

附属資料

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タンザニア国ムワンザ州基本図作成

タンザニア国政府要請書

Request for Technical Assistance

for Topographical Mapping

in Mwanza - Geita Block

November 1989

Ministry of Lands, Natural Resources and Tourism

1. Project Outline

(1) Responsible Ministry : Department of Surveys and Mapping,
Ministry of Lands, Natural Resources and Tourism, Tanzania.

(2) Location : North-west of Tanzania. Approx. 15,000 sqkm/20
quarter-degree sheets in the original Mwanza Block, and
approx. 9,000 sqkm/12 quarter-degree sheets from Geita,
which belongs to Mwanza Region administratively in the
original Geita-Shinyanga Block. Please see Attachment 1.

The sheets are Nos. 20/3 & 4, 21/2, 3 & 4, 22/1 to 4, 23/1
to 4, 32/1 to 4, 33/1 to 4, 34/1 to 4, 35/1 to 4, 45/2 and
46/1 & 2.

Upon completion of this new mapping project, the original
blocks of Mwanza and Geita-Shinyanga will be re-organized
into Mwanza-Geita Block and Shinyanga Block.

(3) Tasks : It is requested that the technical cooperation by
the Japanese Government will include the following tasks :

1) Ground Control, Aerial Photography and preparation of
1/50,000 topographical maps covering the area, contours
and spot heights being in metres.

2) Additional establishment of ground survey stations as
will be necessary to ease future surveying works and
various development projects.

3) Carrying out construction of more benchmarks and levelling
lines in the area.

4) Institutional support : In each phase of the new mapping,
strengthening of capability of the Department will be made
by training of Tanzanian staff and by modernizing its
facilities. In all the sections of the Department, there
is an urgent need for training of its staff. Most of the
technicians and professionals are locally trained. Overseas
and advanced local training is needed to cope with the
advent of more modern techniques necessary to meet the
increasing demand for maps in the country.

The institutional support should include a review of the existing production routines in the geodetic, photogrammetric, cartographic and printing sections and give recommendations for improvements.

2. Background

The importance of national coverage of updated maps is evident for planning and implementation of development projects. Maps are needed for the efficient development of social economic infrastructure, urban and rural settlement, agriculture, etc. The basic topographical mapping in Tanzania is at the scale of 1/50,000. Complete coverage of the country requires 1,253 quarter-degree sheets. These sheets are compiled by photogrammetric methods and are produced in five colours with contour interval of 50 feet for the old series or 20-metres interval for the more recent editions. Since Mbeya-Iringa 1/50,000 mapping project has already been completed, Tanzania is now fully covered by the national topographical map series at a scale of 1/50,000 in feet or metres. Revision is now necessary for the earlier mapping which was carried out early in 1960's.

Like other technical fields, the original mapping had been done before the Metric Policy was introduced, and surveying and mapping technology was not advanced. Distance, contours and spot heights were based on the Foot. All the maps are now being prepared based on the metric system with contours and spot heights in metres. But for proper use of the maps, especially when projects extend from one sheet to another, it is necessary for the maps to be based on the same system. The contours should then be continuous from sheet to sheet.

The department's main role is to replace all the old maps by the following factors :

- The Metric Policy was implemented in Tanzania and thus affected most aspects of surveying and mapping.
- As the largest scale National Base Map, 1/50,000 topographical map has to be standardised.
- Modern engineering technology has gone metric. Surveying instruments, especially those used for measuring distances, have all been manufactured so as to read in metric units.

- As a result, such surveys and larger scale maps at development sites as villages boundary surveys and land use mapping are usually requiring contours in metres.
- The accepted Geodetic Projection used in obtaining ground coordinates is employed so as to give coordinates in metres. It is thus more necessary to use the same unit for a planimetric and height control, especially on our maps.
- All the newly prepared maps have to be in metric form for uniformity. The 1/50,000 scale map is used as the base to produce the smaller scale maps such as 1/250,000 standard medium scale series, 1/100,000 - 1/500,000 District Map series, 1/100,000 - 1/500,000 Regional Map Series, 1/1,000,000 maps of Tanzania, Tourist Maps, etc.

3. 1/50,000 Scale Map Revision and Reconstruction Programme

(1) North-West (Kagera) Block :

This Block, approx. 32,000 sqkm, was last mapped from aerial photography dated 1964. Revision of the Block has been started by Messrs Terra Surveys of Canada through funding by the Canadian International Development Agency (CIDA) as technical aid. The work is scheduled for completion in 1991.

(2) Mwanza Block :

This Block, approx. 15,000 sqkm, was last mapped from aerial photography dated 1964. Discussions are underway to have the Block (of 20 quarter-degree sheets) reconstructed through technical aid by the Japanese Government.

(3) Geita-Shinyanga Block :

This Block was last mapped from aerial photography dated 1964. 12 sheets of Geita are being adjoined to Mwanza Block to form the new Mwanza-Geita Block of approx. 24,000 sqkm, with 32 quarter-degree sheets, the reconstruction of which is being sought through technical aid from Japan. See para (2) above.

(4) Shinyanga Block :

Having absorbed Geita into the new Mwanza-Geita Block, the old Geita-Shinyanga Block will now become Shinyanga Block, comprising 24 quarter-degree sheets covering an area of approx. 18,000 sqkm. This could probably be the next Block for which revision/reconstruction aid will be sought from Japan.

(5) Dodoma-Morogoro Block :

This Block, approx. 118,000 sqkm, was last mapped from aerial photography dated 1963. Aid for revision of the 156 quarter-degree sheets of the Block is being sought from Great Britain.

(6) South-East Block :

This Block, approx. 91,500 sqkm, was last mapped from aerial photography dated 1965. The Surveys and Mapping Division is planning to undertake revision of the Block using aerial

photography dated 1981. The photography was originally carried out for Regional Integrated Development Programmes in Lindi and Mtwara Regions through British technical assistance.

(7) Songea Block :

This Block, approx. 99,000 sqkm, was last mapped using aerial photography dated 1965. Revision is planned for 1991 using the new aerial photography being carried out in 1989/90 for village boundary surveys in Ruvuma Region. The photography is being funded by the Tanzanian Government.

(8) Tabora Block :

This Block, approx. 143,700 sqkm, was last mapped using aerial photography dated 1970; and its revision is planned for 1995. No donors have been approached yet.

(9) Serengeti Block :

This Block, approx. 44,600 sqkm, was last mapped using aerial photography dated 1972, and its revision is planned for 1997. No donors have been approached yet.

(10) Musoma Block :

This Block approx. 15,000 sqkm, was last mapped (through JICA technical assistance), using aerial photography dated 1973 and its revision is planned for 1998. No donors have been approached yet. New aerial photography, however, will be available in 1990. The photography is being carried out (funded by the Tanzanian Government) for use in village boundary surveys in Mara Region.

(11) Mbeya-Iringa Block :

Mapping of this Block, approx. 272,000 sqkm, started in 1977/78 through CIDA technical assistance; and it has just been completed. Therefore its revision will not be needed until the year 2003.

(12) North-East Block :

Reconstruction of this Block, approx. 86,000 sqkm, in size started in 1981 through British technical assistance; and it is due for completion in 1990. Therefore its revision will not be needed until the year 2006.

The Mwanza-Geita Block is being given top priority because the existing maps are 25 years old and they cover an area where there have been tremendous development. The area has agricultural and livestock potentials as well as natural resources, e.g. minerals, fisheries, etc. All these activities will be carried out effectively by the use of the up-dated maps. Also, the maps will form the basis for village boundary surveys as well as land use planning in the implementation of National Agriculture Policy.

4. Advantage of New Mapping

(1) Contribution to sound national base maps :

The maps in Musoma Block adjoining this area in the north were reconstructed by OTCA/JICA in 1973-76, while the Canadian International Development Agency (CIDA) is funding the remapping of the Kagera Block in the west. The existing maps of this proposed mapping area remain as old with spot heights in feet, hence lacking in uniformity and continuity. It is not technically practicable to change one unit to another except by reconstruction. The existing maps were produced in 1960's and followed by revision only from feet contour to metric contour using aerial photographs taken in 1963-65. Their accuracy is lower compared with today's maps whose production data is computer adjusted. Therefore the production of new maps will contribute to metrification and improve the accuracy.

(2) Revision :

The maps of the selected area are very old, as stated above. The basic information was obtained from aerial photography taken mostly during 1963-65. Thus the maps are extremely outdated and a lot of new developments and land use on the ground are not shown. New towns and settlements have emerged, new roads constructed, old roads realigned and other changes have taken place. This great bulk of information cannot be collected easily, and cannot be added accurately on the existing maps, except by replotting from fresh aerial photography as has been done for the newly prepared maps.

5. Expected Development of Various Activities after New Mapping

(1) Village Boundary Surveys and Land Use Mapping :

In Tanzania, agriculture is given a central place in all development planning. In the National Agriculture and Livestock Policy announced in 1983, the planning and organization of rural areas into economically viable units are required. Base maps are must for the preparation of village boundaries and land use plans. So far only some 500 out of approximately 8,000 villages in the country have had their boundaries surveyed and cadastral maps prepared. Included in the land use mapping programme is the preparation of village general maps on single map sheets that will be used for land use planning. A total of about 400 villages will be covered in this programme.

(2) Automatic Intensification of Ground Control Stations :

An automatic and very important development out of remapping the area is intensification and extension of ground survey networks. This area lacks proper and adequate ground control stations. These are essential for :

- As datum for planimetric and height control during preparation of large scale site maps, eg., 1/10,000, 1/5,000, 1/2,500 and larger scales, for irrigation and other related projects.
- Ground surveys by departments concerned for ranches, adjudication sectiones, settlement schemes, development plans of townships and urban centres and other title surveys.
- Orientation and levelling along road routes necessary for proper access to areas of economic activities for maximum exploitation.
- As datum for a complete hydrographic survey and charting for Lake Victoria. The existing charts, compiled from leadline surveys conducted in 1902-1906 by the British Admiralty, are grossly inadequate. Modern hydrographic charts are required to assist the safe and efficient operation of vessels in this major transportation system.

(3) Levelling Benchmarks :

The most wanted survey marks by various mappers and especially by the Regional Development Authorities and District Development Authorities are levelling benchmarks. This is because they are the only marks giving accurate relative heights between points and mean sea level. These heights are directly related to direction of flow, velocity, rate of flow, depths and other aspects of water engineering. It is proposed that the requested levelling be carried out because :

- The benchmarks demand has increased especially by Regional Development Director Authorities and District Development Authorities of the region.
- Benchmarks are indispensable in areas of river and lake where irrigation, dams and other water projects are always going on.

(4) Total Benefits :

These cannot be measured in terms of any direct commercial return because the work only contribute to the ultimate development targets such as set out in the National Agriculture and Livestock Policy. The absolute benefits should be seen as socio-economic, and not as a revenue earner although royalties will be charged to other users of the aerial photographs and maps.

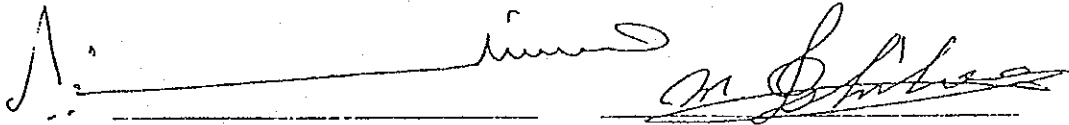
タンザニア国ムワンザ州基本図作成調査

事前調査団

SCOPE OF WORK

SCOPE OF WORK
FOR
TOPOGRAPHIC MAPPING OF MWANZA-GEITA BLOCK
IN THE UNITED REPUBLIC OF TANZANIA
AGREED UPON
THE SURVEYS AND MAPPING DIVISION,
MINISTRY OF LANDS, HOUSING AND URBAN DEVELOPMENT
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

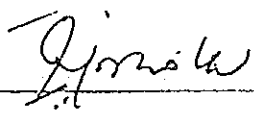
DAR ES SALAAM, 2nd MARCH 1991



Mr. Nerei Kalist MSIMBIRA
Principal Secretary
Ministry of Lands, Housing
and Urban Development

Mr. Masao ISHIHARA
Leader of the Preliminary
Study Team,
Japan International
Cooperation Agency (JICA)

Endorsed by



Dr. Jonas P. Kipokola
Deputy Principal Secretary
Ministry of Finance

I. INTRODUCTION

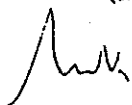
In response to the request of the Government of the United Republic of Tanzania (hereinafter referred to as "Tanzania"), the Government of Japan decided to conduct the Topographic Mapping of Mwanza-Geita Block in the United Republic of Tanzania (hereinafter referred to as "the Study") in accordance with the relevant laws and regulations in force in Japan.

Accordingly, the Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of technical cooperation program of the Government of Japan, will undertake the Study, in close cooperation with the authorities concerned of the Government of Tanzania. The Surveys and Mapping Division, Ministry of Lands, Housing and Urban Development (hereinafter referred to as "SMD") shall act as counterpart agency to the Japanese study team (hereinafter referred to as "Team") and also as coordinating body in relation with other governmental and non-governmental organizations concerned for the smooth implementation of the Study.

The present document sets forth the Scope of Work with regard to the Study.

II. OBJECTIVE OF THE STUDY

The objective of the Study is to prepare the 1/50,000 Topographic Map covering an area of approximately 25,500 square kilometers (actual mapping area is about 22,000 Km²) shaded on the attached map (Appendix-1).



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III. SCOPE OF THE STUDY

In order to achieve the above mentioned objective, the Study will cover the following items. (The technical details are shown in Appendix-4).

1. Aerial Photography

Aerial photographs shall be taken at the scale of approximately 1/60,000.

2. Control Point Survey and Leveling

Control Point Survey and leveling shall be carried out to obtain horizontal and vertical controls necessary for aerial triangulation and mapping work.

3. Aerial Signals and Pricking

Aerial signals shall be placed in the field prior to aerial photography, and pricking of identified control points on the aerial photographs shall be done in the field, if necessary.

4. Field Verification

The topographic map information related to land use, vegetation, etc. shall be verified in the field.

5. Aerial Triangulation

Aerial triangulation shall be carried out by analytical method. Adjustment shall be carried out by block adjustment method.

6. Stereo Plotting

Stereo Plotting shall be carried out using stereo plotting instruments at the scale of 1/50,000.

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7. Field Completion

Topographic features, vegetation, etc., which cannot be properly identified on the photographs shall be verified in the field and plotted on the compilation sheet. Administrative boundaries and geographical names shall be verified and indicated on the paper copy of the compilation sheet by SMD.

8. Drafting

Based on the compiled sheet, scribing shall be carried out on the stable polyester base for several colors separation plates. Map style and symbols shall be those adopted by SMD.

9. Printing

Plate making shall be carried out using 1/50,000 scribed negatives, and printing shall be carried out by the offset method.

IV. STUDY SCHEDULE

The whole work will be conducted in accordance with the attached tentative schedule (Appendix-2).



V. REPORTS AND FINAL RESULT

A report shall be presented to SMD by JICA every fiscal year (from April to March). The materials mentioned in Appendix-3 will be submitted to SMD by the Government of Japan.

All maps produced under the Study shall bear at the lower margin the following:

This map was prepared jointly by Japan International Cooperation Agency (JICA) under the Japanese Government Technical Cooperation Program and the Government Technical Cooperation of the United Republic of Tanzania.

VI. UNDERTAKING OF THE GOVERNMENT OF TANZANIA

1. To facilitate smooth conduct of the Study, the Government of Tanzania will take necessary measures for the Team and the aerial survey company which carries out the aerial photography as the followings

- (1) to secure the safety of them.
- (2) to permit them to enter, leave and sojourn in Tanzania for the duration of their assignment therein, and exempt them from alien registration requirements and consular fees.
- (3) to exempt them from taxes, custom duties and other charges on surveying and office equipments, machineries and other materials brought into Tanzania for the conduct of the Study.

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- (4) to exempt them from income tax and charges of any kind imposed on or in connection with any emolument or allowance paid to them for their services in connection with the implementation of the Study.
- (5) to provide necessary facilities to them for remittance as well as utilization of the funds introduced into Tanzania in connection with the implementation of the Study.
- (6) to secure permission for entry into private properties or restricted areas for the conduct of the Study.
- (7) to secure permission for the Team to take all necessary data and documents, including original negatives of aerial photographs, related to the Study out of Tanzania to Japan.
- (8) to provide the medical services as needed. Its expense will be chargeable on them.

2. The Government of Tanzania shall bear claims, if any arises against the members of the Team resulting from, occurring in the course of, or otherwise connected with the discharge their duties in the implementation of the Study, except when such claims arise from gross negligence or willful misconduct on the part of the members of the Team.

3. To facilitate smooth conduct of the Study, SMD shall take necessary arrangements for the Team and the aerial survey company which carries out the aerial photography as the followings, in cooperation with other relevant organizations;

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- (1) to secure permission for the flight for the aerial photography and use of airport for the implementation of the Study,
- (2) to secure permission for the use of communication facilities including transceiver, which may be used in Japanese language, with allocated frequency.
- (3) to provide necessary game guards to work with the Team, necessary watchmen to look after the camps, and necessary labors.

4.SMD shall, at its own expense, provide the Team with the followings in cooperation with other related organizations;

- (1) available data and information related to the Study,
- (2) counterpart personnel (staff of SMD),
- (3) suitable office space with necessary equipment, e.g. typewriters, furniture, telephones, garages and storages in Dar es Salaam and Mwanza,
- (4) credentials or identification cards to the members of the Team,
- (5) administrative and technical support,
- (6) existing facilities and space of SMD for processing the aerial photographs.
- (7) information of the necessary administrative boundary and geographical names on the maps, at its full responsibility,
- (8) annotation sheets in Tanzania.

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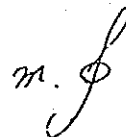
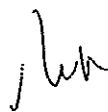
VII. UNDERTAKING OF JICA

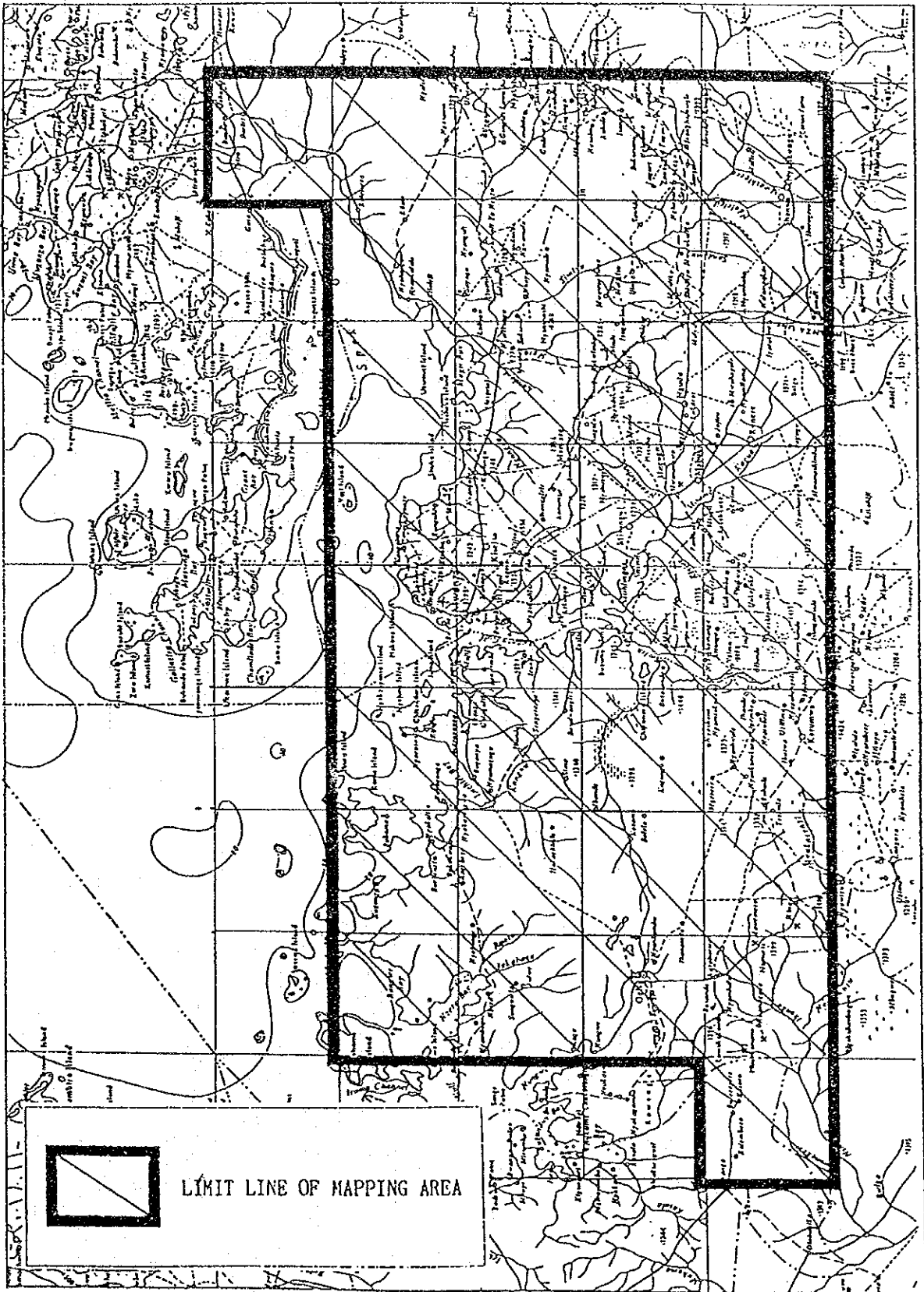
For the implementation of the Study, JICA shall take the following measures:

1. To dispatch, as its own expense, the study team to Tanzania
2. To pursue technology transfer to the Tanzania counterpart personnel in the course of the Study.

VIII. CONSULTATION

JICA and SMD shall consult with each other in respect of any matter that may arise from or in connection with the Study.





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TENTATIVE IMPLEMENTATION SCHEDULE

	1 ST FISCAL YEAR				2 ND FISCAL YEAR				3 RD FISCAL YEAR				4 TH FISCAL YEAR			
	4	7	10	1	4	7	10	1	4	7	10	1	4	7	10	1
SIGNALIZATION																
CONTROL POINT SURVEY																
AERIAL PHOTOGRAPHY																
LEVELING																
PRICKING																
FIELD VERIFICATION																
AERIAL TRIANGULATION																
STEREO PLOTTING (DRAFTING)																
COMPILATION																
FIELD COMPLETION																
SCRIBING																
PRINTING																

WORK IN TANZANIA
 WORK IN JAPAN

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APPENDIX-3

Final Delivery Items

1. Aerial Photography
 - (1) original negative-film (1 set)
 - (2) contact positive prints (1 set)
 - (3) positive prints enlarged to the scale
of approximate 1/50,000 (1 set)
 - (4) diapositive films (1 set)
 - (5) index map of aerial photography

2. Control Point Survey
 - (1) final result table
 - (2) distribution diagram
 - (3) description
 - (4) compilation sheets

3. Leveling
 - (1) final result table
 - (2) route diagram
 - (3) field sheets
 - (4) computation sheets

4. Signalization and Pricking
 - (1) description of signals and pricking
 - (2) reference enlargement positive photos

5. Aerial Triangulation
 - (1) final result table
 - (2) reference contact positive photos
 - (3) diagram of aerial triangulation

6. Field verification
 - (1) result photos (1 set)

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7. Stereo Plotting, Compilation and Scribing

- (1) original manuscripts
- (2) compilation manuscripts
- (3) annotation material
- (4) separate scribing sheets
- (5) negative-films for printing
- (6) negative screens

8. Printing

- (1) printed maps (1,000 copies for each of the 34 sheets)
- (2) Color progressives

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APPENDIX-4

principal Technical Specification

1. Aerial photography: super-wide angle camera
2. Control Point Survey: 10^{-5} (Relative Accuracy)
3. Leveling
 - (1) Limit of Reciprocal Observation
for Second Order Leveling: $5\text{mm} \sqrt{s}$ s:Km
 - (2) Limit of Reciprocal Observation for Minor
Order Leveling for photo control: $5\text{cm} \sqrt{s}$ s:km
 - (3) Interval of Marks for Minor Order Leveling
for photo control: 2Km
4. Mapping
 - (1) Projection: UTM projection
 - (2) Sheet Line: $15' \times 15'$ in Latitude and Longitude
 - (3) Contour Interval: 20m
 - (4) Number of Colors: 5colors
5. Map Accuracy:

"A" class mapping specifications in the Technical Manual of Overseas Surveying of JICA will be applied.



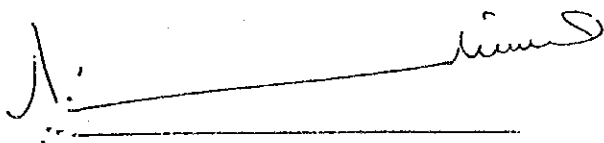
タンザニア国ムワンザ州基本図作成調査

事前調査団

MINUTES OF MEETINGS

MINUTES OF MEETINGS
ON
SCOPE OF WORK
FOR
TOPOGRAPHIC MAPPING OF MWANZA-GEITA BLOCK
IN THE UNITED REPUBLIC OF TANZANIA
AGREED UPON
THE SURVEYS AND MAPPING DIVISION,
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JAPAN INTERNATIONAL COOPERATION AGENCY

DAR ES SALAAM, 2nd MARCH 1991

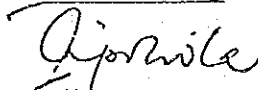


Mr. Nerei Kalist MSIMBIRA
Principal Secretary
Ministry of Lands, Housing
and Urban Development



Mr. Masao ISHIHARA
Leader of the preliminary
Study Team,
Japan International
Cooperation Agency (JICA)

Endorsed by




Dr. Jonas P. Kipokola
Deputy Principal Secretary
Ministry of Finance

The meetings on the Scope of Work for the Topographic Mapping of Mwanza-Geita Block in the United Republic of Tanzania (hereinafter referred to as "the Study") were held in Dar es Salaam, Tanzania on 26th February to 2nd March 1991, between the Japanese Preliminary Study Team (hereinafter referred to as "the Team") dispatched by Japan International Cooperation Agency (JICA) and the Surveys and Mapping Division, Ministry of Lands, Housing and Urban Development of the United Republic of Tanzania (hereinafter referred to as "SMD")

The list of the attendants of the meetings is shown in attached Appendix.


Both sides agreed the Scope of Work of the Study. In addition to the Scope of Work, main items discussed between both sides are as follows;

- (1) SMD requested the Team that the technology transfer to the Tanzanian counterpart persons in Japan should be realized, and the Team promised to convey the request to the Japanese authorities concerned.
- (2) SMD requested the Team that the dispatch of Japanese experts to Tanzania to determine ways of strengthening the capability of the Surveys and Mapping Division should be realized, and the Team promised to convey the request to the Japanese authorities concerned.
- (3) SMD agreed that JICA will keep one set of printed maps which will be produced in the Study.



(TANZANIAN SIDE)

Name	Position
Mr. Nerei Kalist MSIMBIRA	Principal Secretary, Ministry of Lands, Housing and Urban Development.
Mr. Lazarus Lokaji MOLLEL	Director of Surveys and Mapping, Ministry of Lands, Housing and Urban Development.
Mr. Stanislaus James MINJA	Head, Mapping Branch, Surveys and Mapping Division.
Mr. Edward Daniel KIFANGA	Head, Planning and Administration Branch, Surveys and Mapping Division.
Mr. Rajabu Saidi PENZA	Head, Cartography Section, Surveys and Mapping Division.
Mr. Abdi Bakari KATULWA	Head, Photogrammetry Section, Surveys and Mapping Division.



APPENDIX

Attendants of the Meetings

(JAPAN SIDE)

The Preliminary Study Team

Name	Position
Mr. Masao ISHIHARA	Research Coordination Officer, Geographical Survey Institute, Ministry of Construction
Mr. Hiroshi MASAHARU	International Cooperation Officer; International Affairs Division, Economic Affairs Bureau, Ministry of Construction
Mr. Masayuki OSAKABE	Chief, Second Plotting Section, Topographic Department, Geographical Survey Institute, Ministry of Construction
Mr. Shinichi SAKAGUCHI	Staff, First Development Study Division, Social Development Study Department, Japan International Cooperation Agency
Mr. Hiroshi MAGOME	Chief of Management Division, Japanese Association of Surveyors
Mr. Mitsuo MURAKAMI	Assistant Head of Technical Division, Japanese Association of Surveyors

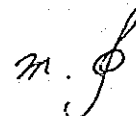
JICA, Tanzania office

Mr. Yukihide KATSUTA	Assistant Resident Representative
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Japanese Expert

Mr. Koji MANDAI	Civil Engineer
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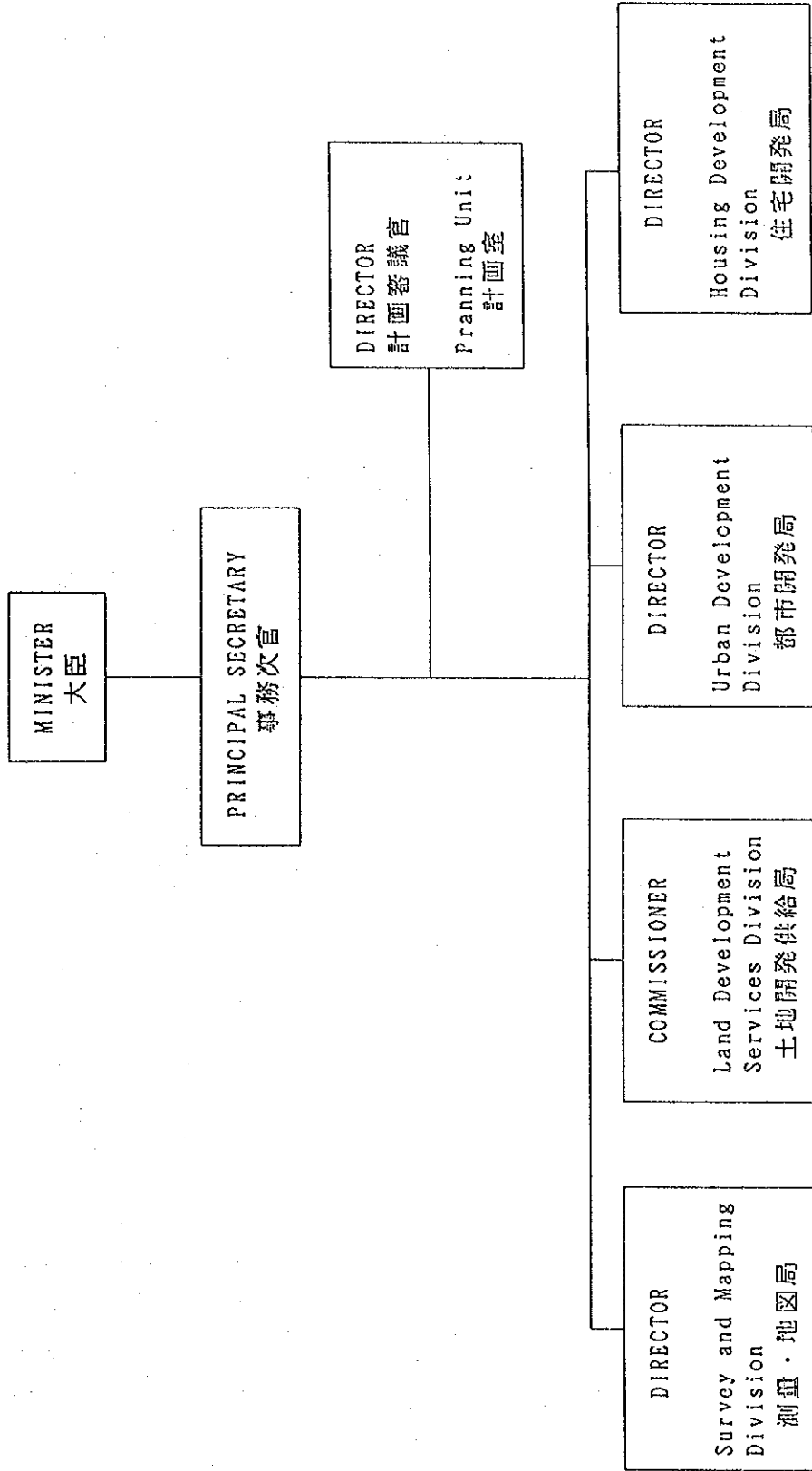


タンザニア国ムワンザ州基本図作成調査

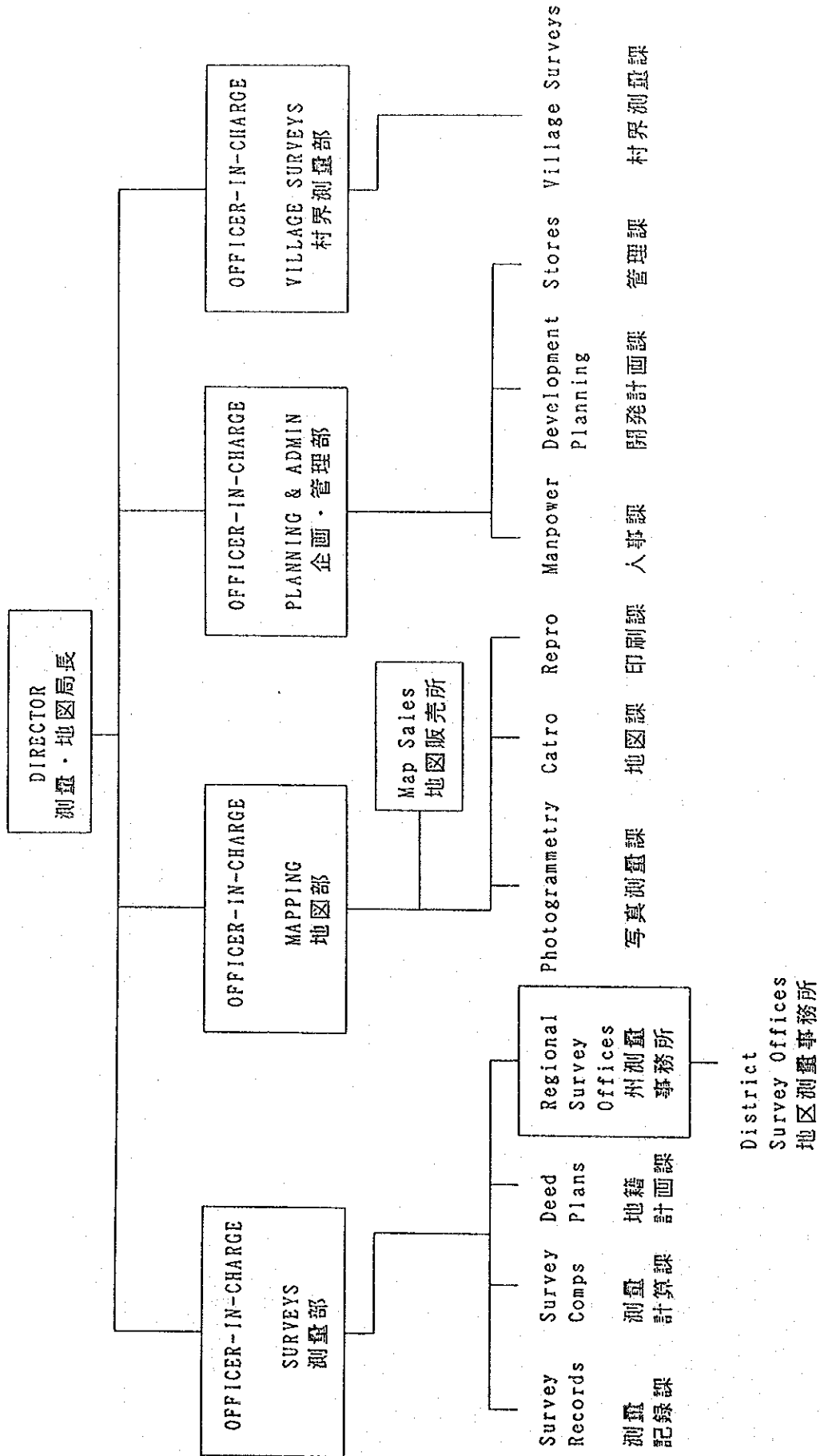
事前調査団

S M D の組織図

ORGANIZATIONAL CHART
 MINISTRY OF LANDS, HOUSING AND URBAN DEVELOPMENT
 土地・住宅・都市開発省



ORGANIZATIONAL CHART
SURVEYS AND MAPPING DIVISION



タンザニア国ムワンザ州基本図作成調査

事前調査団

収集資料一覧表

区分	資料の名称	作成年月／作成機関	概要	
地形図	EAST AFRICA 1:50,000 (TANZANIA)			
	Sheet 35/1 NDAGALU	SMD	対象地域の1:50,000地形図 (撮影は1964～65に行われている)	
	Sheet 35/2 NYAKABINDI			
	Sheet 35/3 MALYA			
	Sheet 35/4 LUGURU			
	Sheet 45/2 BUSERESERE			
	Sheet 46/1 NYAMBALE			
	Sheet 46/2 IKINA			
	Sheet 47/1 ITETEMIA			
	Sheet 47/2 BUSONGO			
Sheet 48/1 NYANHONGE				
地形図関係	Sheet 48/2 NYAMILAMA		対象地域ではないが最近編集された地形図	
	Sheet 49/1 MALAMPAKA			
	Sheet 49/2 SHANWA			
	Sheet 41/1 LONGIDO			
	Sheet 22/1 NANSIO			
	SCALE 1:10,000 MWANZA	SMD		1:2,500より編集した1:10,000ムワンザ市内地図
	1:300,000 MWANZA REGION MAP	SMD		1:300,000ムワンザ地方白地図 (コピー資料)
	INTER NATIONAL MAP OF THE WORLD 1:1,000,000	SMD編集		1:1,000,000ムワンザ周辺地域 (藍焼き図)
	1:2,000,000 TANZANIA	SMD		1:2,000,000タンザニア地形図 (全国)

区分	資料の名称	作成年月/作成機関	概要
地図関係	EAST AFRICA 1:2,000,000	RAVENSTEIN	1:2,000,000東アフリカ地域図(気象要素付)
	PHYSICAL 1:3,000,000	REPUBLIC OF TANZANIA	1:3,000,000タンザニア地図(全国)
地図資料	TRIG DIAGRAM	SMD	三角網図(全国)
	PRIMARY LEVELLING COMBINED AERODIST	SMD	水準路線図(全国)
	1:125,000 MWANZA	SMD	水準路線図(対象地域内)
	1:125,000 BUKWIMBA	SMD	水準路線図(対象地域内)
基準点資料	TRIG STATION RECORD	DOS	対象地域内の三角点成果表、点の記
	TANGANYIKA BENCH MARK DESCRIPTION CARD	DOS	対象地域内の水準点成果表、点の記
図書資料	CATALOGUE OF MAPS TANZANIA	SMD	SMD作成の地図索引
	ATLAS OF TANZANIA	REPUBLIC OF TANZANIA	気候、土地利用等各種資料図 (抜出しコピー資料)
	PLOTTING INSTRUMENTS	SMD	SMD所有の図化機リスト(手書き)
	EAST AFRICA SPECIFICATIONS	DOS	東アフリカ統一図式規程(コピー資料)

タンザニア国ムワンザ州基本図作成調査

事前調査団

面会者一覧表

面会者一覧表

所 属 、 役 職 等	氏 名	協 議 事 項
<u>土地・住宅・都市開発省関係</u> Ministry of Lands, Housing and Urban Development. Principal Secretary Director of Planning	N.K. MSIMBIRA S.J. MAKUNDI	S/W,M/M署名
<u>測量・地図局関係</u> Surveys and Mapping Division, Ministry of Lands, Housing and Urban Development. (SMD) Director Head, Mapping Branch Head, Planning and Administration Branch Head, Cartography Section Head, Photogrametry Section	L.L. MOLLEL S.N.J. MINJA E.D. KIFANGA R.S. PENZA A.B. KATULWA	S/W,M/M協議 S/W,M/M協議 S/W,M/M協議 S/W,M/M協議現地同行 S/W,M/M協議
<u>大蔵省</u> Ministry of Finance. Deputy Principal Secretary	J.P. Kipokola	S/W,M/M署名
<u>その他の政府機関</u> Town Planning, TANZANIA. Director	A.M. HAYUMA	S/W,M/M協議
<u>地形図作成地域の公的機関関係</u> MWANZA Regional Development. Director MWANZA Regional Planning. Officer MWANZA Regional Land Development. Officer MWANZA Regional Survey Office. Regional Surveyor	KYAMBWA SANGIWA P.H. KINANGA W.A. MGALULA	表敬訪問、協力依頼 表敬訪問 表敬訪問 現地踏査同行C/P

所 属、 役 職 等	氏 名	協 議 事 項
SENGEREMA Land Development. Officer SENGEREMA District. Administer Officer Survey Incharge GEITA District Council. Executive Director	P. B. WESIAGURA TANO G. M. MUBULA J. MGALULA	表敬訪問 表敬訪問 表敬訪問
地形図作成地域の民間機関 State Travel Service. Manager KAMANGA Ferry LTD.	A. MADANA K. GAETJE	バイク料金等調査 モーターボート燃料調査
日本大使館 日本大使館駐ルンダニア大使	永井 大使 斎藤 幸司	表敬訪問、業務報告
JICA事務所 JICAタンザニア事務所 所長 次長 JICA専門家	雲見 昌弘 筒井 昇 勝田 幸秀 八木 和彦 万代 幸二	業務打合せ、報告
地形図作成地域の青年協力隊 ルンダニア周辺在住海外青年協力隊	横山 隊員 西田 隊員 井上 隊員 山田 隊員	現地の状況・情報等収集

タンザニア国ムワンザ州基本図作成調査

事前調査団

諸物価、調査結果一覧表

諸物価、調査結果一覧表

100タンガ=7ツリツカ (TSH)=約69円 (1USS=195TSH=¥135)

(平成3年2月16日調査)

区分	品名	単位	T S H	U S \$	円
燃料	ガソリン	1リットル	157	0.81	110
	オイル	1リットル	400	2.05	280
文具	鉛筆	1本	200	1.03	140
	ボールペン	1本	50	0.26	40
	卓上電子計算機	1個	9,000	46.15	6,230
	穴あけパンチ	中	850	4.36	590
	セロハンテープ	大	250	1.28	170
	ホッチキス	中	500	2.56	350
	定規	小	500	2.56	350
	ノート	B5程度50P	25	0.13	20
	レポート用紙	A4	250	1.28	170
	コピー	A4	40	0.21	30
	コピー	B4	60	0.31	40
房	フィルム	36枚撮	700	3.59	480
	同時プリント(カラー)	4ツリツカ無	—	—	—
工	十字ドライバー	小	250	1.28	170
	十字ドライバー	中	500	2.56	350
	ードドライバー	小	250	1.28	170
	ードドライバー	中	500	2.56	350
	スパナ	大	5,000	25.64	3,460
	ペンキ	1ガロン	3,000	15.38	2,080
電	乾電池	単1	100	0.51	70
	乾電池	単3	80	0.41	60
	懐中電灯	中	350	1.79	240
	アイロン	普通サイズ	5,500	28.21	3,810
	冷蔵庫	中	340,000	1,743.59	235,380
	炊飯ジャー	5.5合炊き	25,000	128.21	17,310
	小型エンジン		440,000	2,256.41	304,620
衣料	作業服	上下	9,000	46.15	6,230

区分	品名	単位	T S H	U S S	円
衣 料	カッターシャツ	1着	3,000	15.38	2,080
	ジーンズ	1着	6,000	30.77	4,150
	ベルト	1本	500	2.56	350
	帽子	1個	1,500	7.69	1,040
	下着	上	1,000	5.13	690
	下着	下	750	3.85	520
	靴	革靴1足	5,000	25.64	3,460
	靴	スニーカー1足	6,000	30.77	4,150
	長靴	1足	3,500	17.95	2,420
	サンダル	1足	2,500	12.82	1,730
食 料 品	定食	魚or肉+ライス	800	4.10	550
	定食	スパゲッティ	800	4.10	550
	食パン	1斤	130	0.67	90
	パン	1個	30	0.15	20
	ミネラルウォーター	1.5リットル	500	2.56	350
	コココーラ	200ミリリットル	80	0.41	60
	ビール	小瓶	300	1.54	210
	米	1kg	100	0.51	70
	牛肉	1kg	600	3.08	420
	サラダ油	1kg	900	4.62	620
	砂糖	1kg	300	1.54	210
	じゃがいも	1kg	150	0.77	100
	玉ねぎ	1kg	100	0.51	70
	卵	1個	50	0.26	40
	キャベツ	1個	50	0.26	40
	バナナ	1個	7	0.04	5
	パイナップル	1個	100	0.51	70
	オレンジ	1個	20	0.10	10
プラム	1Kg	300	1.54	210	
生活 用品	歯ブラシ	1個	100	0.51	70
	歯磨きチューブ	1個	320	1.64	220
	タバコ	1箱	160	0.82	110
	コップ	1個	290	1.49	200
	鍋	1個	1,020	5.23	710

区分	品名	単位	T S H	U S \$	円
生 活 用 品	茶碗	1個	260	1.33	180
	ヤカン	1個	1,500	7.69	1,040
	バケツ	1個	500	2.56	350
	トライ	1個	500	2.56	350
	自転車	1台	165,000	846.15	114,230
	クリーニング	ハヅマ上下	120	0.62	80
	クリーニング	シャツ	50	0.26	40
	クリーニング	ブラウス	50	0.26	40
	クリーニング	ジャンパー	80	0.41	60
	クリーニング	スカート	80	0.41	60
	クリーニング	スラックス	80	0.41	60
	クリーニング	カーディガン	50	0.26	40
	クリーニング	下着	50	0.26	40
	クリーニング	靴下	30	0.15	20
	マッチ	小1箱	10	0.05	10
	100円ライター	1個	150	0.77	100
	タクシー	市内近距離	800	4.10	550
	石鹼	1個	100	0.51	70
	そ の 他	ホテル	ムワサ1級	8,190	42.00
ホテル		ムワサ2級	2,500	12.82	1,730
ホテル		ゲストハウス 上	500	2.56	350
ホテル		ゲストハウス 下	270	1.38	190
レンタカー(タクシー用)		乗用車	15,600	80.00	10,800
レンタカー4WD(ムワサ)		100Kmまで	17,000	87.18	11,770
超過料金(ムワサ)		1Km単位	150	0.77	100
スタンディングチャージ		1日	3,900	20.00	2,700
バンク修理		1本	800	4.10	550
レンタカーモーターポート		1時間	20,000	102.56	13,850
スタンディングチャージ		1時間	2,500	12.82	1,730
カーフェリー代		ドライブ込	500	2.56	350
フェリー代		1人	100	0.51	70
新聞		英字	40	0.21	30
公衆電話		市内	20	0.10	10
公衆電話(1分)		タクシー用	200	1.03	140
人夫代(タクシー用)		月	10,000	51.28	6,920

区分	品名	単位	T S H	U S S	円
その他	人夫代(タ'ルイスサラ-ム)	日	300	1.54	210
	人夫代(ムワソサ')	日	140	0.72	100
	召使い(タ'ルイスサラ-ム)	月(上級)	10,000	51.28	6,920
	召使い(タ'ルイスサラ-ム)	月(下級)	4,000	20.51	2,770
	1:50,000地形図	1枚	550	2.82	380

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