeleo Wa Mwaka 1988/89, 1987/88
 (Annual Development plan for 1987/88, /1988/89)
 1988 population Census Preliminary Report

*1 1988年に実施した国勢調査結果
 1981~1987年迄は人口増加率を元に推定

VI-3 国内総産業別構成

	1976	1981	1982	1983	1984	1985	1986	1987
農・林・漁業	9,046 (41.8%)	9,511 (40.8%)	9,639 (41.1%)	9,914 (43.3%)	10,312 (43.6%)	10,931 (45.0%)	11,557 (45.9%)	12,066 (46.2%)
鉱業・採石	214 (1.0%)	193 (0.8%)	193 (0.8%)	174 (0.8%)	186 (0.8%)	174 (0.7%)	167 (0.7%)	165 (0.6%)
製造業	2,811 (13.0%)	2,382 (10.2%)	2,304 (9.8%)	2,103 (9.2%)	2,159 (9.1%)	2,075 (8.6%)	1,991 (7.9%)	2,075 (7.9%)
電力・水供給	220 (1.0%)	417 (1.8%)	420 (1.8%)	413 (1.8%)	439 (1.9%)	461 (1.9%)	544 (2.2%)	585 (2.2%)
建設	884 (4.1%)	890 (3.8%)	930 (4.0%)	549 (2.4%)	660 (2.8%)	601 (2.5%)	752 (3.0%)	774 (3.0%)
卸売・小売産業 (レストラン・ホテルを含む)	2,839 (13.1%)	2,725 (11.7%)	2,668 (11.4%)	2,612 (11.4%)	2,640 (11.2%)	2,662 (11.0%)	2,953 (11.7%)	3,086 (11.8%)
運輸・通信	1,685 (7.8%)	1,652 (7.1%)	1,694 (7.2%)	1,473 (6.4%)	1,482 (6.3%)	1,509 (6.2%)	1,514 (6.0%)	1,582 (6.1%)
金融保険サービス	2,460 (11.4%)	3,078 (13.2%)	3,369 (14.4%)	3,533 (15.4%)	3,739 (15.8%)	3,843 (15.8%)	4,169 (16.6%)	4,224 (16.2%)
公共管理サービス	2,342 (10.8%)	3,551 (15.2%)	3,556 (15.2%)	3,543 (15.5%)	3,549 (15.0%)	3,616 (14.9%)	3,283 (13.1%)	3,309 (12.7%)
G D P	21,653 (100)	23,301 (100)	23,439 (100)	22,882 (100)	23,656 (100)	24,278 (100)	25,158 (100)	26,142 (100)

出典: Haii yaUchumi wa Taifa Katika Mwaka 1987
(The National Economic Situation During 1987)

VI-4 換金農作物生産高および輸出状況

	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88
1. コーヒー							
生産高 (kt)	56	53	49.2	48.3	54	41.2	50
輸出量 (%)	56.4	55.2	54.8	49.1	48.86	48.62	48.0
輸出金額 (百万\$)	131.68	135.49	153.21	128.27	161.82	142.41	112.8
1kg単価 (\$)	2.33	2.45	2.79	2.61	3.31	2.93	2.35
2. 綿花							
生産高 (kt)	44.59	42.9	140.4	154.8	107.8	213.1	226.1
輸出量 (%)	40.7	39.0	38.7	29.7	24.15	46.73	45.0
輸出金額 (百万\$)	63.69	56.29	58.62	47.49	30.0	39.53	65.25
1kg単価 (\$)	1.56	1.44	1.52	1.6	1.24	0.85	1.45
3. サイザル麻							
生産高 (kt)	61	46	38.3	32.3	28.5	36.9	36
輸出量 (%)	54.4	32.4	23.7	26.1	15.47	15.39	14.0
輸出金額 (百万\$)	28.46	15.58	11.28	9.16	5.5	4.89	5.6
1kg単価 (\$)	0.52	0.48	0.47	0.35	0.34	0.31	0.4
4. 茶							
生産高 (kt)	15.53	16.3	17.1	16.7	15.5	14.1	17
輸出量 (%)	11.3	12.2	15.7	11.3	10.8	11.3	14.0
輸出金額 (百万\$)	17.46	19.27	23.85	18.72	15.86	12.38	18.9
1kg単価 (\$)	1.55	1.57	1.52	1.66	1.47	1.09	1.35
5. タバコ							
生産高 (kt)	16.2	13.6	11.1	13.4	12.5	16.4	16.7
輸出量 (%)	11.3	5.9	5.6	7.3	8.6	7.7	9.0
輸出金額 (百万\$)	19.88	13.31	10.48	10.85	15.40	12.92	13.95
1kg単価 (\$)	1.76	2.23	1.87	1.66	1.8	1.68	1.56
6. カシニナッツ							
生産高 (kt)	44	33	48.3	32.5	18.8	16.5	20
輸出量 (%)	5.4	9.0	-	21.5	18.55	11.56	9.0
輸出金額 (百万\$)	6.95	43.74	23.69	21.49	13.8	12.44	9.15
1kg単価 (\$)	1.28	4.86	-	1.0	0.74	1.07	1.02
農産物輸出総額 (百万\$)	268.12	283.58	281.13	235.98	242.38	224.57	225.65
加工製品輸出総額 (百万\$)	183.00	142.07	151.43	107.98	108.10	89.15	163.00
輸出総額 (百万\$)	451.12	425.65	432.56	343.97	350.48	313.72	388.65

出典: Hai ya Uchumi wa Taifa Katika Mwaka 1987 (The National Economic Situation During 1987)
: Mpango wa Maendeleo Wa Mwaka 1987/88, 1988/89 (Annual Development Plan for 1987/88, 1988/89)

VI-5 政府財政状況

	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89 (推定)
(a) 經常收入 (百万TShs)	10,960.0	13,145.0	15,464.6	19,143.0	22,321.0	34,948.7	57,429.5	62,670.0
(b) 經常支出 (%)	13,214.1	14,871.5	18,119.9	21,336.5	27,402.3	40,390.2	61,765.0	70,272.0
經常予算不足額 (%)	-2,254.1	-1,726.5	-2,770.6	-3,193.5	-5,081.3	-5,891.5	-4,335.5	-7,602.0
(c) 開發支出 (%)	5,185.0	5,145.5	5,736.0	5,391.1	5,817.0	15,090.9	15,091.1	28,400.0
(i) 国内資金 (%)	3,390.0	3,293.5	2,770.6	3,901.4	4,595.0	9,635.8	8,467.1	12,200.0
(ii) 海外資金 (%)	1,795.0	1,852.0	2,965.4	1,489.7	1,442.0	54,551.0	6,624.0	45,360.0
(d) 銀行借款 (%)	3,278.0	4,206.0	4,699.0	3,340.4	4,925.0	1,656.3	913.6	600.0
(e) 非銀行借款 (%)	783.0	814.0	788.0	1,125.0	1,308.0	2,556.7	2,500.0	2,500.0
(f) 海外借款 (%)	1,795.0	1,852.0	2,965.0	1,489.7	1,442.0	54,551.0	6,624.0	45,360.0
(g) その他収入 (%)	1,583.1	-	-	1,629.5	4,243.7	11,314.3	9,389.0	36,702.0
(h) 各省公団 (%)	4,537.0	4,583.2	5,047.0	4,467.1	4,964.0	13,900.2	13,900.0	24,894.5
(i) 地方 (%)	648.0	562.3	687.0	924.0	833.0	1,190.9	1,190.9	2,204.2

出典: Mpango Wa Maendeleo Wa Hwaka 1988/89, 1987/88
(Annual Development Plan for 1987/88, 1988/89)

VI-6 公務員給料スケール(1998/89年度)

	公務員給料スケール
OS. 1	1,645/= ~1,695/=
OS. 2	1,715/= ~1,805/=
OS.3	1,820/= ~1,940/=
OS. 4	1,965/= ~2,165/=
OS. 5	2,195/= ~2,435/=
NTA.	1,965/= ~2,405/=
MU.	1,775/= ~2,160/=
MS. 1	2,185/= ~2,780/=
MS.2	2,860/= ~3,525/=
MS. 3	3,715/= ~4,555/=
MS. 4	4,690/= ~5,850/=
MS. 5	6,020/= ~6,745/=
MS. 6	6,775/= ~7,085/=
MS. 7	7,160/=
MS. 8	7,260/=
MS. 9	7,360/=
MS. 10	7,410/=
MS. 11	7,450/=
MS. 12	7,624/=
MS. 13	7,670/=
MS. 14	7,810/=
MS. 15	7,940/=
MS. 16	7,980/=
MS. 17	8,250/=
MS. 18	8,780/=
MS. 19	8,980/=

出典:総理府データ(注:/=はTShsを意味する)

VI-7 松下電器タルエスラーム工場で製造された受信機

	I ラジオ・カセット付 ラジオ生産台数	II ガンジバル 向け生産台数	III 輸出向け 生産台数	IV = I + II + III	V IVで寿命10年の 受信機台数	VI IVで寿命10年の 累積台数	VII IVで寿命15年の 受信機台数	VIII IVで寿命15年の 受信機累積台数	IX IVで寿命20年の 受信機台数	X IVで寿命20年の 受信機累積台数
1966										
67										
68										
69										
70										
71										
72	4,627	161		4,466	4,466	4,466		4,466		4,466
73	73,614	2,565	6,104	64,945		69,411		69,411		69,411
74	107,432	3,743	7,846	95,843		165,254		165,254		165,254
75	132,260	4,617	15,770	111,873		277,127		277,127		277,127
76	165,264	5,762	20,764	139,738		415,865		415,865		415,865
77	173,537	6,053	3,120	164,364		580,229		580,229		580,229
78	234,802	8,191	533	226,078		806,307		806,307		806,307
79	156,887	5,472	3,386	148,029		954,336		954,336		954,336
80	150,110	5,233	7,340	137,537		1,091,873		1,091,873		1,091,873
81	115,103	4,015	0	111,088		1,202,961		1,202,961		1,202,961
82	87,831	3,068	0	84,763	4,466	1,283,258		1,287,724		1,287,724
83	35,020	1,224	757	33,039	64,945	1,251,352		1,320,763		1,320,763
84	30,783	1,071	1,843	27,869	95,843	1,133,378		1,348,632		1,348,632
85	37,225	1,294	2,032	33,899	1,118,873	1,105,404		1,382,531		1,382,531
86	13,804	472	2,489	10,843	138,738	977,509		1,393,374		1,393,374
87	16,000	272	0	15,728	164,364	828,873	4,466	1,404,636		1,409,102
88	18,000	522	0	17,478	226,078	620,273	69,411	1,352,703		1,426,580

VI-8 フィリップスアールシーヤ工場で製造された受信機

	I ラジオカセット付 ラジオ生産台数	II サンバル及び輸出向け生産台数	III = I - II	IV IIIで寿命10年の 受信機台数	V IIIで寿命10年の 受信機累積台数	VI IIIで寿命15年の 受信機台数	VII IIIで寿命15年の 受信機累積台数	VIII IIIで寿命20年の 受信機台数	IX IIIで寿命20年の 受信機累積台数
1966	14,000	1,140	12,860		12,860		12,860		12,860
67	20,000	1,640	18,360		31,220		31,220		31,220
68	49,400	4,050	45,350		76,570		76,570		76,570
69	90,800	7,440	83,360		159,930		159,930		159,930
70	118,400	9,700	108,700		286,630		286,630		286,630
71	129,900	10,650	119,250		387,880		387,880		387,880
72	136,200	13,380	149,820		537,700		537,700		537,700
73	161,700	12,440	139,260		676,960		676,960		676,960
74	171,200	14,040	157,160		834,120		834,120		834,120
75	110,300	9,040	101,260		935,380		935,380		935,380
76	111,500	9,140	102,360	12,860	1,024,880		1,037,740		1,037,740
77	150,500	12,340	138,160	18,360	1,144,680		1,175,900		1,175,900
78	206,900	16,960	189,940	45,350	1,289,270		1,365,840		1,365,840
79	128,700	10,550	118,150	83,360	1,324,060		1,483,990		1,483,990
80	96,500	7,910	88,590	108,700	1,303,950		1,572,580		1,572,580
81	65,500	2,230	63,270	119,250	1,247,970	12,860	1,622,990		1,635,850
82	21,800	740	21,060	149,820	1,119,210	18,360	1,625,690		1,636,910
83	13,800	1,130	12,670	139,260	992,620	45,350	1,593,010		1,669,580
84	31,000	2,540	28,460	157,160	863,920	83,360	1,538,110		1,698,040
85	49,400	4,050	45,350	101,260	808,010	108,700	1,474,760		1,743,390
86	62,000	5,080	56,920	102,360	762,570	119,250	1,412,430	12,860	1,787,450
87	13,660	460	13,220	138,160	637,630	149,820	1,275,830	18,360	1,782,310
88	15,000	510	14,490	189,940	462,180	139,260	1,151,060	45,350	1,751,450

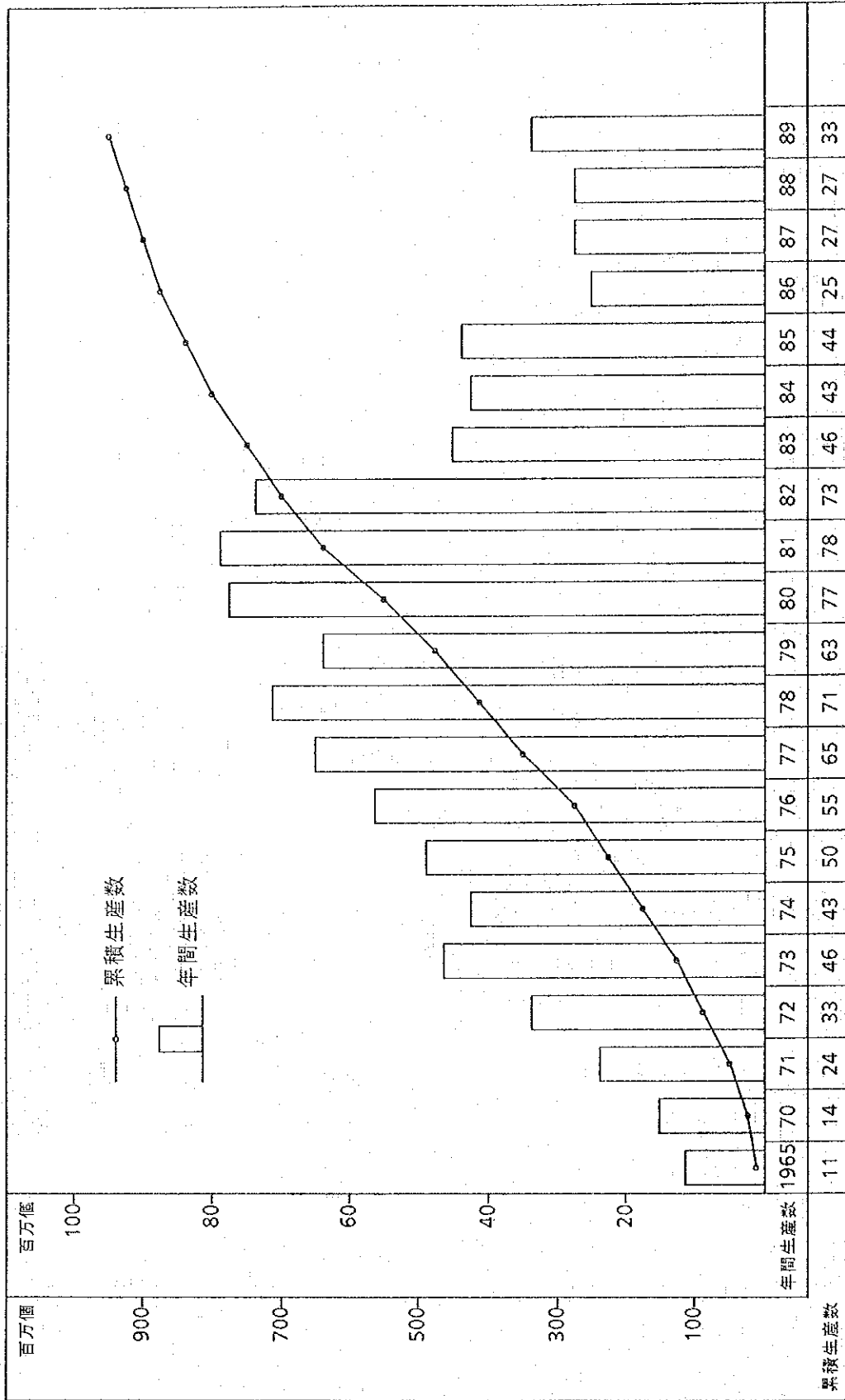
VI-9 輸入受信機台数

	I ラジオおよび ラジオ カセット付 輸入台数	II 寿命10年 の受信台数	III 寿命10年の 受信機 累積台数	IV 寿命15年の 受信機台数	V 寿命15年の 受信機 累積台数	VI 寿命20年の 受信機台数	VII 寿命20年の 受信機 累積台数
1966	1,140		1,140		1,140		1,140
67	1,640		2,780		2,780		2,780
68	4,050		6,830		6,830		6,830
69	7,440		14,270		14,270		14,270
70	9,700		23,970		23,970		23,970
71	10,650		34,620		34,620		34,620
72	13,541		48,161		48,161		48,161
73	21,109		69,270		69,270		69,270
74	25,629		94,899		94,899		94,899
75	29,427		124,326		124,326		124,326
76	35,666	1,140	158,852		159,992		159,992
77	21,513	1,640	178,725		181,505		181,505
78	25,684	4,050	200,359		207,189		207,189
79	19,408	7,440	212,327		226,597		226,597
80	29,483	9,700	223,110		247,080		247,080
81	14,730	10,650	227,190	1,140	260,670		261,810
82	8,900	13,541	222,549	1,640	267,930		270,710
83	3,110	21,109	204,550	4,050	266,990		273,820
84	5,454	25,629	184,375	7,440	265,004		279,274
85	7,376	29,427	162,324	9,700	262,680		286,650
86	8,050	35,666	134,708	10,650	260,080	1,140	283,560
87	8,300	21,513	121,495	13,541	254,839	1,640	300,220
88	8,500	25,684	104,311	21,109	242,230	4,050	304,670

VI-10 受信機普及状況(推定)

	I 受信機寿命20年とし たときの普及台数	II 受信機寿命15年とし たときの普及台数	III 受信機寿命10年とし たときの普及台数
1966	14,000	14,000	14,000
67	34,000	34,000	34,000
68	83,400	83,400	83,400
69	174,200	174,200	174,200
70	292,600	292,600	292,600
71	422,500	422,500	422,500
72	590,327	590,327	590,327
73	815,641	815,641	815,641
74	1,094,271	1,094,271	1,094,271
75	1,336,833	1,336,833	1,336,833
76	1,613,597	1,613,597	1,599,597
77	1,937,634	1,937,634	1,903,634
78	2,379,336	2,379,336	2,295,936
79	2,664,923	2,664,923	2,490,723
80	2,911,533	2,911,533	2,618,933
81	3,100,621	3,086,621	2,678,121
82	3,215,344	3,181,344	2,625,017
83	3,264,163	3,180,763	2,448,522
84	3,325,946	3,151,746	2,231,673
85	3,412,571	3,119,971	2,075,738
86	3,474,384	3,065,884	1,874,787
87	3,491,632	2,935,305	1,587,998
88	3,482,700	2,745,993	1,186,764

VI-11 バッテリー生産数の推移



資料提供：ダルエスサーーム松下電器

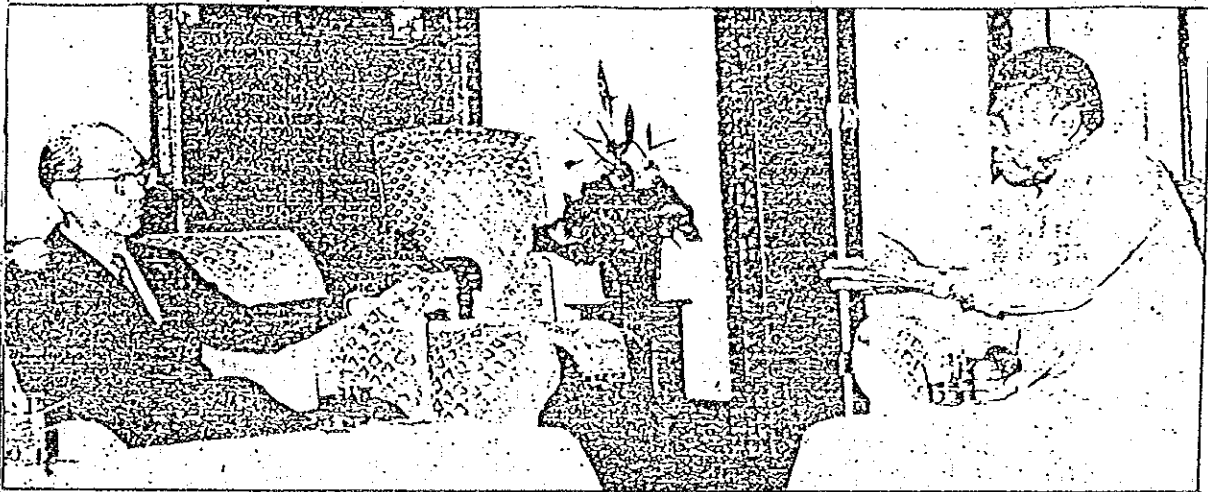
DAILY NEWS

THURSDAY, NOVEMBER 10, 1988

PRICE: EIGHT SHILLINGS. KENYA 4/-

TANZANIA

Mwinyi receives Matsushita chief, urges



PRESIDENT Mwinyi with the Managing Director of Matsushita Electric Company of Japan, Mr. T. Yamastita, at the State House in Dar es Salaam yesterday. (Picture by Henry Isike)

Produce cheap radios for rural people

PRESIDENT Mwinyi yesterday appealed to the Matsushita Electric Company (East Africa) to look into the possibility of manufacturing simple and cheap radio sets for the rural community in Tanzania.

Ndugu Mwinyi said "Tanzania is a vast country and the means of communication is difficult. But radio communication is the only quick link between the masses in the rural areas and the Party and Government leadership in the urban

centres".

President Mwinyi was speaking to the Managing Director of Matsushita Electric Industrial Company Limited of Japan, Mr. T. Yamastita, at the State House in Dar es Salaam.

Ndugu Mwinyi said "They need radio sets but they can't afford to buy them at current prices". They need simple and cheap radio sets which they can afford to buy, he added.

President Mwinyi also told the Matsushita Electric Company to consider the possibility of estab-

lishing workshops for repairs and servicing centres of radio sets in the regions.

The President assured the company that the Government will give the necessary support it needed in manufacturing more products to help meet the demand of the people in Tanzania.

He said: "I am glad for what you are doing in Tanzania. The significance of your activities in the country are of great importance to our economy. The activities of your company are highly appreciated because it is a

transfer of technology to the people of Tanzania".

President Mwinyi also urged the Matsushita Electric Company to consider the possibility of establishing other fields of investment in Dar es Salaam or up-country.

On behalf of his company, the Matsushita Managing Director assured Ndugu Mwinyi that his company will fulfill all the request of the President as soon as possible.

In celebrating twenty years of the establishment of Matsushita Electric in Tanzania, the company has contributed 700,000 towards the Presidential Fund for Self Reliance.

VI-13 ダルエスサラームから各計画地までの道路交通事情

ダルエスサラームから陸路による輸送経路をVI-13-1に示す。

(1) ソンゲア サイト

ダルエスサラームより陸路約1,000kmの完全な舗装高速道路を利用でき(VI-13-1①)、移動時間は2日かかる。要員の移動で空路を使用する場合ダルエスサラーム～ソンゲア空港(チャーター機あるいは、エアー・タンザニア国内航空で1時間)が利用できる。

(2) ナッチングア、リンディ、マサシ サイト

ダルエスサラームからの陸路は図VI-3に示す様にソンゲア経由となるがソンゲア～マサシ間(②)は未舗装で雨期には悪路となり大型トラックでの輸送は困難である。

このためダルエスサラームから海路でムトゥワラ港に輸送しムトゥワラ港より陸路で各サイトへ輸送できる。

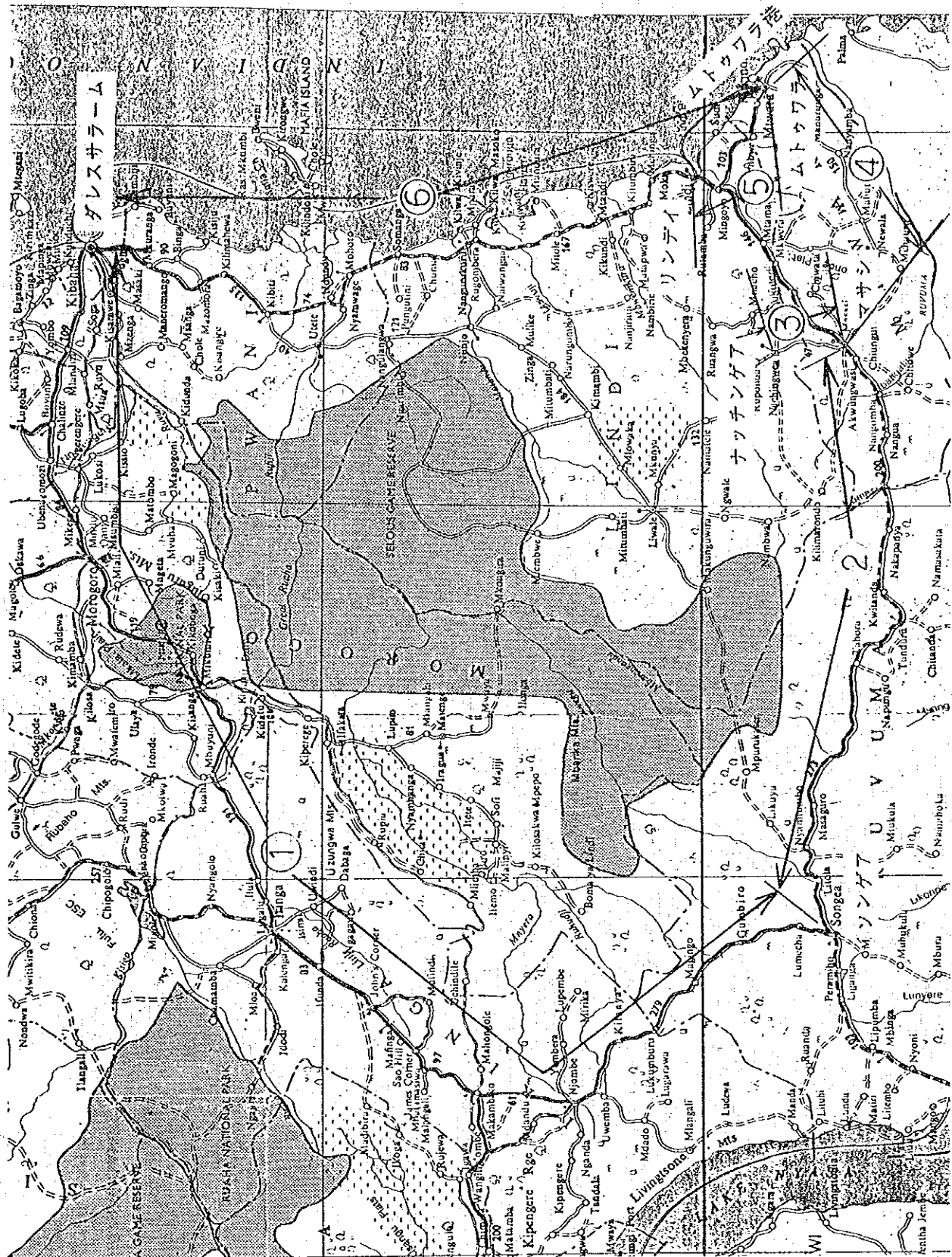
ムトゥワラ港はタンザニア国第二の国際港であり、外国船が寄港している(水深は10m)。

しかし、日本の船会社はムトゥワラ港には寄港せずダルエスサラーム港のみであるためダルエスサラーム港で内航船TACOSHIRI (Tanzania Coastal Shipping Line LTD.)に積み替えて運送することになる。この内航路は週一便18時間の航路(③)である。尚リンディ港についてもこの内航路船が寄港しているが満潮時のみである。

ムトゥワラ港からの各サイトへの道路状況は、マサシ迄(④)完全な舗装道路でありマサシからナッチングアサイト(⑤)迄は道路は大型トラックによる輸送は可能であるが雨期には3から4か所の補修が必要となる。また、ムトゥワラ港からリンディ サイト(⑥)へは簡易舗装の道路となっている。

各サイトへの要員の移動については空路を利用するのが早くかつ確実である。

ナッチングアにはダルエスサラームからナッチングア空港、リンディにはダルエスサラームからムトゥワラ空港(チャーター機あるいは、エアー・タンザニア国内航空で1時間)を利用できる。



VI-13-1 ダルエスサラームから各計画地までの輸送経路

①: ダルエスサラーム	⇨ ソンゲア	(こう長 1,000Km	の舗装道路)
②: ソンゲア	⇨ マサシ	(こう長 473Km	の未舗装道路)
③: マサシ	⇨ ナツチンゲア	(こう長 47Km	の未舗装道路)
④: マサシ	⇨ ムトゥワラ	(こう長 190Km	の舗装道路)
⑤: リンディ	⇨ ムトゥワラ	(こう長 103Km	の舗装道路)
⑥: ダルエスサラーム	⇨ ムトゥワラ港	(海路)	

VII 地質調查結果拔粹

THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF COMMUNICATIONS AND WORKS

THE DIRECTOR
RADIO TANZANIA
P.O. BOX 9150
DAR ES SALAAM

THE GEOTECHNICAL INVESTIGATION WORKS
FOR THE DEVELOPMENT PROJECT FOR MEDIUM
WAVE RADIO BROADCASTING NET WORK FOR
SONGEA AND NACHINGWEA SITES

CENTRAL MATERIALS LABORATORY
P.O. BOX 9452
DAR ES SALAAM

1.0 EVALUATION OF THE BEARING CAPACITY OF THE SOILS.

1.1 Bearing Capacity from Shear Strength Parameters:

1.1.1 Songea Site:

The various test results of coefficient of cohesion, penetration resistance and angle of shearing resistance indicate that local shear failure may be expected.

The bearing capacity of the soils is calculated from Terzaghi's theory. 2,3,4,5

$$q_{net} = cN_c + \gamma D(N_q - 1) + 0.5B\gamma N_\gamma$$

$$\text{and } q_{safe} = \frac{q_{net}}{F} + \gamma D$$

From the summary in Tables 3 and 4 it may be seen that a safe bearing capacity (SBC) of not more than 200KN/m² may be adopted for the antenna site (BH 1) and a maximum SBC of 300KN/m² may be adopted for the building site (BH. 2).

indicate that local shear failure may be expected.

1.1.2 Nachingwea site

Triaxial test results reveal low values of effective cohesion and the angle of shearing resistance, hence suggesting a local shear failure pattern. A summary of safe bearing capacity given in table 5 and 6 indicate a value of 220KN/m² to be acceptable at this site if we are to base on Terzaghi's C' - ϕ ' theory only.

1.2 Bearing Capacity from SPT Data.

The soils at Songea site and those at Nachingwea are both C - ϕ soils. Correlation of SPT and bearing capacity has been established fairly correctly for cohesionless soils, however for cohesive soils no reliable correlation has been published to date⁵. No attempt will be made here of suggesting safe bearing capacity from SPT values.

3.0 CONCLUSIONS AND RECOMMENDATIONS:

Based on the field and laboratory investigations the following conclusions are drawn:-

1. The soils met with both at Songea and Nachingwea sites are generally soft. Whereas they can sustain higher loads from the shearing strength consideration, these loads are restricted by excessive settlements especially at antenna stations, where the foundation width is expected to be about 2.5m.
2. Settlements for particular loading condition (both total and differential) should be checked during the design process and bearing pressure selected accordingly.
3. The safe bearing capacities have been evaluated to be 75KN/m² and 120KN/m² for the Antenna Sites at Songea and Nachingwea respectively while the bearing capacities for the proposed building sites at Songea and Nachingwea are 300KN/m² and 240KN/m² respectively.

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MINISTRY OF COMMUNICATIONS AND WORKS
MATERIALS LABORATORY
SUMMARY OF TEST RESULTS

P.O. Box 9452
DARES SALAAM

PROJECT: RTD BOOSTER STATION-SONGEEA

ORIGINATOR: RADIO TANZANIA

LABORATORY No.	BH NO. 1					BH NO. 2				
LOCATION										
SAMPLE No	1	2	3	4	5	1	2	3	2	
DEPTH IN (H)	0.5	3.0	4.3	5.2	6.0	1.0	2.0	3.2	4.0	
COLOUR										
GRADATION										
% passing (76mm) 3 in.										
(38mm) 1 1/2 in.	100					100				
(19mm) 3/4 in.	94					97				
(9.5mm) 3/8 in.	91					82				
(4.75) 3/16 in.	100	85	100	100			100	74		
B.S. Sieve No. 7	100	99	74	89	99	100	100	95	71	
14	99	98	62	79	98	98	98	87	65	
25	96	95	57	70	96	92	92	78	58	
36	92	92	55	66	95	85	85	73	54	
52	87	88	53	62	93	77	77	68	50	
72	78	81	49	56	88	65	65	60	44	
100	71	74	46	52	81	55	55	54	40	
200'	64	65	41	44	70	46	46	46	34	
ATTERBERG LIMITS										
L.L.	49	51	54	48	59	36	43	48	33	
P.L.	21	24	22	22	22	13	15	20	19	
P.I.	28	27	32	26	37	23	28	28	14	
CLASSIFICATION PKA/UNIFIED/FAA	CL	CL	SC	SC	CH	SC	SC	SC	SC	
COMPACTION										
(Std/Mod.) M.D.D. kg/m ³										
O.M.C.										
F.D.D. kg/m ³	1382	1844	2020	1684		1869	2002	1928		
F.M.C.	23.0	24.2	10.7	24.3		14.7	13.5	13.7		
Field Compaction (%)										
C.B.R.										
At 95/100% M.D.D. Std/Mod. kg/m ³ Unsoaked										
1 day soaked										
4 days soaked										
Swell (%)										
TRIAXIAL										
Cohesion kn/m ²										
Friction										
U.C.C.										
Max Strength										
Strain at failure (%)										

Date: _____

TABLE 1

MATERIALS ENGINEER

MINISTRY OF COMMUNICATIONS AND WORKS
MATERIALS LABORATORY
SUMMARY OF TEST RESULTS

P.O. Box 9452
DAR ES SALAAM

PROJECT: RTD BOOSTER STATION - NACHINGWEA

ORIGINATOR: RADIO TANZANIA

LABORATORY No.										
LOCATION		BH. 1						BH. 2		
SAMPLE No	1	2						1	2	3
DEPTH IN (M)	1.0	3.5	4.6					1.8	4.4	6.0
COLOUR										
GRADATION										
% passing (76mm) 3 in.										
(38mm) 1 1/2 in.										
(19mm) 3/4 in.										
(9.5mm) 3/8 in.										
(4.75) 3/16 in.	100	100						100	100	
B.S. Sieve No. 7	89	92						100	97	99
14	70	77						97	93	98
25	57	62						91	81	93
36	51	55						88	76	87
52	46	49						85	73	81
72	41	45						81	69	74
100	37	41						77	66	68
200	31	36						73	61	59
ATTERBERG LIMITS										
L.L.	32	47						48	41	45
P.L.	11	18						18	17	13
P.I.	20	29						30	24	32
CLASSIFICATION										
PROPOSED/UNIFIED/FAA	SC	SC						CL	CL	CL
COMPACTION										
(Std/Mod.) M.D.D. kg/m ³										
O.M.C.										
F.D.D. kg/m ³	1965	1968	1543					1534	1634	
F.M.C.	11.9	24.7	17.6					22.9	22.1	
Field Compaction (%)										
C.B.R.										
At 95/100% M.D.D. Std/Mod. kg/m ³ Unsoaked										
1 day soaked										
4 days soaked										
Swell (%)										
TRIAXIAL										
Cohesion kn/m ²										
Friction										
U.C.C.										
Max Strength										
Strain at failure (%)										

Date: _____

TABLE 2

MATERIALS ENGINEER

Table - 3 Result from BH 1, site for Antenna Songea Depth of foundation
D = 2.0m

S/NO.	Width (m)	Safe bearing capacity (F.S. = 2.5 KN/m ²)
1.	1.0	213.8
2.	1.5	219.5
3.	2.5	230.0
4.	3.5	242.5

Table - 4 Results from BH 2, site for Transmission Building Songea

S/NO	Width (m)	Safe Bearing Capacity F.S. = 2.5 (KN/m ²)
1.	0.8	307.5
2.	1.0	311.8
3.	1.5	322.7
4.	2.0	333.7
5.	2.5	344.6

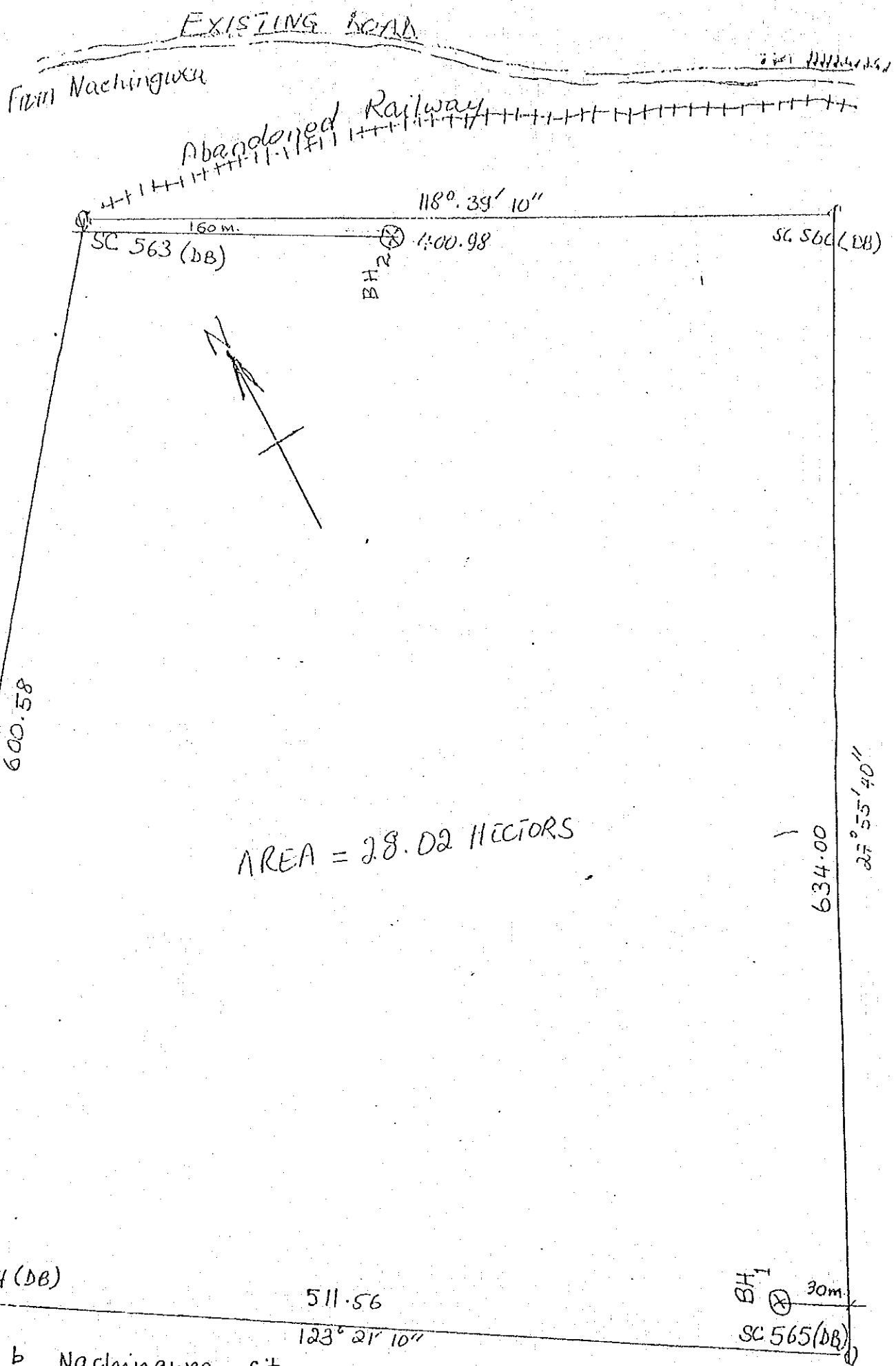


FIG. 1 b Nachingwea site

MINISTRY OF COMMUNICATION AND WORKS

MATERIALS LABORATORY P.O. Box 9452 DAR ES SALAAM

BORE LOG

Project R.T.D. BOOSTER STATION - SONGEA Location ANTENNA AREA
 Bore Hole No. 1 Ground Elevation _____ Boring by _____ Date 29/01/89

Depth in cm	Depth in (ft.)	Elevation	Thickness	Legend	Type of soil, colour & consistency	Sample No.	S.P.T. S.C.P.											
							Blows per		(N--Value)									
							6" 15 cm	12" 30 cm	2	3	4	5	6	7				
30	1				Top soil													
60	2				Reddish Brown													
90	3				silty clay soil													
120	4																	
150	5																	
180	6					2												
210	7																	
240	8																	
270	9																	
300	10																	
340	11																	
370	12																	
400	13				Reddish Brown silty													
430	14				clay soil with													
460	15				scattered sand													
490	16				granules and small	18												
520	17				stone													
550	18																	
580	19					5												
610	20				Reddish Brown													
640	21				silty clay soil													
670	22																	
700	23																	
730	24																	
760	25				Reddish brown silty	6												
790	26				clay with highly													
820	27				decomposed rock													
850	28																	
880	29																	
910	30																	

Remarks:- Fig. 2 - Bore log for BH No. 1 of Songea site

Driller:-

MATERIALS ENGINEER.

MINISTRY OF COMMUNICATION AND WORKS

MATERIALS LABORATORY P.O. Box 9452 DAR ES SALAAM

BORE LOG

Project R.T.D. BOOSTER STATION - SONGEA Location BUILDING AREA
 Bore Hole No. 2 Ground Elevation _____ Boring by _____ Date 27/01/89

Depth in cm	Depth in (ft.)	Elevation	Thickness	Legend	Type of soil, colour & consistency	Sample No.	S.P.T. S.C.P.											
							Blows per		(N-Value)									
							6" 15cm	12" 30cm	10	20	30	40	50					
30	1				Top soil													
60	2				Reddish silty clay soil													
90	3																	
120	4																	
150	5				Reddish silty clay	8												
180	6				sand soil (stiff)	9												
210	7																	
240	8																	
270	9																	
300	10					6												
340	11				Reddish silty clay	24												
370	12				sand soil with big													
400	13				sand granules with	25												
430	14				scattered decomposed	50/30cm												
460	15				stone fragments													
490	16																	
520	17																	
550	18																	
580	19																	
610	20																	
640	21																	
670	22																	
700	23																	
730	24																	
760	25																	
790	26																	
820	27																	
850	28																	
880	29																	
910	30																	

Remarks:-

Fig. 3 - Typical Borelog for BH No. 2 of Songea Site

Driller:-

MATERIALS ENGINEER.

MINISTRY OF COMMUNICATION AND WORKS

MATERIALS LABORATORY P.O. Box 9452 DAR ES SALAAM

BORE LOG

Project RTD BOOSTER STATION-NACHINGWEA Location ANTENNA AREA
 Bore Hole No. 1 Ground Elevation _____ Boring by _____ Date 05-02-89

Depth in cm	Depth in (ft)	Elevation	Thickness	Legend	Type of soil, colour & consistency	Sample No.	S.P.T. S.C.P.												
							Blows per		(N-Value)										
							6" 15 cm	12" 30 cm	10	20	30	40	50	60					
30	1				Top soil														
60	2				Reddish brown silty sand clay soil														
90	3																		
120	4																		
150	5						32												
180	6							60/26cm											
210	7				Decomposed rock layer-very soft														
240	8				Reddish brown silty sand clay with scattered small fragments of decomposed rock up to 3.7m														
270	9																		
300	10																		
340	11						11 t												
370	12							60/33.0cm											
400	13				Brownish silt sandy clay soil														
430	14						24												
460	15							50/7.0cm											
490	16																		
520	17																		
550	18																		
580	19																		
610	20																		
640	21																		
670	22																		
700	23																		
730	24																		
760	25																		
790	26																		
820	27																		
850	28																		
880	29																		
910	30																		

Remarks:-

Fig. 4 - Typical bore log for BH No.1
Songea Nachingwea site

Drillern-

MATERIALS ENGINEER.

MINISTRY OF COMMUNICATION AND WORKS

MATERIALS LABORATORY P.O. Box 9452 DAR ES SALAAM

BORE LOG

Project RED BOOSTER STATION-NACHINGWEA Location TRANSMISSION BUILDING
 Bore Hole No. 2 Ground Elevation _____ Boring by _____ Date 06/02/89

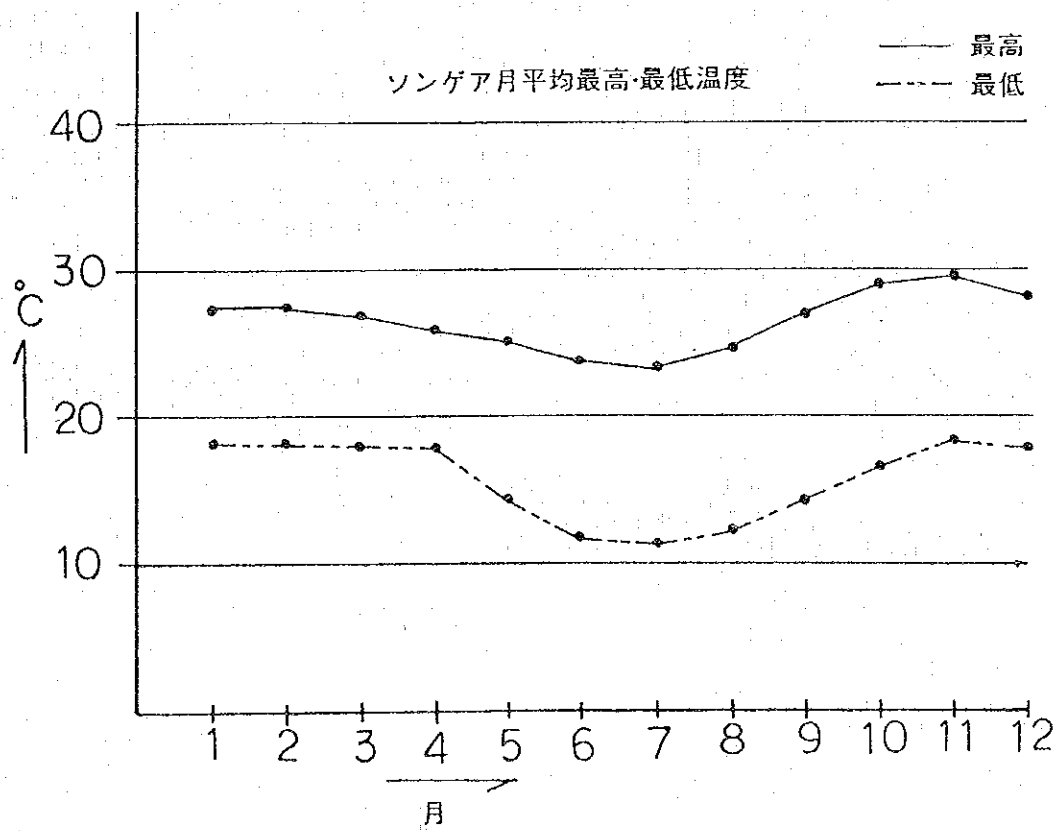
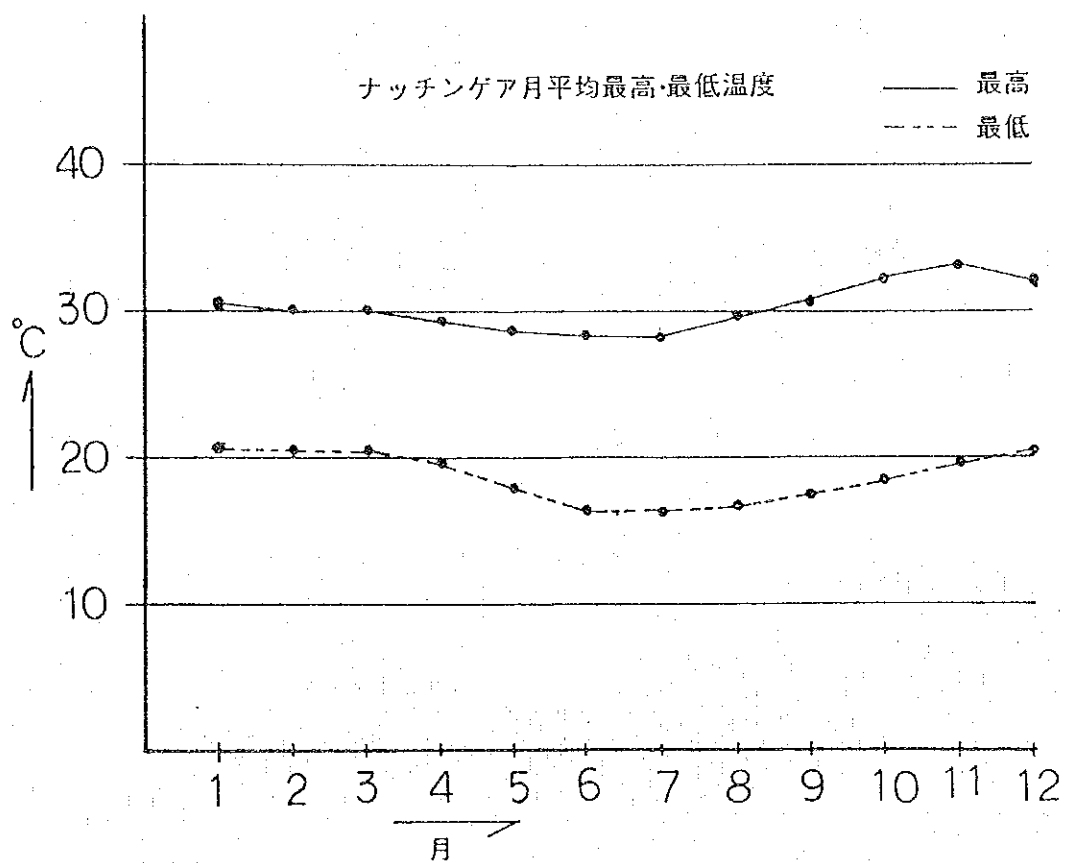
Depth in cm	Depth in (ft.)	Elevation	Thickness	Legend	Type of soil, colour & consistency	Sample No.	S.P.T. S.C.P.											
							Blows per		(N-Value)									
							6" 15cm	12" 30cm	10	20	30	40	50					
30	1				Top soil													
60	2				Reddish silty calyey soil													
90	3																	
120	4																	
150	5																	
180	6																	
210	7					2												
240	8						7	0										
270	9																	
300	10																	
340	11																	
370	12																	
400	13				Reddish silty clayey soil, traces of mica was observed.	3												
430	14						6	0										
460	15																	
490	16																	
520	17																	
550	18																	
580	19																	
610	20					2												
640	21						5	0										
670	22																	
700	23																	
730	24																	
760	25																	
790	26					3												
820	27						5	0										
850	28																	
880	29																	
910	30					3												
730	24						6	0										
760	25																	
790	26					3	7	0										
820	27																	
850	28																	
880	29																	
910	30																	

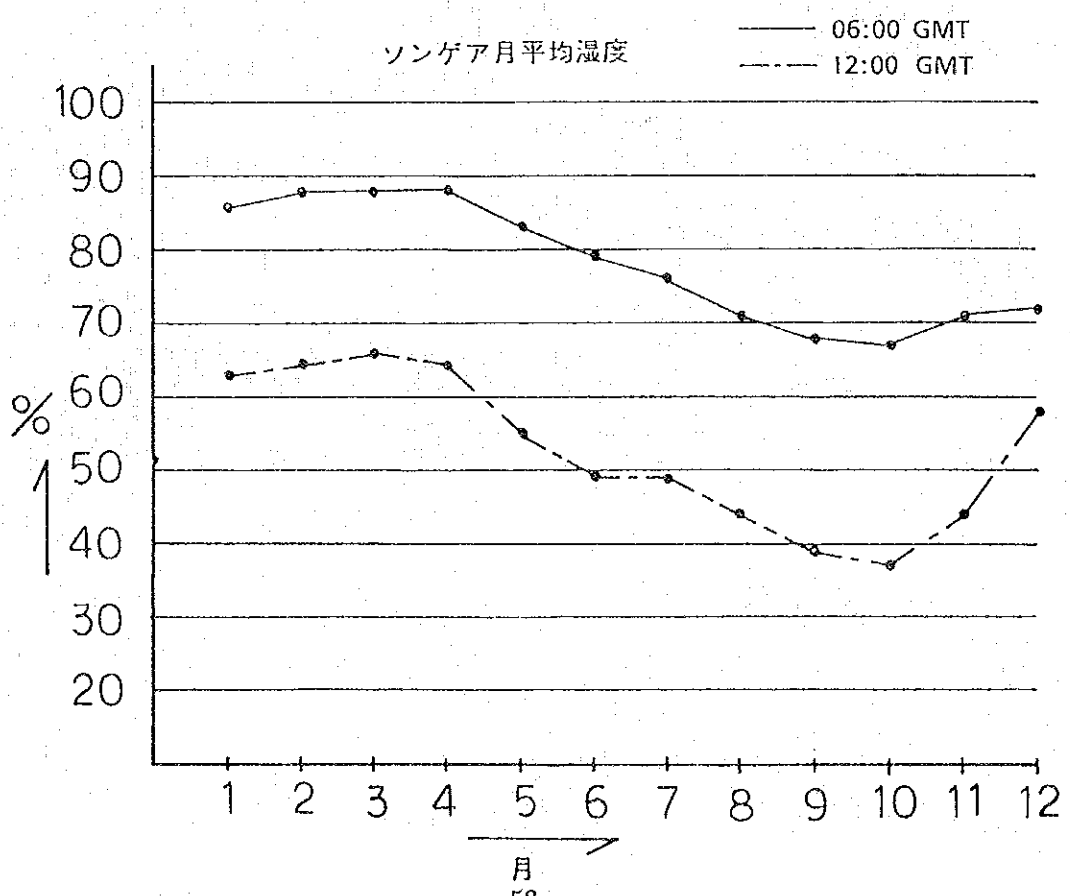
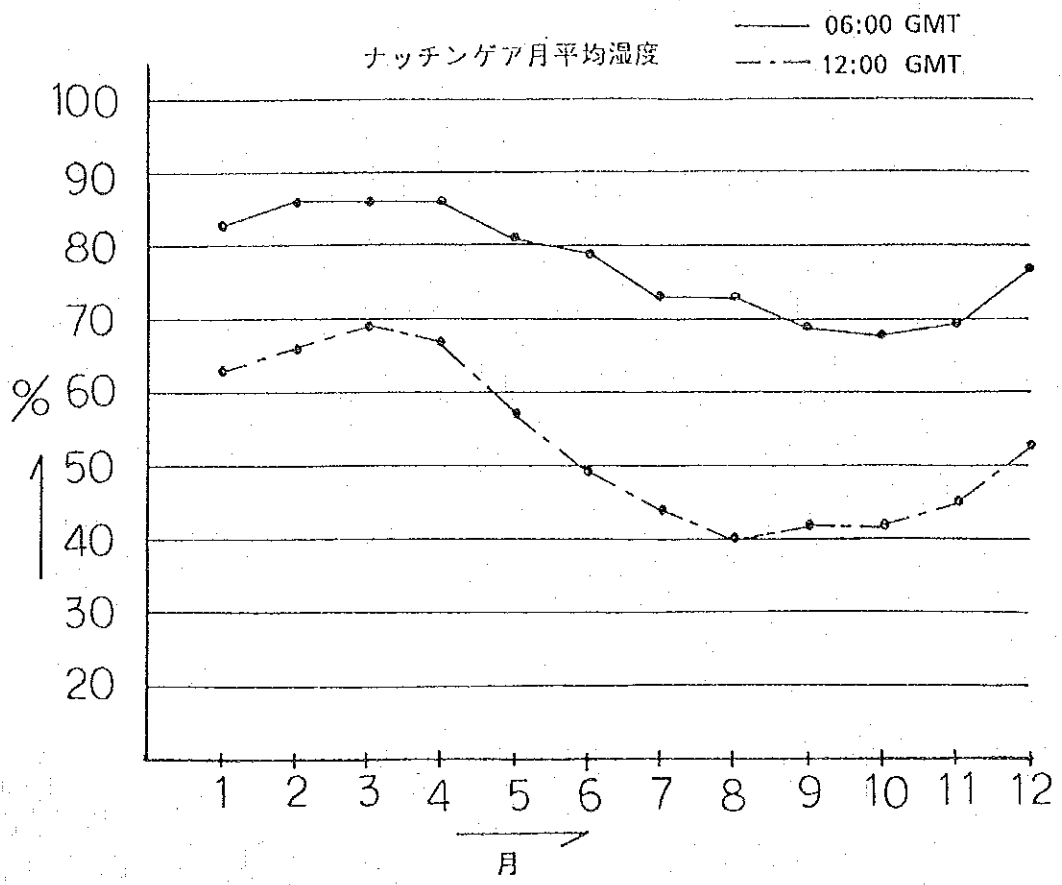
Remarks:- Fig. 5 Typical bore log for BH No.2 of Nachingwea site

Driller:-

MATERIALS ENGINEER.

VIII 参 考 资 料





STATION NAME: NACHINGWEA PART TIME MET. STATION
 LATITUDE: 10°21'S LONGITUDE: 38°45'E ALTITUDE: 1520 FEET

MONTH	ATMOSPHERIC PRESSURE		TEMPERATURE (1951-70)										RELATIVE HUMIDITY			RAINFALL (1949-50)		
	0600 GMT	1200 GMT	MEANS		EXTREMES		DRY BULB		DEW POINT		0600 GMT		1200 GMT		MEAN	HIGHEST	LOWEST	MAX. 24 HOUR FALL
	hPa	hPa	MIN. °C	RANGE °C	HIGHEST °C	LOWEST °C	0600 °C	1200 °C	0600 °C	1200 °C	0600 °C	1200 °C	%	%	mm	mm	mm	mm
January	30.5	30.5	20.5	10.0	37.4	13.6	24.5	28.9	21.4	21.3	83	63	470	48	196	48	94.3	
February	30.0	30.0	20.4	9.6	35.0	14.5	24.2	28.6	21.7	21.6	86	66	328	66	188	66	108.7	
March	30.0	30.0	20.4	9.6	35.3	10.3	24.3	28.4	21.9	22.0	86	69	373	53	196	53	141.4	
April	29.3	29.3	19.7	9.6	32.6	13.7	23.5	27.8	21.2	21.1	86	67	310	40	151	40	102.9	
May	28.6	28.6	17.9	10.7	33.0	11.6	22.3	27.7	19.0	18.5	81	57	151	0	29	0	54.2	
June	28.2	28.2	16.4	11.8	34.0	9.0	20.8	27.2	17.0	15.5	79	49	32	0	4	0	12.6	
July	28.1	28.1	16.2	11.9	31.5	7.7	20.4	26.8	15.4	13.5	73	44	31	0	4	0	20.2	
August	29.5	29.5	16.6	12.9	34.0	10.8	21.3	28.1	16.4	13.4	73	40	15	0	1	0	13.0	
September	30.8	30.8	17.5	13.3	36.0	11.5	22.9	29.4	17.2	15.1	69	42	28	0	4	0	23.0	
October	32.1	32.1	18.4	13.7	36.3	12.9	24.6	30.8	18.2	16.1	68	42	37	0	6	0	19.9	
November	33.0	33.0	19.5	13.5	36.5	13.5	25.5	31.0	19.4	17.7	69	45	211	2	6.6	2	143.0	
December	32.1	32.1	20.4	11.7	38.5	12.1	25.5	30.3	21.2	19.6	77	53	318	1	12.5	1	123.7	
Year			30.2	11.5	38.5	7.7	23.3	28.8	19.2	17.9	77	53	1241	575	950	575	123.7	

MONTH	MEAN NUMBER OF DAYS OF RAIN	THUNDER days	DAILY SUNSHINE		DAILY RADIATION (1964-70)			MONTHLY EVAPORATION ()			CLOUD AMOUNT (1951-70)			DAILY WIND RUN ()	WIND SPEED (1951-62) knots	CALMS (06-1966-70) (12-1950-56) days	VISIBILITY (1956-67)						
			MAX. hours	MEAN hours	INSTRUMENT	MAX. GB	MEAN GB	MIN GB	MEAN mm	HIGHEST mm	LOWEST mm	TOTAL	0600				1200	0600	1200	0600	1200	0600	1200
			hours	hours	MEAN	MEAN	MEAN	mm	mm	mm	oktas	oktas	oktas				oktas	oktas	oktas	oktas	oktas	oktas	oktas
January	12		22.11	25.21	17.17	19.80	21.65	17.71	6.4	6.7	6	5	1	1	1	0	2	1					
February	9		19.80	21.65	17.71	23.57	26.00	18.30	6.4	6.8	4	5	1	2	1	1	2	1					
March	14		23.57	25.50	21.48	23.24	25.50	21.48	6.0	6.7	3	4	1	2	0	1	1	2					
April	13		23.24	26.34	21.56	23.61	26.34	21.56	5.4	6.3	5	5	3	1	1	1	1	1					
May	5		23.61	24.24	21.35	22.99	24.24	21.35	3.5	4.9	6	7	0	1	0	0	1	0					
June	1		22.99	25.04	18.55	21.23	25.04	18.55	2.8	4.9	6	7	2	1	0	0	1	1					
July	1		21.23	25.83	21.40	23.66	25.83	21.40	3.0	5.5	7	7	0	0	1	1	1	0					
August	1		23.66	26.34	22.48	23.82	26.34	22.48	3.4	5.6	6	8	1	1	0	0	1	1					
September	1		23.82	25.83	21.77	24.37	25.83	21.77	4.1	5.9	6	7	3	0	0	0	1	1					
October	1		24.37	26.46	22.57	24.41	26.46	22.57	4.9	5.7	6	7	2	0	1	1	1	1					
November	4		24.41	26.46	22.57	24.58	26.46	22.57	5.3	6.0	6	6	2	1	0	1	1	1					
December	9		24.58	28.09	22.36	24.58	28.09	22.36	5.9	6.3	7	6	1	1	1	1	1	1					
Year	71		23.11			23.11			4.8	5.9	6	4	4	17	11	6	7	12	10				

STATION NAME: SONGEA AIRPORT MET. STATION

LATITUDE: 10°41'S LONGITUDE: 36°35'E ALTITUDE: 3500FEET

MONTH	TEMPERATURE (1957-80)										RELATIVE HUMIDITY				RAINFALL (1956-80)						
	MEANS					EXTREMES					DRY BULBS		DEW POINT		MEAN		HIGHEST		LOWEST		MAX. 24 HOUR FALL
	0600 GMT	1200 GMT	1800 GMT	2400 GMT	24-HR RANGE	HIGHEST	LOWEST	0600 GMT	1200 GMT	1800 GMT	2400 GMT	0600 GMT	1200 GMT	0600 GMT	1200 GMT	0600 GMT	1200 GMT	0600 GMT	1200 GMT		
January	896.6	897.1	897.5	897.9	9.2	32.5	13.2	20.9	25.6	18.1	17.8	94	86	63	432	177	40.3				
February	896.3	897.6	898.2	898.8	9.1	32.0	15.5	20.4	25.8	18.7	18.1	96	88	64	421	82	87.5				
March	897.2	898.1	899.0	899.9	8.9	34.5	7.0	20.7	24.9	18.5	18.1	96	88	66	427	69	89.4				
April	898.2	899.1	900.0	900.9	8.7	30.5	11.3	20.2	24.7	17.4	17.2	96	88	64	423	15	64.0				
May	900.1	901.0	902.0	902.9	10.9	30.1	8.4	18.5	23.9	15.4	13.8	94	83	55	47	0	25.6				
June	901.6	902.5	903.4	904.3	11.6	28.8	5.2	16.5	22.7	12.9	10.1	91	79	49	6	0	4.3				
July	902.2	903.1	904.0	904.9	12.0	28.8	4.2	16.1	21.9	11.6	10.0	88	76	49	4	0	25.2				
August	901.4	902.3	903.2	904.1	12.5	29.0	6.6	17.5	23.5	12.4	10.0	83	71	44	0	0	5.1				
September	900.5	901.4	902.3	903.2	12.7	31.1	8.1	19.4	24.0	13.2	10.3	84	68	39	5	0	4.0				
October	899.5	900.4	901.3	902.2	12.4	34.4	9.3	21.2	27.0	14.4	11.1	83	67	37	7	33	25.9				
November	898.0	898.9	899.8	900.7	11.1	33.7	14.0	22.2	28.2	16.2	14.4	80	71	44	63	175	55.3				
December	897.0	897.9	898.8	899.7	10.1	33.7	15.5	21.5	26.3	18.1	16.7	92	82	58	212	408	84.0				
Year	899.0	900.0	901.0	902.0	10.8	34.5	4.2	19.6	25.1	15.7	14.1	90	79	52	1435	668	90.3				

MONTH	MEAN NUMBER OF DAYS OF RAIN	DAILY RADIATION (1947-50)	MONTHLY EVAPORATION (1962-76)					CLOUD AMOUNT (1957-80)				DAILY WIND RUN (1971)	WIND SPEED (1952-80)	CALMS (1966-70)	VISIBILITY (1961-80)			
			PAN TYPE A		TOTAL			TOTAL		LOW					FOG	MIST	HAZE	
			MEAN	HIGHEST	LOWEST	0600 GMT	1200 GMT	1800 GMT	0600 GMT	1200 GMT	0600 GMT							1200 GMT
January	17	1533	217	291	170	6.6	6.5	4.8	5.5	114.7	5	8	10	2	1	0	1	1
February	15	1606	194	268	150	6.5	6.6	4.4	5.4	113.8	4	9	9	2	1	1	1	1
March	15	1529	241	304	166	6.5	6.6	5.2	5.8	104.9	5	8	10	3	1	2	1	1
April	6	1428	191	289	132	6.2	6.5	5.6	6.0	124.9	6	8	7	2	1	0	2	1
May	0	1435	190	280	122	4.5	6.0	3.8	5.1	112.0	6	8	9	2	1	0	1	1
June	0	1393	196	317	114	4.1	5.6	3.0	5.2	134.2	6	9	9	1	0	0	1	1
July	0	1471	223	257	123	4.3	5.8	3.6	5.3	146.7	7	9	7	1	0	0	1	1
August	0	1635	243	264	170	3.3	5.7	3.2	5.3	151.9	8	9	7	1	0	0	1	1
September	0	1683	243	305	201	3.2	5.1	3.5	5.0	167.3	11	11	7	1	0	0	1	1
October	1	1628	241	320	245	4.4	5.1	3.1	4.8	221.4	12	12	0	0	0	0	1	1
November	5	1628	231	297	138	5.3	5.7	4.5	5.4	195.8	10	11	0	0	0	0	1	1
December	13	1572	272	291	189	6.5	6.2	5.2	5.5	174.3	7	9	5	2	0	0	1	1
Year	13	1572	272	291	189	6.5	6.2	5.2	5.5	174.3	7	9	5	2	0	0	1	1

STATION NAME: MTHARA MET. STATION

LATITUDE: 10°31'S LONGITUDE: 40°11'E ALTITUDE: 370FEET

MONTH	ATMOSPHERIC PRESSURE (1957-80)		TEMPERATURE (1957-80)				EXTREMES				TEMPERATURE MEANS (1957-80)				DEW POINT				RELATIVE HUMIDITY				RAINFALL (1950-80)							
	1957-80		MEANS		RANGE		HIGHEST		LOWEST		0600 GMT		1200 GMT		0600 GMT		1200 GMT		0600 GMT		1200 GMT		0600 GMT		1200 GMT		0600 GMT		1200 GMT	
	0600 GMT	1200 GMT	MAX	MIN	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	%	%	%	%	mm	mm	mm	mm	mm	mm	mm	mm
January	999.2	996.5	30.2	23.2	7.0	34.4	19.7	26.6	28.8	23.6	23.2	8.4	93	73	233	55.5	51	84	93	73	233	55.5	51	84	199.6	177.7	168.7	157.1	148.7	137.1
February	998.8	996.1	30.4	23.0	7.4	35.0	20.0	26.6	29.0	23.7	23.4	8.5	94	73	177	45.1	17	85	94	73	177	45.1	17	85	168.7	157.1	148.7	137.1	128.7	117.1
March	999.4	996.5	30.7	22.6	8.1	34.1	19.9	26.5	28.7	23.8	23.7	8.6	95	75	241	75.6	71	86	95	75	241	75.6	71	86	232.7	223.7	214.7	205.7	196.7	187.7
April	1000.5	997.7	30.5	22.3	8.2	33.9	18.5	25.8	28.5	23.6	23.6	8.6	95	74	194	41.6	15	86	95	74	194	41.6	15	86	132.4	123.4	114.4	105.4	96.4	87.4
May	1002.7	1000.1	30.0	20.7	9.3	32.8	13.4	24.5	28.6	21.2	20.7	9.1	92	64	138	20.7	2	79	92	64	138	20.7	2	79	109.2	100.2	91.2	82.2	73.2	64.2
June	1004.9	1002.4	29.3	19.1	10.2	32.2	12.7	23.1	28.0	19.0	18.4	8.0	91	58	112	18.4	0	79	91	58	112	18.4	0	79	45.7	36.7	27.7	18.7	9.7	0.7
July	1005.6	1003.3	29.0	18.6	10.4	31.5	12.2	22.4	27.8	17.2	17.2	8.0	92	55	114	17.2	0	80	92	55	114	17.2	0	80	25.7	16.7	7.7	0.7	0.7	0.7
August	1005.3	1002.7	29.6	18.4	11.2	32.7	15.0	23.2	28.2	19.3	17.5	8.0	94	55	112	17.5	0	80	94	55	112	17.5	0	80	22.9	13.9	4.9	0.9	0.9	0.9
September	1004.6	1001.8	29.8	18.7	11.1	32.8	15.0	24.7	28.8	20.3	15.6	8.5	95	58	112	20.3	2	77	95	58	112	20.3	2	77	91.2	82.2	73.2	64.2	55.2	46.2
October	1003.4	1000.4	30.3	20.1	10.2	34.1	15.6	26.5	28.8	21.1	20.2	9.4	94	63	112	21.1	0	73	94	63	112	21.1	0	73	74.4	65.4	56.4	47.4	38.4	29.4
November	1001.5	998.5	31.1	21.9	9.3	35.1	17.4	29.5	29.5	22.2	21.7	9.5	95	74	112	22.2	0	74	95	74	112	22.2	0	74	74.4	65.4	56.4	47.4	38.4	29.4
December	999.9	996.7	30.7	23.1	7.6	34.8	19.9	27.4	29.2	23.3	23.0	9.3	93	80	112	23.3	4	80	93	80	112	23.3	4	80	184.1	175.1	166.1	157.1	148.1	139.1
Year	1002.2	999.4	30.1	21.0	9.2	35.1	12.2	25.4	28.7	21.7	21.0	8.1	94	65	112	21.7	1	81	94	65	112	21.7	1	81	191.6	182.6	173.6	164.6	155.6	146.6

MONTH	MEAN NUMBER OF DAYS OF	DAILY SUNSHINE (1971-80)			DAILY RADIATION (1971-80)			MONTHLY EVAPORATION (1957-80)			CLOUD AMOUNT (1957-80)			DAILY WIND RUN (1971-80)			WIND SPEED (1957-80)			VISIBILITY (1961-80)									
		MEAN			MEAN			MEAN			TOTAL			RUN			SPEED			FOG			MIST/HAZE						
		hours	hours	hours	hours	hours	hours	hours	mm	mm	mm	oktas	oktas	oktas	oktas	oktas	oktas	km	km	km	km	km	km	km	km	km	km	km	km
January	13	6.4	10.5	4.1	15.69	17.03	13.60				6.2	5.8	4.6	171.7	7	11	7	0	0	0	0	0	0	0	0	0	0	0	0
February	12	7.0	7.4	4.3	16.98	19.12	14.32				5.8	5.7	4.4	159.6	7	10	6	0	0	0	0	0	0	0	0	0	0	0	0
March	15	5.9	6.2	5.3	15.59	16.73	14.51				5.2	6.1	3.5	110.4	7	8	7	0	0	0	0	0	0	0	0	0	0	0	0
April	15	6.6	8.3	4.8	15.04	17.63	13.08				4.7	6.1	3.4	100.9	10	9	2	0	0	0	0	0	0	0	0	0	0	0	0
May	6	7.8	10.0	4.8	16.21	17.37	14.77				3.7	5.1	2.6	205.1	13	11	1	0	0	0	0	0	0	0	0	0	0	0	0
June	4	9.2	10.0	8.7	16.14	17.54	15.07				3.2	4.3	2.0	223.4	14	11	1	0	0	0	0	0	0	0	0	0	0	0	0
July	2	8.7	9.5	8.0	15.92	16.85	13.84				3.5	4.9	2.3	243.8	11	12	0	0	0	0	0	0	0	0	0	0	0	0	0
August	2	9.1	9.9	8.2	15.52	18.41	15.99				4.6	4.7	2.6	151.7	10	13	0	0	0	0	0	0	0	0	0	0	0	0	0
September	3	9.1	10.1	8.2	15.52	18.41	15.99				4.6	4.7	2.6	163.8	8	13	3	0	0	0	0	0	0	0	0	0	0	0	0
October	4	9.4	10.1	8.5	17.74	18.74	16.76				5.7	4.6	5.5	135.8	8	13	4	0	0	0	0	0	0	0	0	0	0	0	0
November	5	9.6	11.1	8.3	18.58	19.66	17.31				5.7	4.5	5.5	133.2	7	12	4	0	0	0	0	0	0	0	0	0	0	0	0
December	11	8.2	9.9	6.6	17.08	19.21	15.36				5.9	5.3	5.3	145.3	7	12	5	0	0	0	0	0	0	0	0	0	0	0	0
Year	90	8.1	8.9	7.5	16.44	16.99	15.49				4.3	5.2	3.2	166.9	9	11	4	0	0	0	0	0	0	0	0	0	0	0	0

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