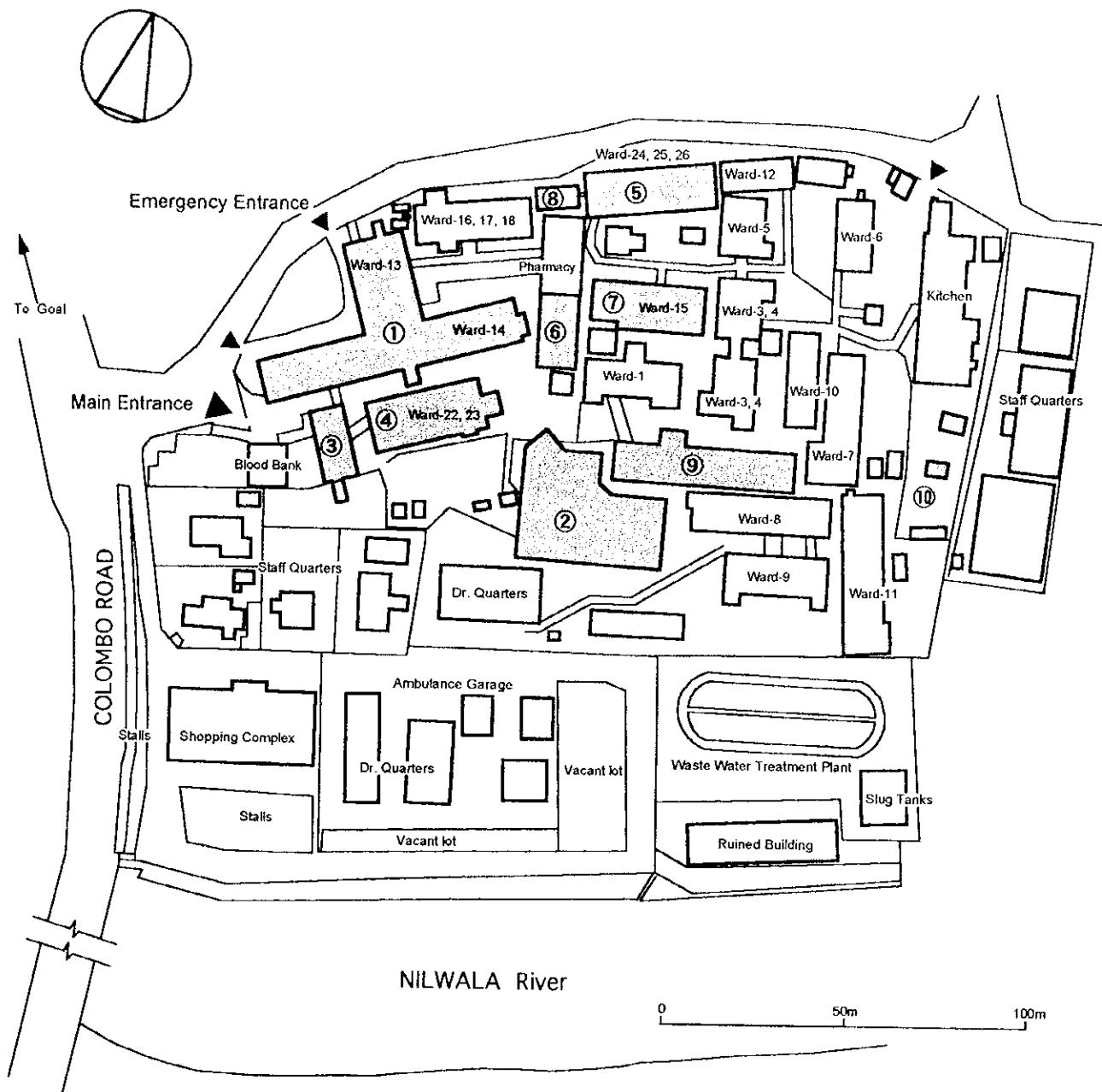


6. 施設平面図

SITE PLAN OF MATARA GENERAL HOSPITAL



① : 外来/放射線科/外科棟

GF : 放射線/超音波診断科、心電図科、ETU (救急部)

1F : 外来部門 : 各外来診察室 (Clinic)、歯科、耳鼻咽喉科、外科、内科、小児科、周産期介護 (産前)、精神科、STD、皮膚科

2F : 外科病棟2室、手術室 (A)

② : 新産科棟

GF : 産科手術室2室、未熟児室PBU、ICU

1F : 陣痛室2室、産前・産後病棟各1室

③ : 外科/心臓科 (Cardiology)

GF・1F : 心臓科

2F : 手術室 (B)

④ : ICU/理学療法科棟

GF : ICU/理学療法科

1F・3F : 外科病棟

⑤ : 眼科/耳鼻咽喉科/口腔外科

GF : 眼科手術室、眼科病棟

1F : 耳鼻咽喉科/歯科/顔面形成科病棟、防音室

2F : 皮膚科病棟

⑥ : 検査棟

GF : 細菌検査室、血液検査室、生化学検査室

1F : ヒストロジーを開設予定。現在は更衣室

⑦ : 小児病棟

GF : 小児病棟、既存未熟児室 (PBU)

1F : 小児病棟

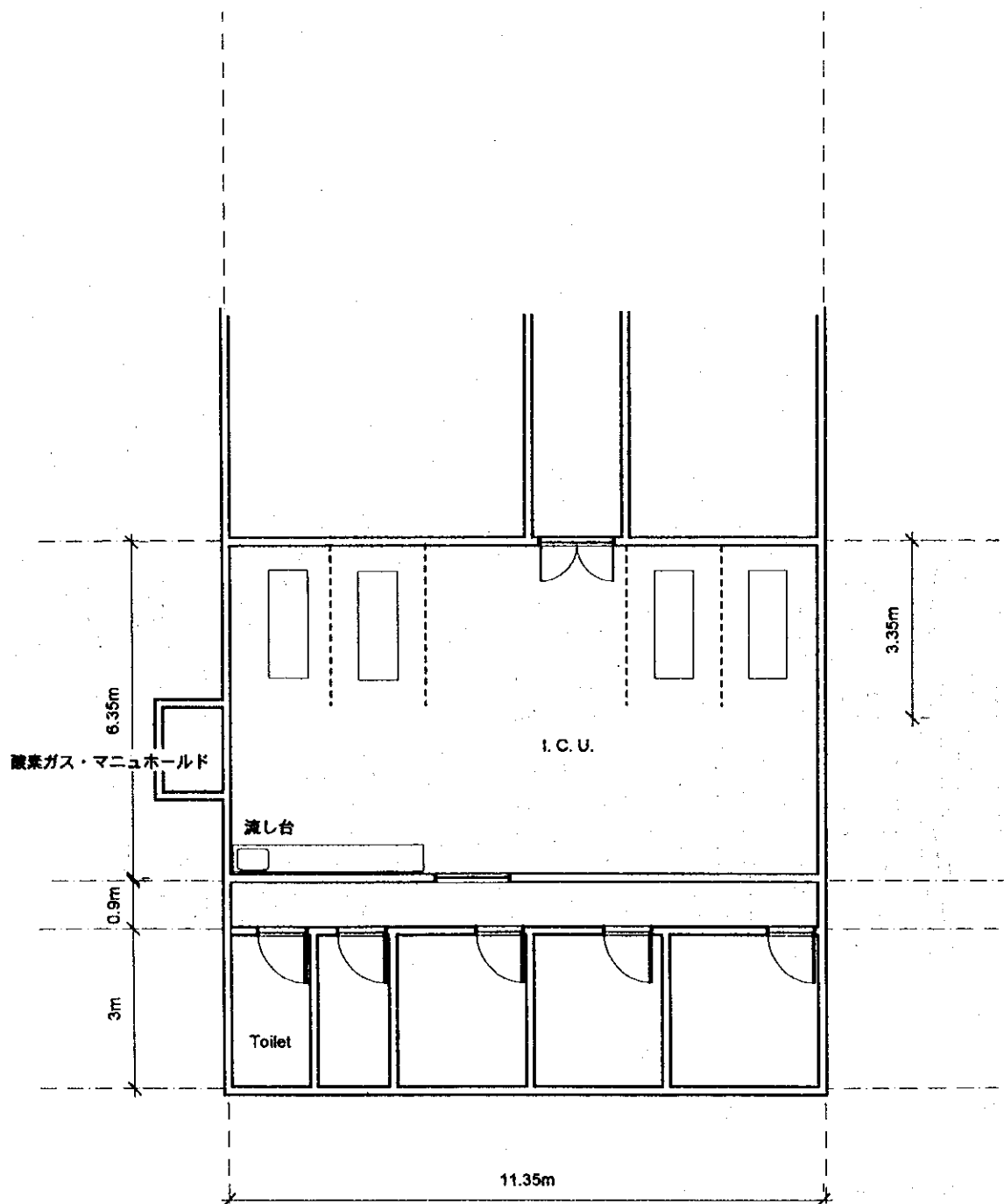
⑧ : 顔面形成科棟

1F : 顔面形成科診療室

⑨ : 既存産科棟 (機材調達の対象外)

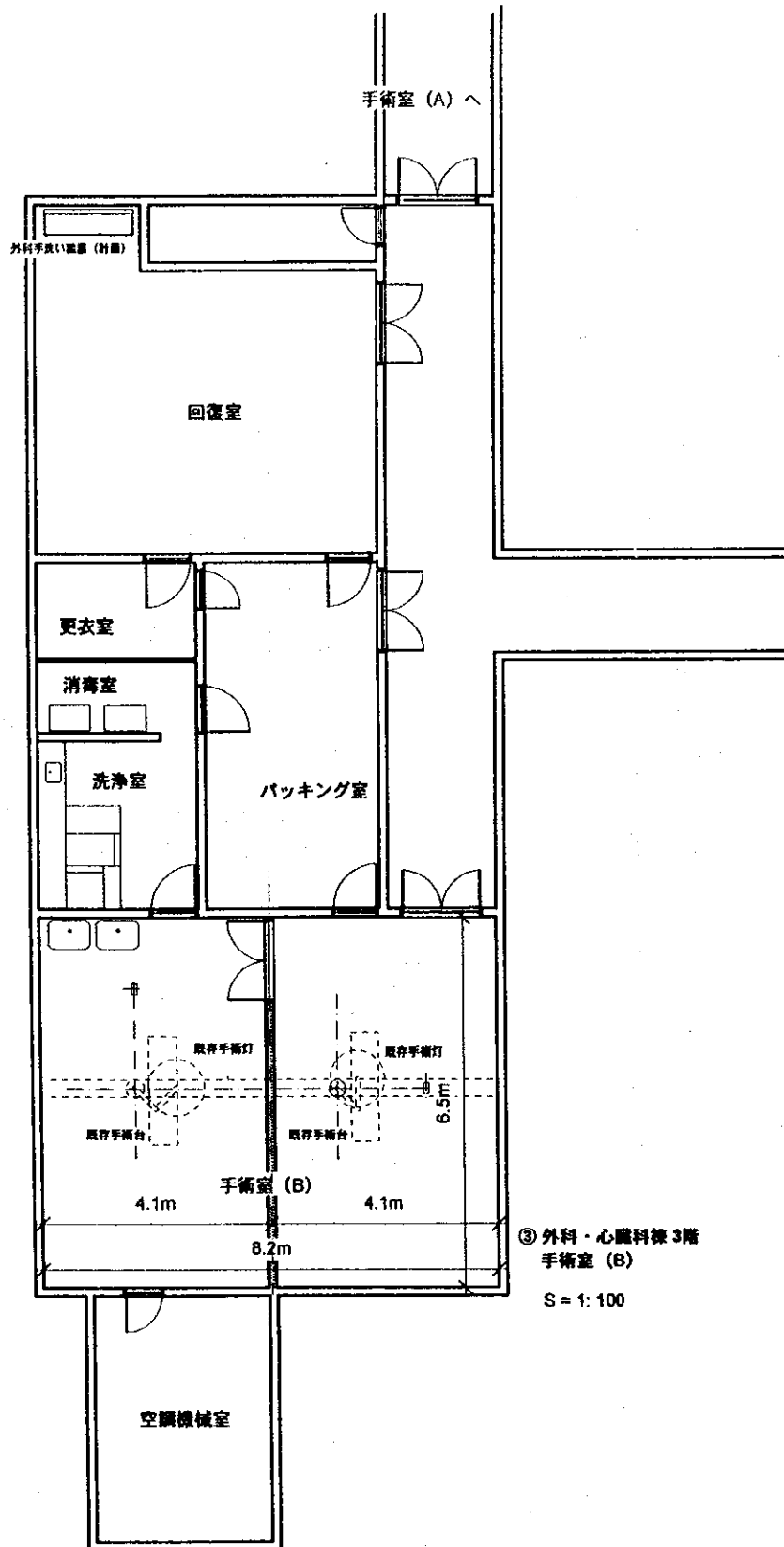
⑩ : 震安室

剖検室、冷蔵庫室

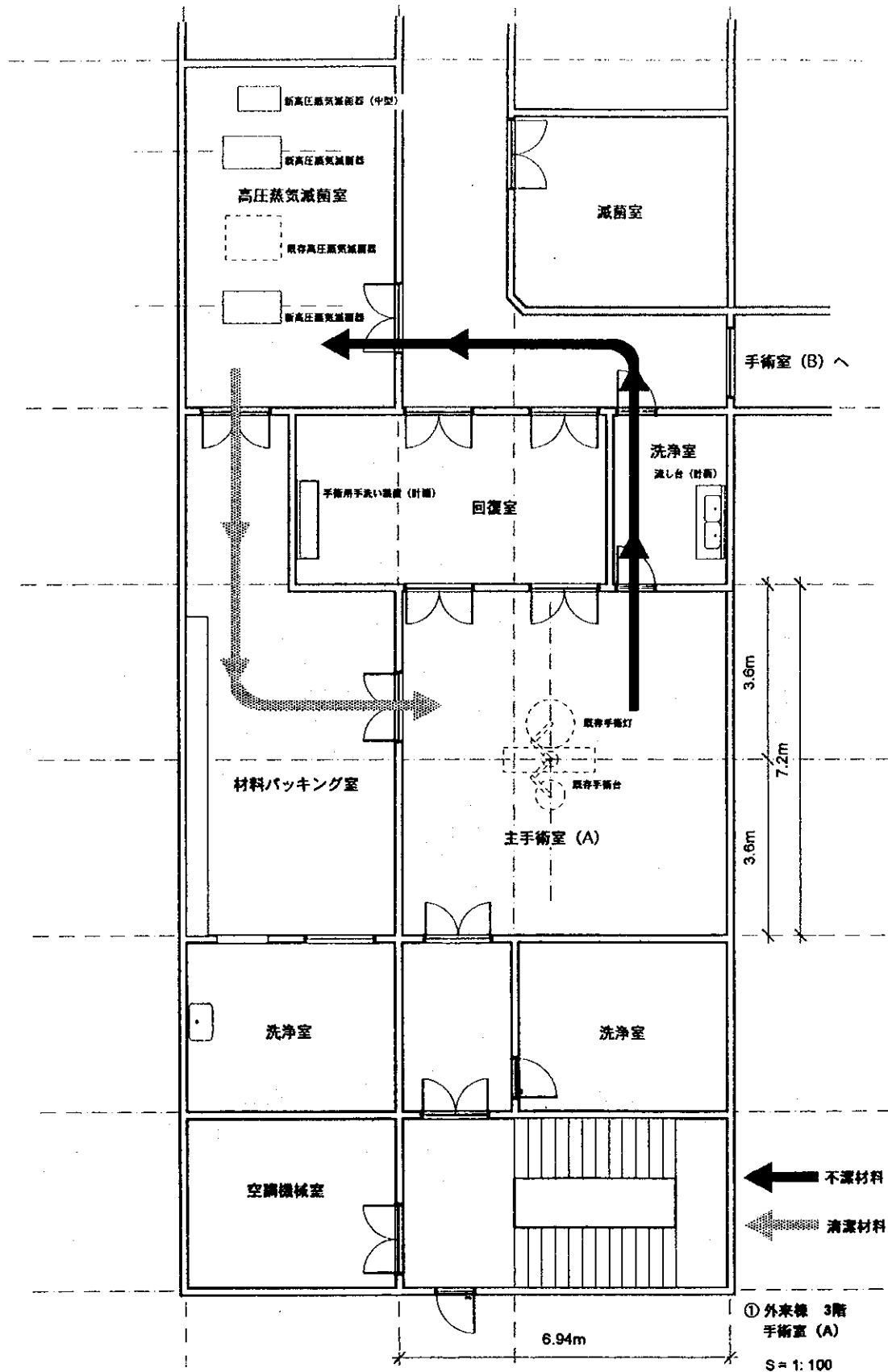


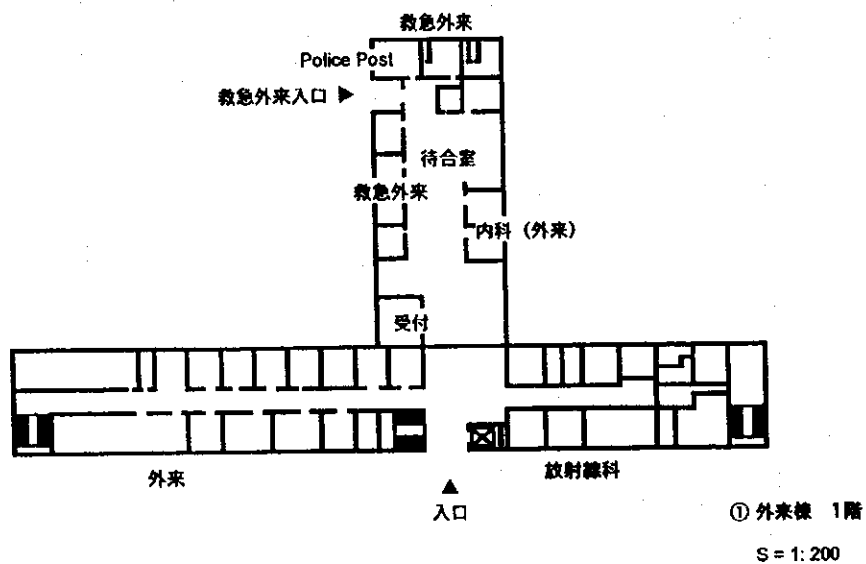
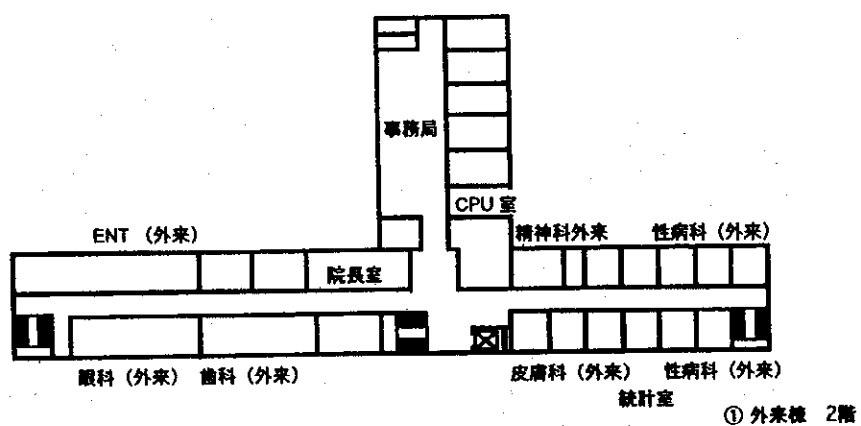
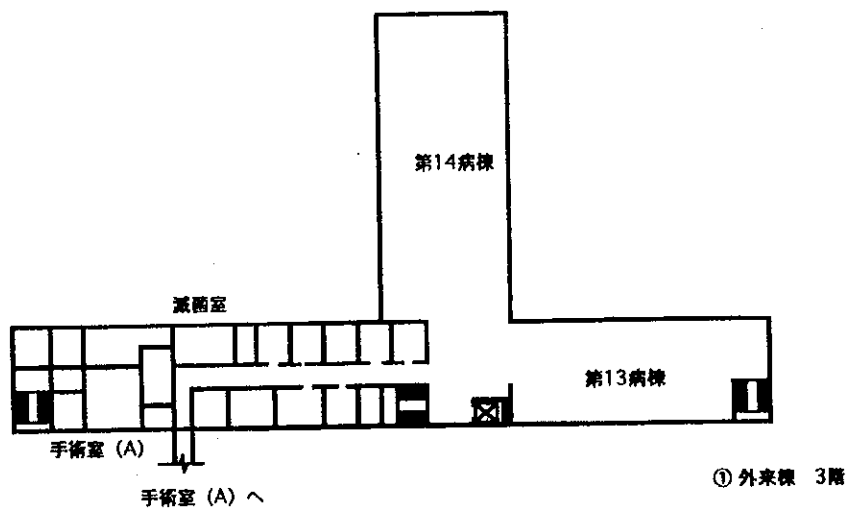
④ ICU, 理学療法科, 外科病棟 1階
ICU

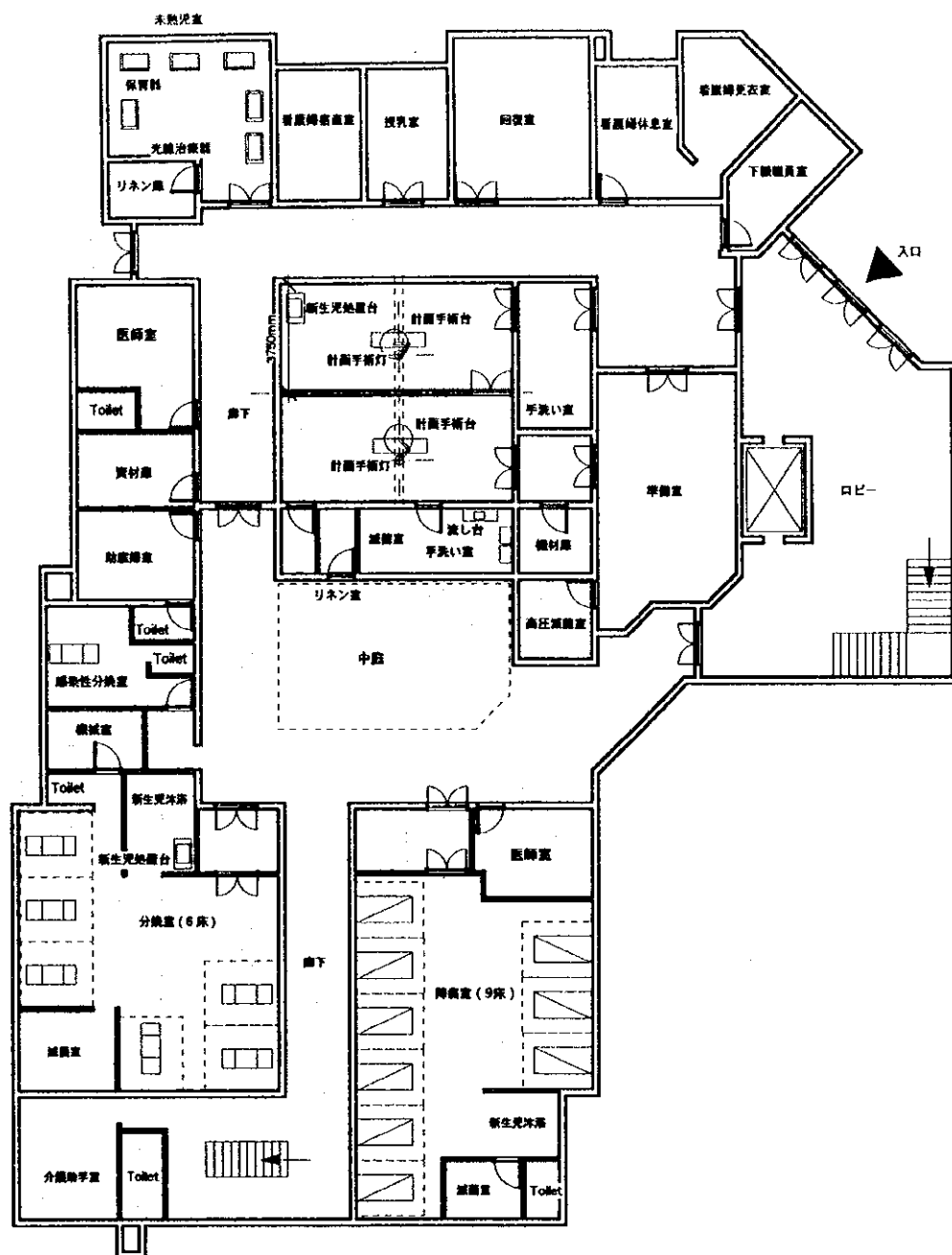
S = 1:100



③ 外科・心臓科棟 3階
手術室 (B)
S = 1: 100

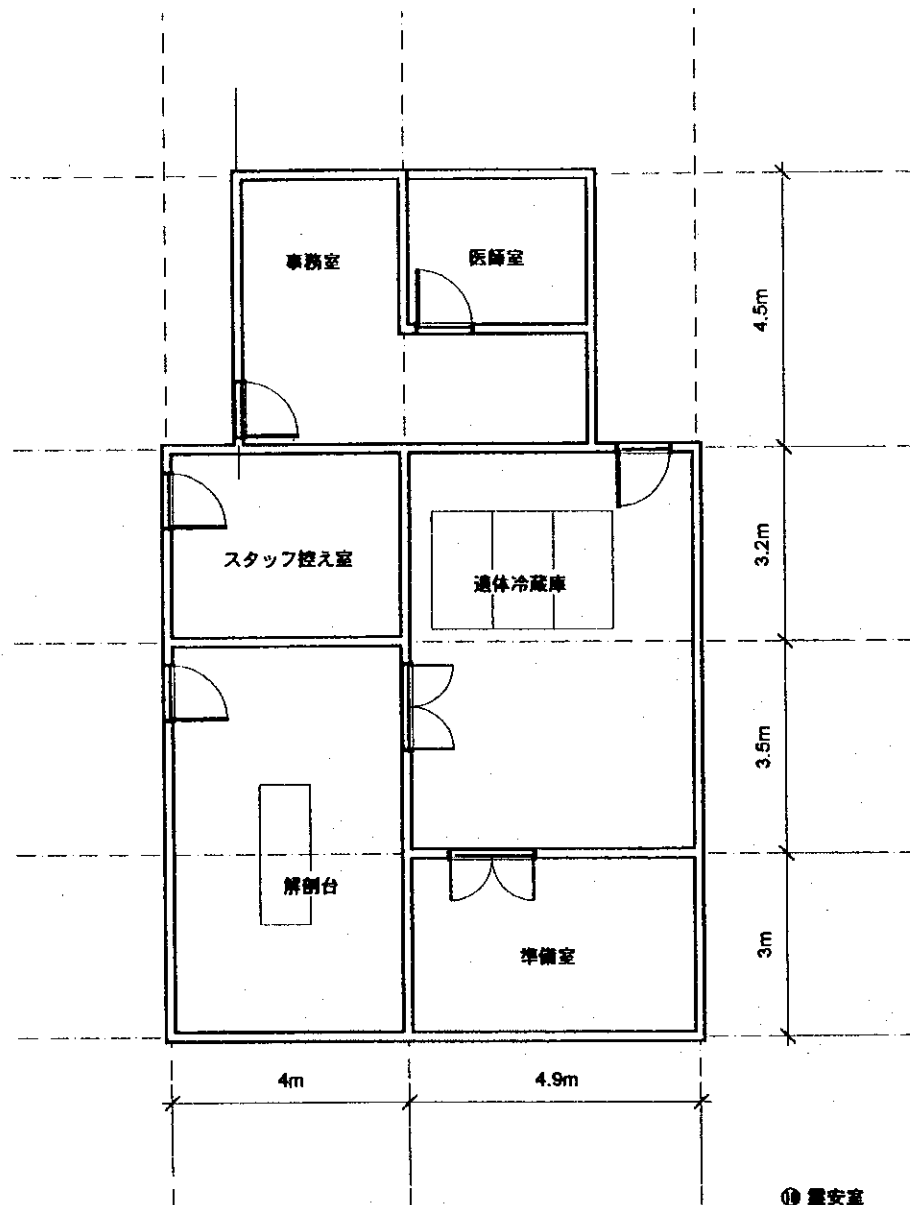






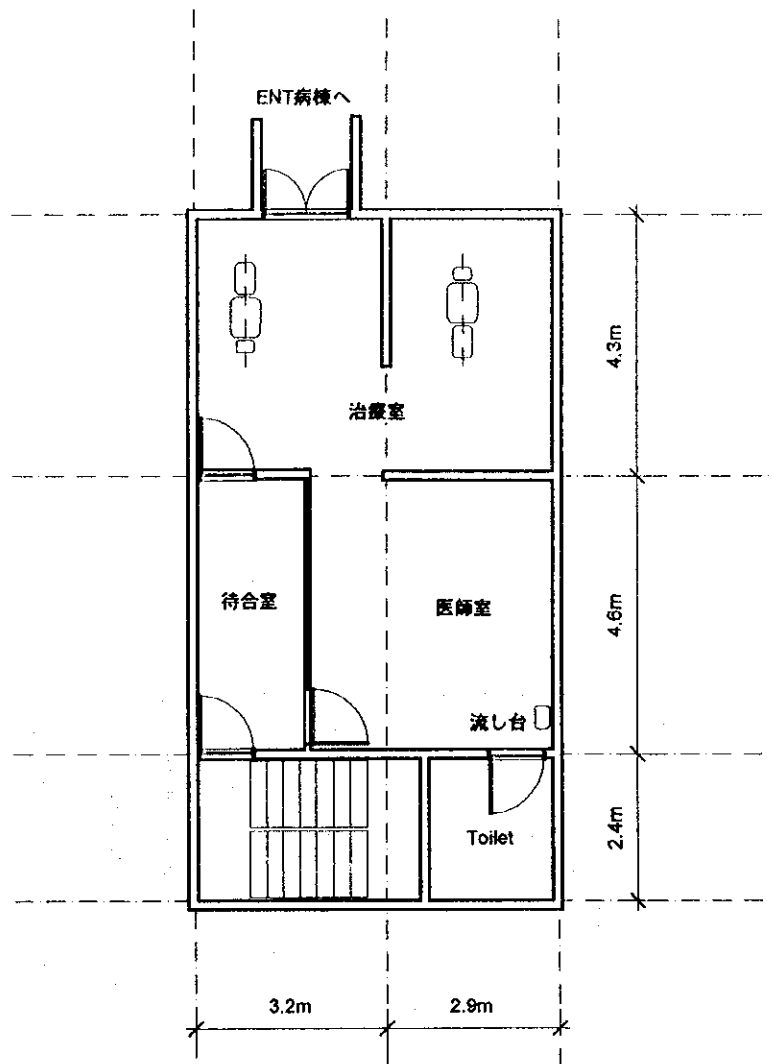
② 新産婦人科棟 1階

S = 1:200



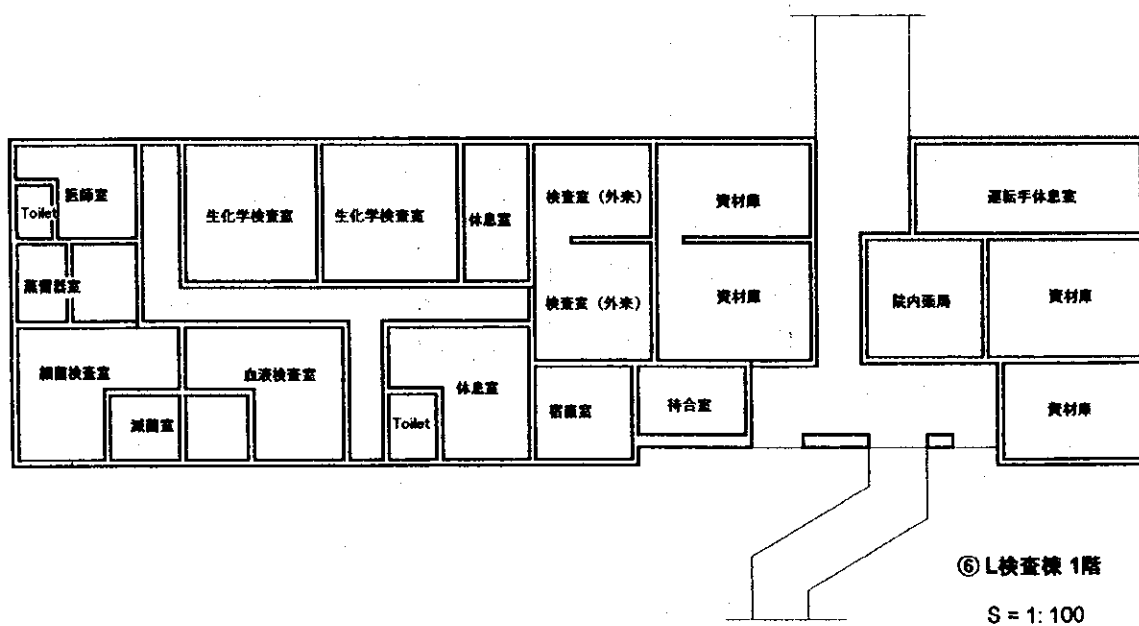
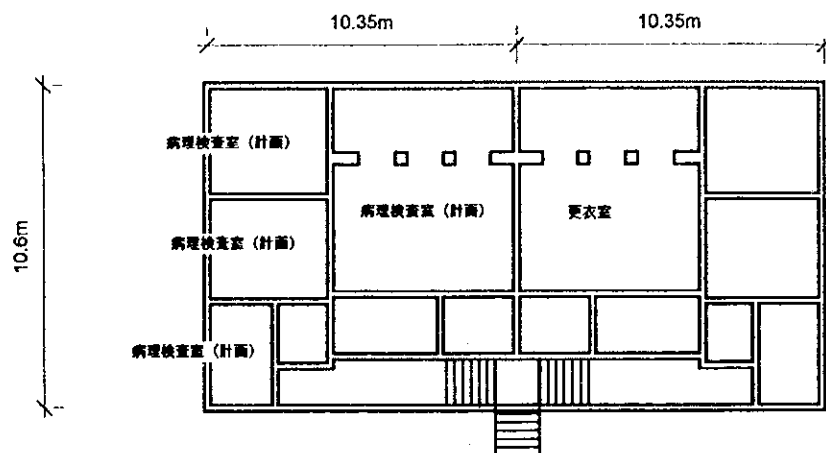
⑩ 量安室

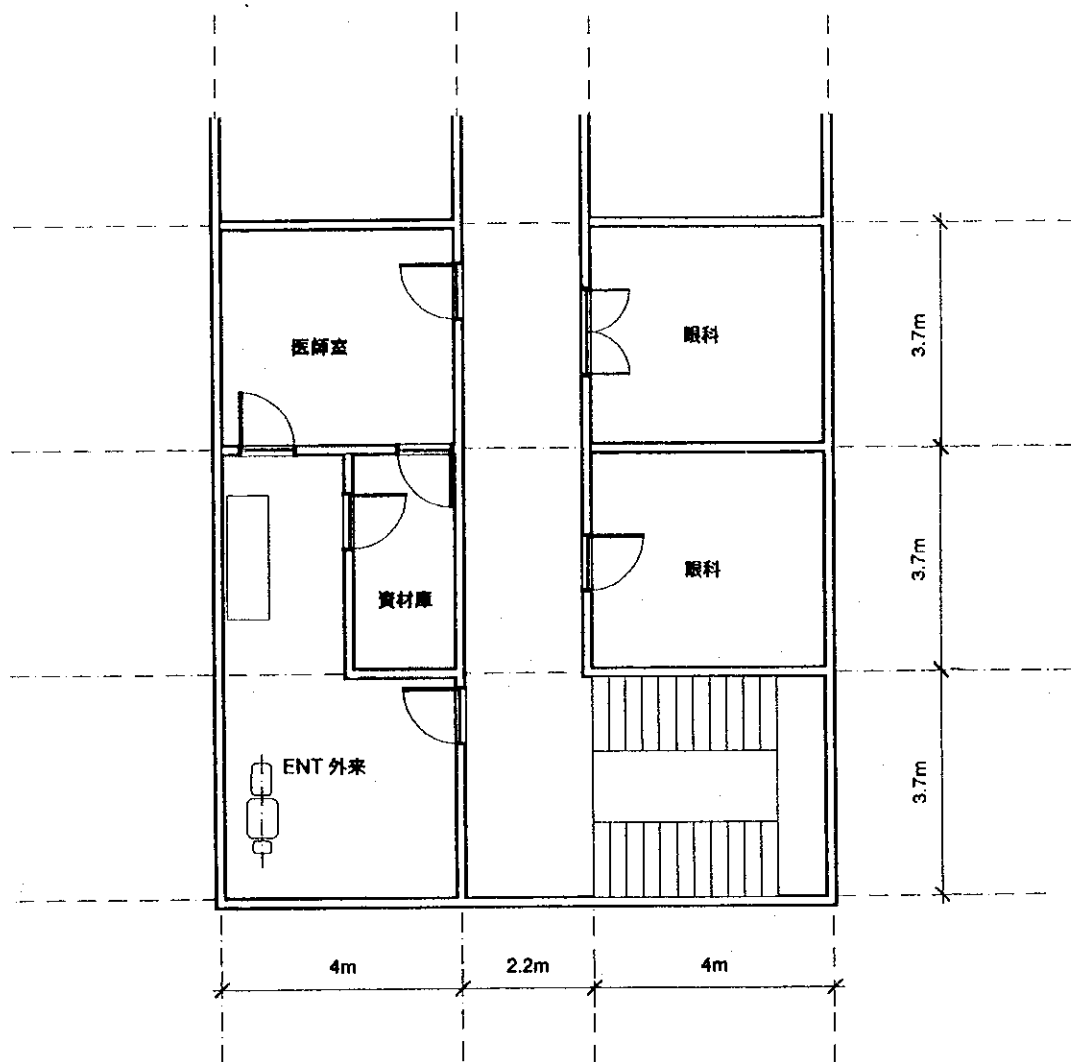
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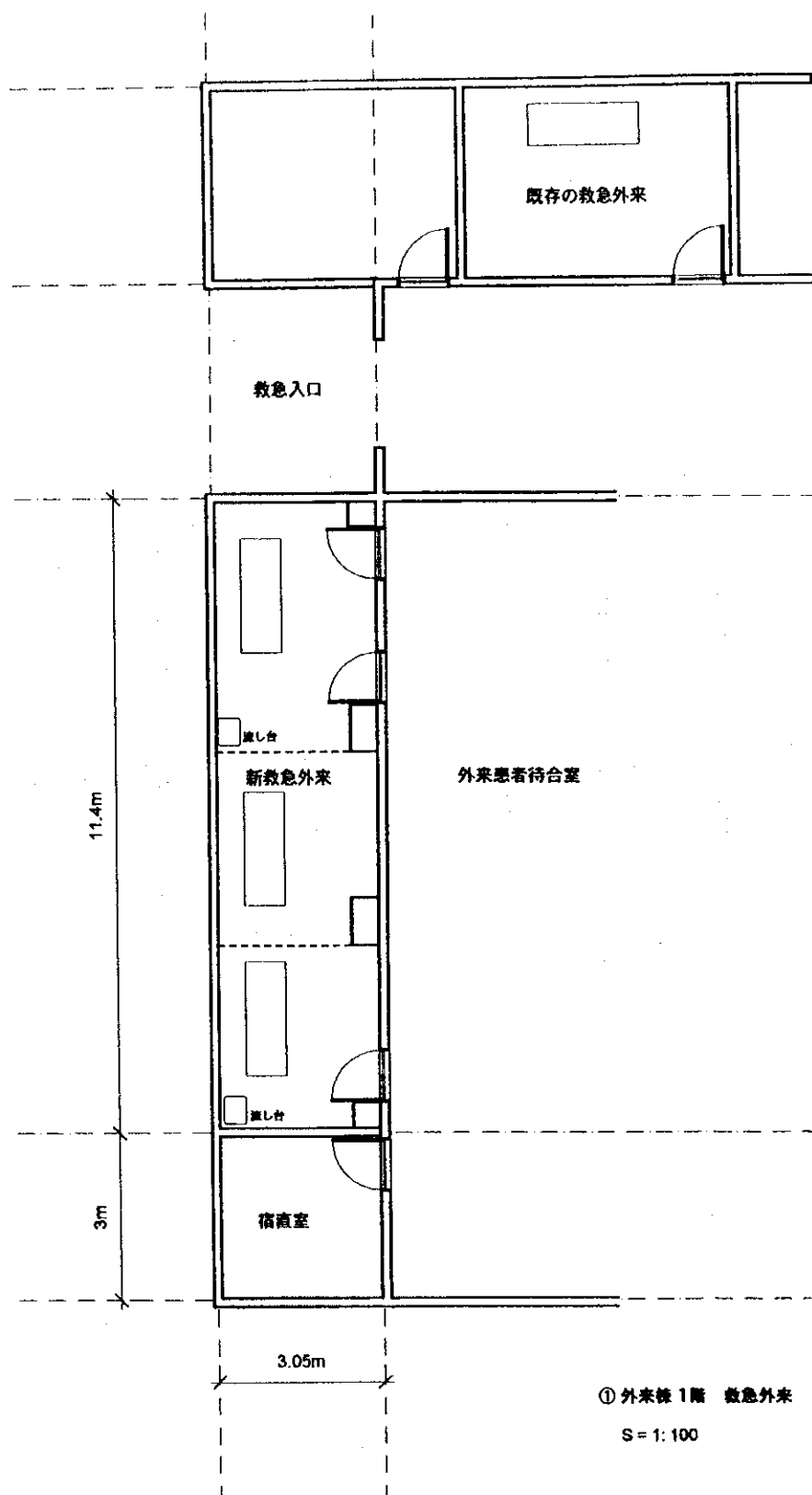
顔面整形外科棟 2階

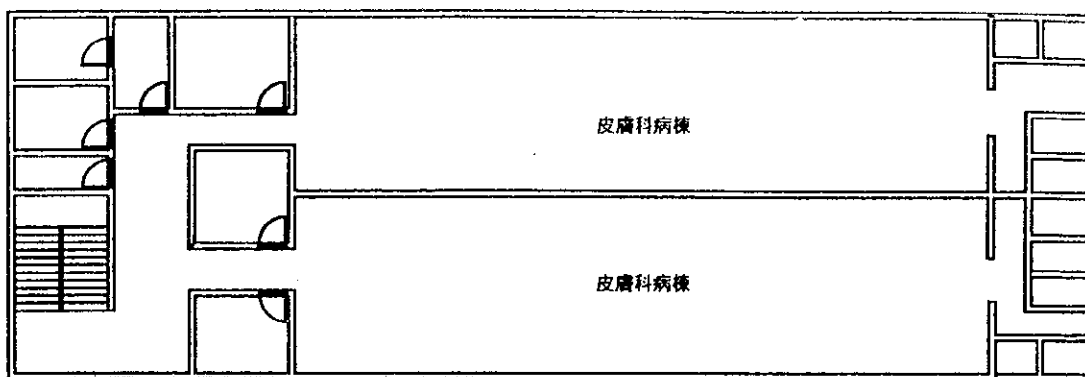
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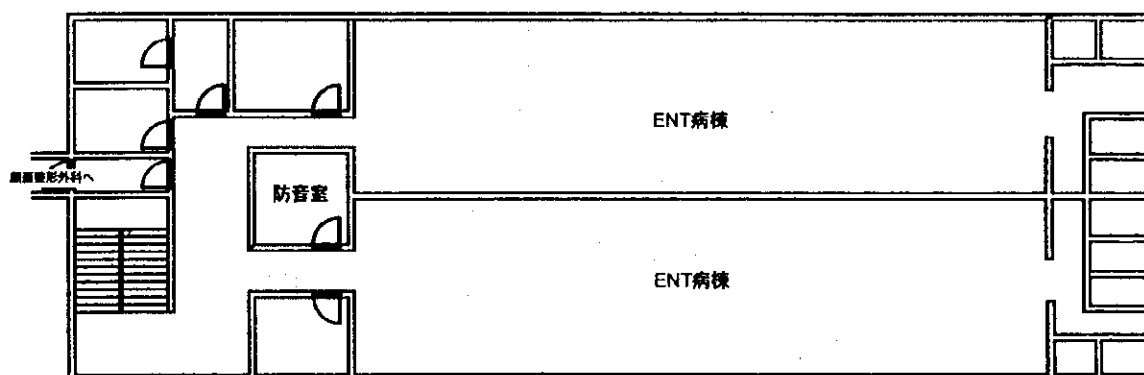
① 外来棟 2階
眼科/ENT外来
S = 1: 100





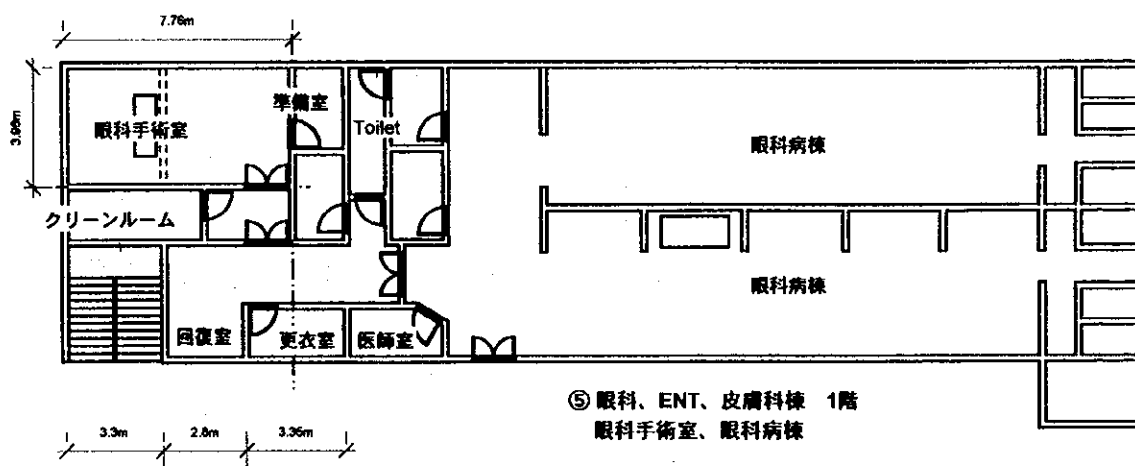
⑤ 眼科、ENT、皮膚科棟 3階
皮膚科病棟

S = 1: 200



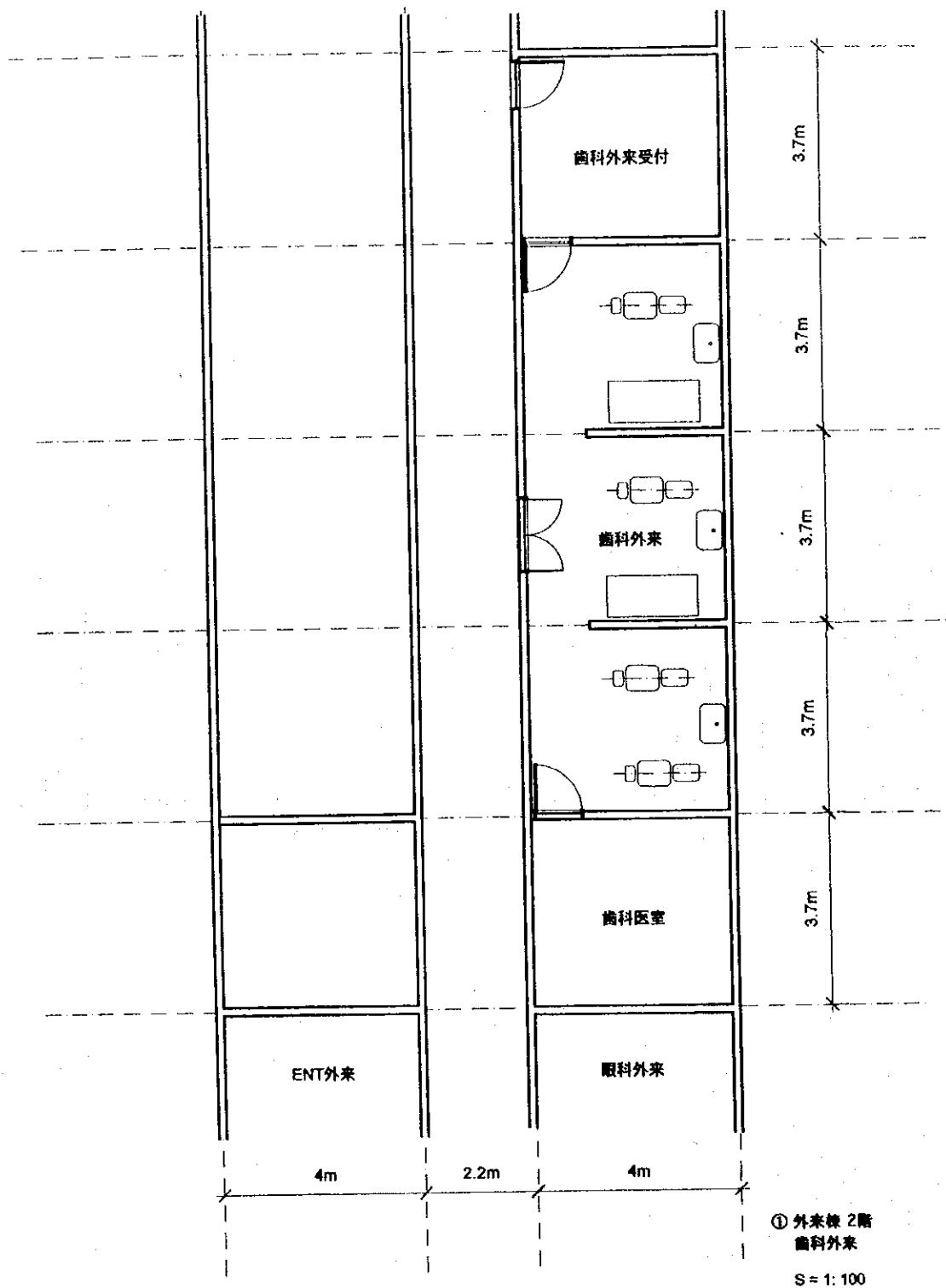
⑥ 眼科、ENT、皮膚科棟 2階
ENT病棟

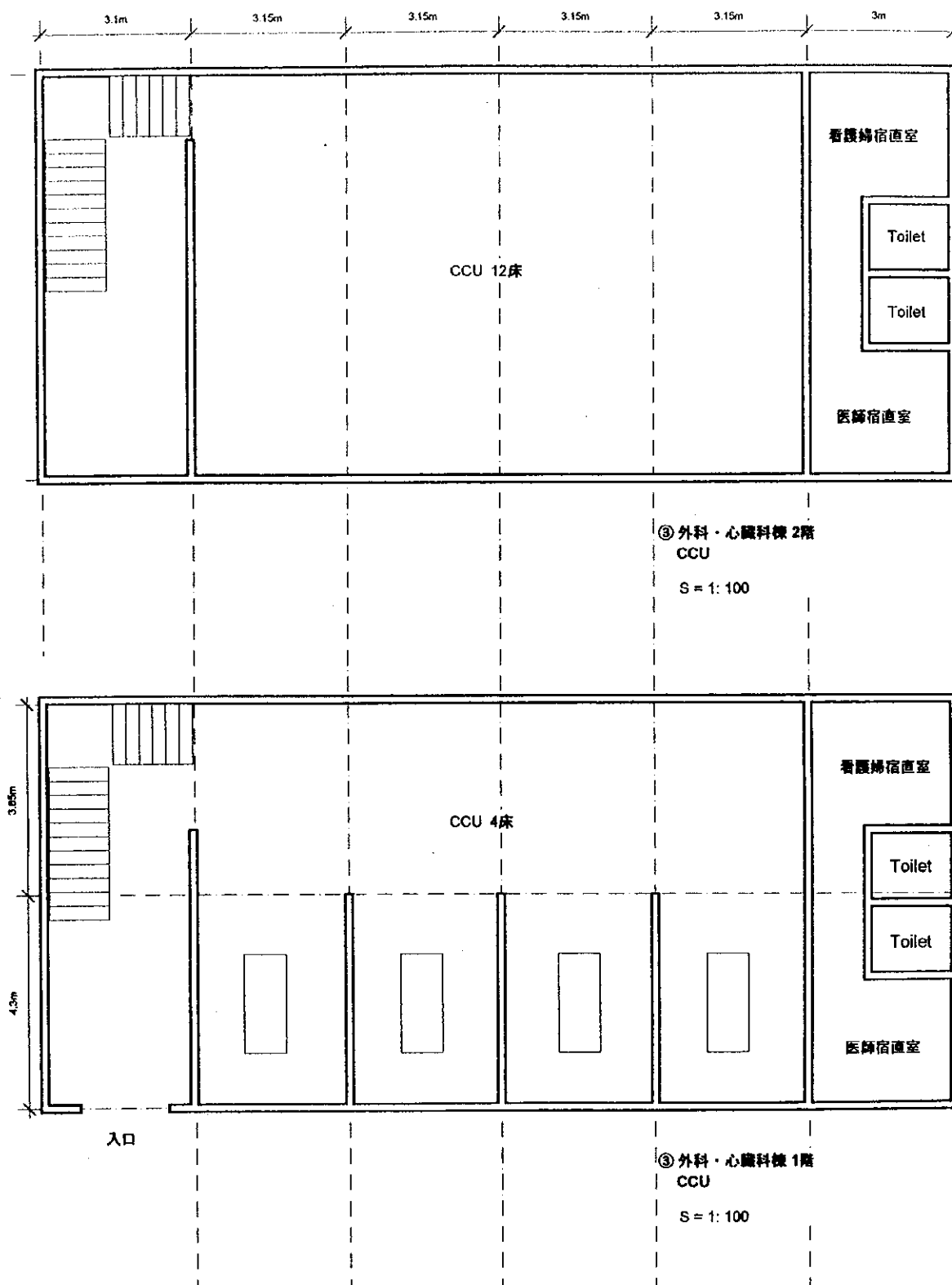
S = 1: 200



⑤ 眼科、ENT、皮膚科棟 1階
眼科手術室、眼科病棟

S = 1: 200





7. 討議議事録（基本設計調査）

MINUTES OF DISCUSSIONS
ON THE BASIC DESIGN STUDY
ON THE PROJECT FOR IMPROVEMENT OF GENERAL HOSPITAL MATARA
IN THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA


In response to a request from the Government of the Democratic Socialist Republic of Sri Lanka (hereinafter referred to as "Sri Lanka"), the Government of Japan decided to conduct a Basic Design Study on the Project for Improvement of General Hospital Matara (thereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to Sri Lanka the Basic Design Study Team (hereinafter referred to as "the Team") which is headed by Mr. Yasuhiro Morimoto, Deputy Director, Second Project Management Division, Grant Aid Management Department, JICA, and is scheduled to stay in the country from September 4 to October 3, 2000.

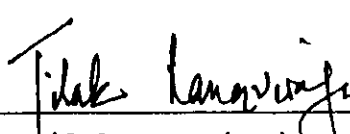
The Team held discussions with the officials concerned of Sri Lanka and conducted a field survey at the study area.

In the course of discussions and field survey, both parties have confirmed the main items described on the attached sheets. The Team will proceed to further works and prepare the Basic Design Study Report.


Colombo, September 19, 2000



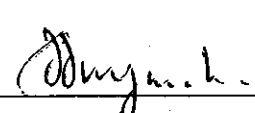
Mr. Yasuhiro Morimoto
Leader
Basic Design Study Team
Japan International Cooperation
Agency



Mr. Tilak Ranaviraja
Secretary
Ministry of Health & Indigenous
Medicine



for Mr. Seiji Kaiho
Resident Representative
JICA Sri Lanka Office



Mr. J.H.J. Jayamaha
Director (Japan Division)
Department of External Resources
Ministry of Finance & Planning

ATTACHMENT

1. Objective of the Project

The objective of the project is to improve the quality of medical services in General Hospital Matara through the procurement of medical equipment.

2. Project Site

The site of the Project is General Hospital Matara.

3. Responsible and Implementing Agency

- (1) The Responsible Agency is Ministry of Health & Indigenous Medicine.
- (2) The Implementing Agency is General Hospital Matara.

4. Items requested by the Government of Sri Lanka

(1) After discussions with the Team, the items in Annex 1 were finally requested by the Sri Lankan side. JICA will assess the appropriateness of the request and items to be included in the Project will be finalized after further study in Japan.

(2) The Government of Sri Lanka assigned their own priorities on the items in Annex 1.

Note: A: 1st priority/essential B: 2nd priority/necessary
C: 3rd priority/desirable

(3) The quantities of the items in Annex 1 will be studied further to identify appropriate and necessary quantities in order to achieve the objective of the project.

5. Japan's Grant Aid Scheme

(1) The Sri Lankan side understands the Japan's Grant Aid Scheme explained by the Team, as described in Annex 2.

(2) The Sri Lankan side will take the necessary measures, as described in Annex 3, for smooth implementation of the Project, as a condition for the Japanese Grant Aid to be implemented.

6. Schedule of the Study

(1) The consultants will proceed to further studies in Sri Lanka until October 3, 2000.

(2) JICA will prepare the draft report in English and dispatch a mission in order to explain its contents in December 2000.

(3) In case that the contents of the report are accepted in principle by

the Government of Sri Lanka, JICA will complete the final report and send it to the Government of Sri Lanka around March, 2001.

7. Other relevant issues

(1) Sri Lankan side agreed with the followings:

- a. The Ministry of Health & Indigenous Medicine shall make necessary budgetary provision to settle GST and any other duties and fiscal levies applicable for equipment and materials procured under the Project,
- b. The General Hospital Matara will complete the rehabilitation works to secure facilities of the distribution of electricity, water supply and drainage and other facilities incidental to the installation of the equipment prior to the procurement,
- c. The General Hospital Matara will complete the installation work of the partition in the operation theaters where the equipment will be installed prior to the procurement,
- d. The General Hospital Matara will forward to the Japanese side a concrete plan on the laundry facility including location and budgetary provision prior to the dispatch of the draft final report explanation mission, and
- e. The General Hospital Matara will consider to rationalize the operation method of "the Labour Room".

(2) The Ministry of Health & Indigenous Medicine confirmed that a pathologist and an orthopedic surgeon will be allocated to the General Hospital Matara in January 2001. The Ministry of Health & Indigenous Medicine understands that assignment of a cardiologist to the General Hospital Matara is a prerequisite for the request for the equipment relevant to cardiology in the CCU, the ICCU and other related units. The Ministry of Health & Indigenous Medicine agreed to forward to the Japanese side the evidence for the assignment of those doctors prior to the dispatch of the draft final report explanation mission, otherwise the requested for those relevant items shall be reconsidered.

(3) The Ministry of Health & Indigenous Medicine explained that the Biomedical Engineering Service Division would allocate its technical staff to the General Hospital Matara prior to the procurement.

(4) The General Hospital Matara will endeavor to improve the quality of medical services which is measured by the indicators identified in the discussions with the Team.

Equipment List			
A. Emergency Treatment Unit		Quantity	Priority
1.	Bedside monitor	2	B
2.	Defibrillator	1	A
3.	Infusion pump	2	B
4.	Pulse oximeter	2	B
5.	Emergency resuscitator	1	A
6.	Laryngoscope	1	B
7.	ECG machine	1	A
8.	Sterilizer	2	B
9.	ICU Bed	2	B
10.	Emergency Cart	1	B
11.	Stretcher	2	B
12.	Oxygen Flow meter	2	B
13.	Minor surgical instrument set	1	A
14.	Set of Ophthalmo and Otoscope	1	B
15.	Sphygmomanometer	2	A
16.	Clinical set for ETU	1	A
17.	Ultrasonic waver nebulizer	2	B
18.	Suction apparatus	2	A
B. Operating Unit		Quantity	Priority
1.	Cystoscope set	1	B
2.	Pulse oximeter	2	B
3.	Defibrillator	4	B
4.	High frequency surgical equipment	4	B
5.	Operating Microscope for ENT	2	B
6.	Anesthesia with ventilator	3	B
7.	Surgical scrub station unit	2	B
8.	Electro surgical unit	4	B
9.	Dermatome	1	B
10.	Oxygen flow meter set	1	B
11.	Pediatrics surgical instrument set	1	B
12.	Micro surgical instrument set	1	B
13.	ECG monitor	4	B
14.	Suction apparatus	12	B
15.	Rent Drill	1	B
16.	Instrument cabinet	4	B
17.	Instrument cart	4	B
18.	Recovery bed	4	B
19.	Stretcher	4	B
20.	Sterilizing hand washing unit	8	B
21.	Medical Refrigerator	2	B
22.	Operating table	2	B
23.	Shadowless lamp	2	B
24.	Laparoscope set	1	B
25.	Retractors for hip exposure set	2	B
26.	Hemiprosthesis(Hip)	1	B
27.	Instruments to calibrate size of prostheses	11	B
28.	Instrument for dynamic Hip screws set	1	B
29.	Bone drill	1	B
30.	Bone saw	1	B
31.	Bone plates & screws set	1	B
32.	Capnometer	1	B
33.	Nasopharyngoscope set for ENT	1	B
34.	Laryngoscope set for ENT	1	B
C. Endoscopy Unit		Quantity	Priority
1.	Gastrointestinal fiberscope set	1	B
2.	Duodeno fiberscope set	1	B

3.	Colono fiberscope set	1	B
4.	Sigmoid fiberscope set	1	B
5.	Video monitor set	1	B
6.	Light sources for endoscopes set	1	B
7.	Disinfections trolley	2	B
8.	Forceps hanging	1	B
9.	Broncho fiberscope set	1	B
10.	Light source for Broncho fiberscope set	1	B
11.	Endoscopic suction pump	1	B
12.	Disinfections trolley	1	B
13.	Bronchoscopy procedure cart	1	B
14.	Maintenance set with leakage tester	1	B
D. ICU, SICU		Quantity	Priority
1.	ICU bed	5	B
2.	Ventilator for ICU	5	B
3.	Potable ventilator	1	A
4.	Pulse oxymeter	2	B
5.	Defibrillator	1	A
6.	ECG monitor	5	B
7.	Blood gas analyzer	1	B
8.	X-ray film viewer	2	B
9.	Ultrasonic wave nebulizer	2	B
10.	Instrument cabinet	2	B
11.	Instrument cart	2	B
12.	Syringe pump	6	B
13.	Infusion pump	2	B
14.	Oxygen flow meter set	5	B
15.	Capnometer	1	B
16.	Mini autoclave	1	B
E. CCU & ICCU		Quantity	Priority
1.	Respirometer	2	B
2.	Ventilator for adult	4	B
3.	ECG machine	2	B
4.	Suction apparatus	6	B
5.	BP apparatus	6	B
6.	Nebulizer	4	B
7.	Ambue bag	2	A
8.	Bedside monitor	4	B
9.	Defibrillator	2	B
10.	Pulse oximeter	4	B
11.	Syringe pump	6	B
12.	Infusion pump	4	B
13.	Exercise ECG	1	B
14.	Gatch bed	6	B
F. Outpatient Clinic		Quantity	Priority
1.	Pure Tone Audiometer	1	A
2.	Impedance audiometer	1	A
3.	Sphygmomanometer	30	B
4.	Set of oththarmo and Otoloscope	4	B
5.	Surgical treatment set	1	B
6.	Medical refrigerator	5	B
7.	Diagnostic sets	6	B
8.	Instrument cabinet	6	B
9.	Instrument cart	6	B
10.	Spot lamp	6	B
11.	Suction apparatus for ENT	1	A
12.	Fiber optic ENT scope	1	A
13.	Head mirror set for ENT	3	B

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14	Bull's eye lamp set for ENT	3	B
G. Eye unit		Quantity	Priority
1.	Operation microscope	1	A
2.	Echo unit for Ophthalmology, A & B scan	1	B
3.	Visual field analyzer	1	A
4.	Slit lamp with tonometer	2	A
5.	Anesthesia with ventilator	1	B
6.	Pulse oximeter	1	B
7.	Micro instrument set for Eye	2	B
H. Dental Clinic & Oral & Maxillo Facial unit		Quantity	Priority
1.	Dental chairs with compressor	4	A
2.	Cavitron / Scalers	2	B
3.	Light cure machines	2	B
4.	Suction unit	2	B
5.	Autoclave, table top	2	B
6.	Micromotor drill	1	B
7.	High speed drill	2	B
8.	Mini plating kits	2	B
9.	Micro plating kits	1	B
10.	Pulse oximeter	1	B
11.	Laser unit for maxillofacial surgery	1	C
I. Radiology section		Quantity	Priority
1.	Ultrasound scanner unit	1	B
2.	Personal computer and a printer	1	C
3.	Computer table	1	C
4.	General X-ray unit	1	A
5.	Fluoroscopy X-ray unit	1	B
6.	Mobile X-ray unit	1	A
7.	Film mark set	3	B
8.	X-ray film storage cabinet	1	B
9.	X-ray protective aprons	3	B
10.	Aprons hangers	3	B
11.	Cassettes pass	1	B
12.	Panoramic X-ray unit	1	B
13.	Dental X-ray unit	1	A
14.	X-ray film illuminators for 1film	3	B
15.	X-ray film illuminators for 4 films	2	B
16.	X-ray Cassettes with screen set	1	A
J. Laboratory		Quantity	Priority
1.	Colony counter for Microbiology	1	B
2.	Spectrophotometer	1	A
3.	pH meter	2	B
4.	Auto hematology analyzer	1	C
5.	Freezer, small	1	B
6.	Medical refrigerator	5	B
7.	Water distillation apparatus	2	B
8.	Microplate rotator	1	B
9.	Water bath	2	B
10.	Pipette washer	1	B
11.	Vacuum pump	1	B
12.	Laboratory Incubator	2	B
13.	Laboratory table	2	B
14.	Glassware set	1	B
15.	Autoclave for Microbiology	2	B
16.	Binocular microscope	10	B
17.	Micro pipettes set	1	A
18.	Automatic micropipet set	1	A

19.	Standard wire loop set for Microbiology	1	A
20.	Automatic tissue processor	1	B
21.	Microtome and knives	1	B
22.	Wax bath series , related racks	1	B
K. Labor Room		Quantity	Priority
1.	Oxygen flow meter	6	B
2.	Infant warmer	2	A
3.	Ultrasonic wave nebulizer	1	B
4.	Suction apparatus	7	B
5.	Delivery bed	24	B
6.	Cardiotocograph (CTG)	4	B
7.	Fetal Doppler unit	4	B
8.	Medical refrigerator	4	B
9.	Deep freezer	2	B
10.	Ultrasound scanner unit for Obstetrics	1	B
11.	Baby suction unit	6	B
12.	Vacuum extractor	2	A
13.	Emergency resuscitator	2	B
14.	Mini autoclave	2	B
L. Premature Baby Unit (PBU)		Quantity	Priority
1.	Infant Incubator	6	B
2.	Pulse oxymeter	6	B
3.	Syringe pump	6	B
4.	Infusion pump	4	B
5.	ECG monitor	3	B
6.	Laryngoscope for neonatal	4	B
7.	Laryngoscope for pediatrics	2	B
8.	Mini autoclave	1	B
9.	Phototherapy unit	3	B
10.	BP apparatus set for children	1	B
11.	Transport incubator	1	B
12.	Glucometer	3	B
13.	Infant ventilator	1	A
14.	Portable infant ventilator	1	B
15.	Resuscitator table	3	A
16.	Ambue bag for neonatal	4	A
17.	Ambue bag for pediatrics	2	A
M. New PBU unit		Quantity	Priority
1.	Infant incubator	4	B
2.	Baby cot	6	B
3.	Phototherapy unit	2	B
4.	Resuscitator table	2	B
5.	Suction apparatus	2	B
6.	Infant ventilator	1	B
7.	Pulse oximeter	2	B
8.	Syringe pump	4	B
9.	Infusion pump	2	B
10.	Glucometer	1	B
11.	Apnea monitor	4	C
12.	ECG monitor	1	B
13.	Treatment & Drug carrying trolley	2	B
N.. Wards		Quantity	Priority
1.	Suction apparatus	8	B
2.	BP apparatus	16	B
3.	Nebulizer	12	B
4.	Ambue bag	12	B
5.	Syringe pump	8	B

6.	Infusion pump	8	B
7.	Medical Refrigerator	10	B
8.	Stretcher	50	B
9.	X-ray film illuminators for 1film	10	B
O. Sterilization Unit		Quantity	Priority
1.	High pressure steam sterilizer	3	B
2.	Autoclave	3	B
3.	Instrument sterilizer, large size	2	B
4.	Instrument sterilizer, medium size	4	B
5.	Stainless sink unit for CSSD	1	B
6.	Storage cabinet for dressing container	4	B
7.	Cart for dressing container	1	B
8.	Dressing container set	2	B
P. Health Education Unit		Quantity	Priority
1.	Video camera , deck and TV monitor	1	B
2.	Overhead projector	1	A
3.	Slide projector & screen	1	A
4.	Training for CPR manikin set	1	A
5.	White writing board set	1	B
6.	Desk top computer set	1	B
Q. Maintenance unit		Quantity	Priority
1.	Electric maintenance equipment	1	B
2.	Mechanic maintenance equipment	1	B
3.	Maintenance tool set	1	B
R. Other equipment		Quantity	Priority
1.	Washing machine	4	B
2.	Drying machine	2	B
3.	Incinerator for medical waste	1	B
4.	Ambulance	1	B
5.	Mortuary cooler for 2 body	3	A
6.	Autopsy table	1	B
7.	Autopsy instruments set	1	B

Japan's Grant Aid Scheme

1. Grant Aid Procedures

1) Japan's Grant Aid Program is executed through the following procedures.

Application	(Request made by a recipient country)
Study	(Basic Design Study conducted by JICA)
Appraisal & Approval	(Appraisal by the Government of Japan and Approval by the Cabinet of Japan)
Determination of Implementation	(Exchange of Notes between the Governments of Japan and the recipient country)

2) Firstly, an application or request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is eligible for Japan's Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA (Japan International Cooperation Agency) to conduct a study on the request.

Secondly, JICA conducts the study (Basic Design Study), using (a) Japanese consulting firm(s).

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Program, based on the Basic Design Study report prepared by JICA, and the results are then submitted to the Cabinet for approval.

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes signed by the Governments of Japan and the recipient country.

Finally, for the implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.

2. Basic Design Study

1) Contents of the Study

The aim of the Basic Design Study (hereafter referred to as "the Study") conducted by JICA on a requested project (hereafter referred to as "the Project") is to provide a basic document necessary for the appraisal of the Project by the Japanese Government. The contents of the Study are as follows:

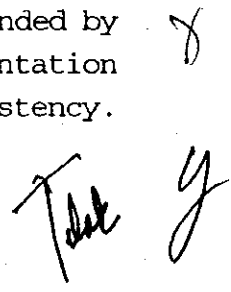

- a) Confirmation of the background, objectives, and benefits of the requested Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation,
- b) Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, social and economic point of view,
- c) Confirmation of items agreed on by both parties concerning the basic concept of the Project,
- d) Preparation of a basic design of the Project,
- e) Estimation of the costs of the Project.

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid Project. The Basic Design of the Project is confirmed considering the guidelines of Japan's Grant Aid Scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations in the recipient country through the Minutes of Discussions.

2) Selection of Consultants

For the smooth implementation of the Study, JICA uses (a) registered consultant firm(s). JICA selects (a) firms(s) based on proposals submitted by interested firms. The firm(s) selected carry (ies) out the Basic Design Study and write(s) a report, based upon terms of reference set by JICA. The consulting firm(s) used for the Study which is (are) recommended by JICA to the recipient country to also work on the Project's implementation after the Exchange of Notes, in order to maintain technical consistency.



3. Japan's Grant Aid Scheme

1) What is Grant Aid?

The Grant Aid Program provides a recipient country with non-reimbursable funds needed to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under the principals in accordance with the relevant laws and regulations of Japan. Grant Aid is not supplied through the donation of materials as such.

2) Exchange of Notes (E/N)

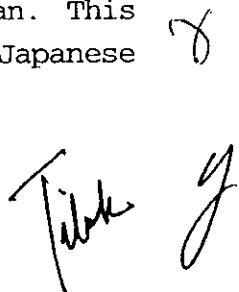

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the Project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

3) "The period of the Grant Aid" means the one fiscal year in which the Cabinet approves the Project for. Within the fiscal year, all procedure such as exchanging of the Notes, concluding contracts with (a) consultant firm(s) and (a) contractor(s) and final payment to them must be completed. However in case of delays in delivery, installation or construction due to unforeseen factors such as weather, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

4) Under the Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased. When both Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of the third country. However the prime contractors, namely, consulting contracting and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

5) Necessity of "Verification"

The Government of recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.



6) Undertakings required of the Government of recipient country

In the implementation of the Grant Aid Project, the recipient country is required to undertake such necessary measures as the following:

- a) To secure land necessary for the sites of the Project and to clear, level and reclaim the land prior to commencement of the construction,
- b) To provide facilities of the distribution of electricity, water supply and drainage and other incidental facilities in and around the sites,
- c) To secure buildings prior to the procurement in case the installation of the equipment,
- d) To ensure prompt execution for unloading, customs clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid,
- e) To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the Verified Contracts,
- f) To accord Japanese nationals whose services may be required in connection with the supply of the products and services under the Verified contracts, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work,
- g) To bear an advising commission of an authorization to pay (A/P) and payment commissions to the bank, with which the Government of the recipient country opens an account for the Project.

7) "Proper Use"

The recipient country is required to maintain and use the facilities constructed and the equipment purchased under the Grant Aid properly and effectively and to assign the necessary staff for operation and maintenance of them as well as to bear all the expenses other than those covered by the Grant Aid.

8) "Re-export"

The products purchased under the Grant Aid shall not be re-exported from the recipient country.

9) Banking Arrangements (B/A)

- a) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient

country in a bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.

- b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an authorization to pay issued by the Government of the recipient country or its designated authority.

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Major Undertakings to be Taken by Each Government

NO	Items	To be covered by the Grant Aid	To be covered by the Recipient side
1	To bear the following commissions to a bank of Japan for the banking services based upon the B/A		
	1) Advising commission of A/P		●
	2) Payment commission		●
2	To ensure prompt unloading and customs clearance at the port of disembarkation in recipient country		
	1) Marine(Air) transportation of the products from Japan to the recipient country	●	
	2) Tax exemption and custom clearance of the products at the port of disembarkation		●
	3) Internal transportation from the port of disembarkation to the project site	(●)	(●)
3	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 the recipient country and stay therein for the performance of their work		●
4	To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contract		●
5	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid		●
6	To bear all the expenses, other than those to be borne by the Grant Aid, necessary for the transportation and installation of the equipment		●

8. 討議議事録（概要説明調査）



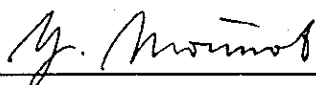
MINUTES OF DISCUSSION ON THE BASIC DESIGN STUDY
ON THE PROJECT FOR IMPROVEMENT OF GENERAL HOSPITAL MATARA
IN THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
(EXPLANATION ON DRAFT REPORT)

In September, 2000 the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a Basic Design Study Team on the Project for Improvement of General Hospital Matara (thereinafter referred to as "the Project") to the Democratic Socialist Republic of Sri Lanka (hereinafter referred to as "Sri Lanka"), and through discussion, field survey, and technical examination of the results in Japan, JICA prepared a draft report of the study.

In order to explain and to consult the Sri Lankan side on the components of the draft report, JICA sent to Sri Lanka the Draft Report Explanation Team (hereinafter referred to as "the Team"), which is headed by Mr. Yasuhiro Morimoto, Deputy Director, Second Project Management Division, Grant Aid Management Department, JICA, and is scheduled to stay in the country from December 3 to December 23, 2000.

As the result of discussions, both parties confirmed the main items described on the attached sheets.

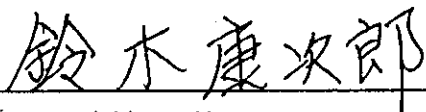
Colombo, December 15, 2000



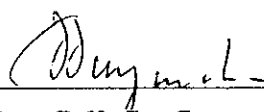
Mr. Yasuhiro Morimoto
Leader
Draft Report Explanation Team
Japan International Cooperation
Agency



Mr. Tilak Ranaviraja
Secretary
Ministry of Health



for Mr. Seiji Kaiho
Resident Representative
JICA Sri Lanka Office



Mr. J.H.G. Jayamaha
Director (Japan Division)
Department of External Resources
Ministry of Finance & Planning

ATTACHMENT

1. Components of the Draft Report

The Government of Sri Lanka agreed and accepted in principle the components of the draft report explained by the Team.

2. Japan's Grant Aid Scheme

The Sri Lankan side understands the Japan's Grant Aid Scheme and the necessary measures to be taken by the Government of Sri Lanka as explained by the Team and described in Annex-2 and Annex-3 of the Minutes of Discussions signed by both parties on September 19, 2000.

3. Schedule of the Study

JICA will complete the final report in accordance with the confirmed item and send it to the Government of Sri Lanka by April, 2001.

4. Other relevant issues

4-1. After discussions with the Team, the items and quantities in the Annex were finally requested by the Sri Lankan side. Among the items and quantities in the Annex, the following items and quantities are beyond the components of the draft report and assessed necessary and appropriate to be considered as the components of the Project by the Team. The request will be conveyed to the Government of Japan for consideration.

Item	Quantity	Place
A-17 nebulizer	one unit	Emergency Treatment Unit
B'-5 ECG monitor	one unit	Operating Theater of Obstetrics & Gynaecology Department
I-14 lead glass & doors	one set	Radiology Section
R-7 iron	two units	Others

4-2. The Sri Lankan side requested the consultant services for medical waste management, hospital management and medical equipment management as one of the components of Grant Aid.

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4-3. The Ministry of Health shall make necessary budgetary provision to settle GST, NSL, custom duties, any other taxes, duties and fiscal levies applicable for equipment and materials procured under the Project, which is estimated at approximately twenty seven million Japanese yen (equivalent to twenty million Sri Lankan rupees) at the moment. The Ministry of Health shall notify the Japanese side through JICA Sri Lanka Office (c.c. Embassy of Japan) of all the actions taken by the Ministry of Health relating to this budgetary provision.

4-4. The Ministry of Health shall make necessary budgetary provision to meet the additional annual expenditure on the operation and maintenance of the equipment and materials procured under the Project which is estimated at approximately fourteen million Japanese yen (equivalent to ten million Sri Lankan rupees) at the moment.

4-5. The Sri Lankan side will construct the laundry facility including utilities such as power supply, water supply, drainage and will complete the construction work by October 31, 2001. If the construction work of the laundry facility is not commenced by April 30, 2001, the items related to the laundry facility may be eliminated from the equipment procured under the Project. Once the construction work is commenced, the Sri Lankan side will report the monthly progress of the work to the Japanese side through JICA Sri Lanka Office (c.c. Embassy of Japan).

4-6. The Sri Lankan side shall make necessary renovation work of the X-ray room such as the expansion of the room, the removal of the window and the completion of the wall, the thickening of the wall to assure protection against radiation and the installation of air-conditioner. The Sri Lankan side shall complete the renovation work of the X-ray room except for the installation of the lead glass and the lead doors before the equipment arrives in Sri Lanka. The Sri Lankan side shall install the lead glass and the lead doors immediately after their arrival in Sri Lanka. Once the renovation work is commenced, the Sri Lankan side will report the monthly progress of the work to the Japanese side through JICA Sri Lanka Office (c.c. Embassy of Japan).

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4-7. The Sri Lankan side will construct the foundation of the incinerator and will complete the foundation work by October 31, 2001. If the foundation work for the incinerator is not commenced by April 30, 2001, the items related to the incinerator may be eliminated from the equipment procured under the Project. Once the foundation work is commenced, the Sri Lankan side will report the monthly progress of the work to the Japanese side through JICA Sri Lanka Office (c.c. Embassy of Japan). The General Hospital Matara shall carry out the medical waste management plan including segregation and minimizing of waste, classification by color code, proper storing and so forth. When the incinerator is installed, the environmental guideline laid down by the Central Environmental Authority should be followed.

4-8. The Sri Lankan side will complete the installation work of the medical gas distribution lines in the new obstetric and gynecology department building by December 2001.

4-9. The Ministry of Health shall assign a cardiologist and a pathologist who are presently undergoing abroad training as consultants to the General Hospital Matara once they return to Sri Lanka in the year 2001. The Ministry of Health shall notify the Japanese side through JICA Sri Lanka Office (c.c. Embassy of Japan) of all the progress relating to this assignment.

4-10. The Ministry of Health shall assure that the General Hospital Matara, together with the Ministry of Health, will establish an administrative framework and ensure accountability which are necessary for proper maintenance and repair of medical equipment and maintain them with assistance of BES. The Ministry of Health shall take necessary measures including assignment of personnel, provision of material, allocation of budget, establishment of maintenance system and so forth, to ensure proper and effective use of the equipment procured for the Project.

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Equipment List

A. Emergency Treatment Unit

No	Equipment	Quantity
1	Bedside monitor	1
2	Defibrillator	1
3	Infusion pump	1
4	Pulse oximeter	2
5	Emergency resuscitator	1
6	Laryngoscope	1
7	ECG machine	1
8	Sterilizer	1
9	Gatch Bed	2
10	Emergency Cart	1
11	Patient trolley	2
12	Oxygen Flow meter	1
13	Minor surgical instrument set	1
14	Set of Ophthalmic and Otolaryngology	1
15	Sphygmomanometer	2
16	Clinical set for ETU	1
*17	Nebulizer	1
18	Suction apparatus	1

B. Operating Unit

No	Equipment	Quantity
1	Cystoscope set	1
2	Pulse oximeter	1
3	Defibrillator	1
4	Operating Microscope for ENT	1
5	Anesthesia with ventilator	1
6	Surgical scrub station unit	2
7	Electro surgical unit	2
8	Dermatome	1
9	Oxygen flow meter	2
10	Pediatrics surgical instrument set	1
11	Surgical instrument set	1
12	ECG monitor	2
13	Instrument cabinet	2
14	Recovery bed	2
15	Patient trolley	2
16	Sterilizing hand washing unit	1
17	Medical Refrigerator	1
18	Laparoscope forceps set	1
19	Bone drill	1
20	Bone saw	1

Remarks: The items marked with "*" are newly added and the team will convey the request to the government of Japan for consideration as mentioned in the article 4-1 of the ATTACHMENT.

21	Bone surgical instruments set	1
22	Capnometer	1
23	Nasopharyngoscope set for ENT	1
24	Laryngoscope set for ENT	1

B'. Operating Unit

No	Equipment	Quantity
1	Pulse oximeter	1
2	Defibrillator	1
3	Anesthesia with ventilator	2
4	Electro surgical unit	1
*5	ECG monitor	2
6	Suction apparatus	2
7	Instrument cabinet	1
8	Instrument cart	2
9	Recovery bed	1
10	Patient trolley	2
11	Sterilizing hand washing unit	2
12	Medical Refrigerator	1
13	Operating table	2
14	Shadowless lamp	2

C. Endoscopy Unit

No	Equipment	Quantity
1	Gastrointestinal fiberscope set	1
2	Colono fiberscope set	1
3	Video monitor set	1
4	Light source for endoscopes	1
5	Disinfections container	1
6	Endoscope cabinet	1
7	Broncho fiberscope set	1
8	Endoscopic suction pump	1
9	Endoscopy procedure cart	1
10	Leakage tester	1

D. ICU, SICU

No	Equipment	Quantity
1	ICU bed	4
2	Ventilator for ICU	2
3	Potable ventilator	1
4	Pulse Oximeter	1
5	Defibrillator	1
6	ECG monitor	2
7	Blood gas analyzer	1
8	X-ray film viewer for 2 films	1
9	Nebulizer	2
10	Instrument cabinet	2
11	Instrument cart	2

12	Syringe pump	4
13	Oxygen flow meter	4
14	Capnometer	1
15	Autoclave, table top	1

E. CCU, ICCU

No	Equipment	Quantity
1	Ventilator for adult	1
2	ECG machine	1
3	Suction apparatus	4
4	Sphygmomanometer	2
5	Nebulizer	4
6	Ambue bag	2
7	Bedside monitor	4
8	Defibrillator	2
9	Pulse oximeter	2
10	Syringe pump	3
11	Exercise ECG	1
12	Gatch bed	4

F. OPD Clinic

No	Equipment	Quantity
1	Pure Tone Audiometer	1
2	Impedance audiometer	1
3	Sphygmomanometer	8
4	Set of ophthalmo and Otoscope	3
5	Minor surgical instruments set	1
6	Medical refrigerator	3
7	Instrument cabinet	6
8	Instrument cart	3
9	Spot lamp	5
10	Suction apparatus for ENT	1
11	Fiber optic ENT scope	1
12	Head mirror set for ENT	1
13	ENT treatment unit	1

G. Eye unit

No	Equipment	Quantity
1	Operation microscope	1
2	Echo unit for Ophthalmology, A & B scan	1
3	Visual field analyzer	1
4	Slit lamp with tonometer	2
5	Anesthesia with ventilator	1
6	Pulse oximeter	1
7	Micro instrument set for Eye	2

H. Dental Clinic & Oral & Maxillo Facial unit

No	Equipment	Quantity
1	Dental chairs with compressor	3

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2	Light cure machine	2
3	Suction unit	1
4	Autoclave, table top	2
5	Micromotor drill	1
6	Air motor drill	1
7	Mini plating kits	1
8	Micro plating kits	1
9	Pulse oximeter	1

I. Radiology section

No	Equipment	Quantity
1	Ultrasound scanner unit	1
2	General X-ray unit	1
3	Fluoroscopy X-ray unit	1
4	Mobile X-ray unit	1
5	Film mark set	2
6	X-ray film storage cabinet	1
7	X-ray protective aprons	3
8	Aprons hangers	3
9	Panoramic X-ray unit	1
10	Dental X-ray unit	1
11	X-ray film viewer for 1 film	2
12	X-ray film viewer for 4 films	1
13	X-ray Cassettes with screen set	1
*14	Lead glass and doors	1

J. Laboratory

No	Equipment	Quantity
1	Colony counter for Microbiology	1
2	Spectrophotometer	1
3	pH meter	2
4	Freezer, small	1
5	Medical refrigerator	3
6	Water distillation apparatus	1
7	Micro-plate rotator	1
8	Water bath	2
9	Pipette washer	1
10	Aspirator	1
11	Laboratory Incubator	2
12	Laboratory table	2
13	Glassware set	1
14	Autoclave for Microbiology	2
15	Binocular microscope	4
16	Micro pipettes set	1
17	Automatic micropipet set	1
18	Standard wire loop set for Microbiology	1
19	Automatic tissue processor	1
20	Microtome and knives	1
21	Wax bath set	1

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K. Labor Room

No	Equipment	Quantity
1	Oxygen flow meter	3
2	Infant warmer	1
3	Nebulizer	1
4	Suction apparatus	3
5	Delivery bed	6
	Labor bed	9
6	Cardiotocograph (CTG)	2
7	Fetal Doppler unit	2
8	Medical refrigerator	1
9	Freezer, small	1
10	Ultrasound scanner unit for Obstetrics	1
11	Baby suction unit	3
12	Vacuum extractor	1
13	Autoclave, table top	1

L. Premature Baby Unit (PBU)

No	Equipment	Quantity
1	Infant Incubator	2
2	Pulse Oximeter	4
3	Syringe pump	4
4	Infusion pump	2
5	ECG monitor	1
6	Laryngoscope for neonatal	2
7	Laryngoscope for pediatrics	2
8	Autoclave, table top	1
9	Phototherapy unit	2
10	Sphygmomanometer set for children	1
11	Transport incubator	1
12	Infant ventilator	1
13	Resuscitator table	1
14	Ambue bag for neonatal	3
15	Ambue bag for pediatrics	2

M. New PBU unit

No	Equipment	Quantity
1	Infant incubator	4
2	Phototherapy unit	2
3	Resuscitator table	2
4	Suction apparatus	2
5	Infant ventilator	1
6	Pulse oximeter	2
7	Syringe pump	2
8	Glucometer	1
9	ECG monitor	1
10	Treatment & Drug carrying trolley	1

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No	Equipment	Quantity
1	Suction apparatus	6
2	Sphygmomanometer	4
3	Nebulizer	3
4	Ambue bag	4
5	Medical Refrigerator	5
6	Patient trolley	10
7	X-ray film viewer for 1film	6

O. Sterilization Unit

No	Equipment	Quantity
1	Autoclave, large size	2
2	Autoclave, medium size	1
3	Instrument sterilizer, large size	2
4	Instrument sterilizer, medium size	4
5	Stainless sink unit for CSSD	1
6	Storage cabinet for dressing container	3
7	Cart for dressing container	1
8	Dressing container set	1

P. Health Education Unit

No	Equipment	Quantity
1	Video camera	1
	Video deck and TV monitor	2
2	Overhead projector	1
3	Slide projector and screen	1
4	CPR training manikin set, adult	1
	CPR training manikin set, infant	1
5	White writing board set	1
6	Desk top computer set	1

Q. Maintenance unit

No	Equipment	Quantity
1	Electric maintenance equipment	1
2	Mechanic maintenance equipment	1
3	Maintenance tool set	1

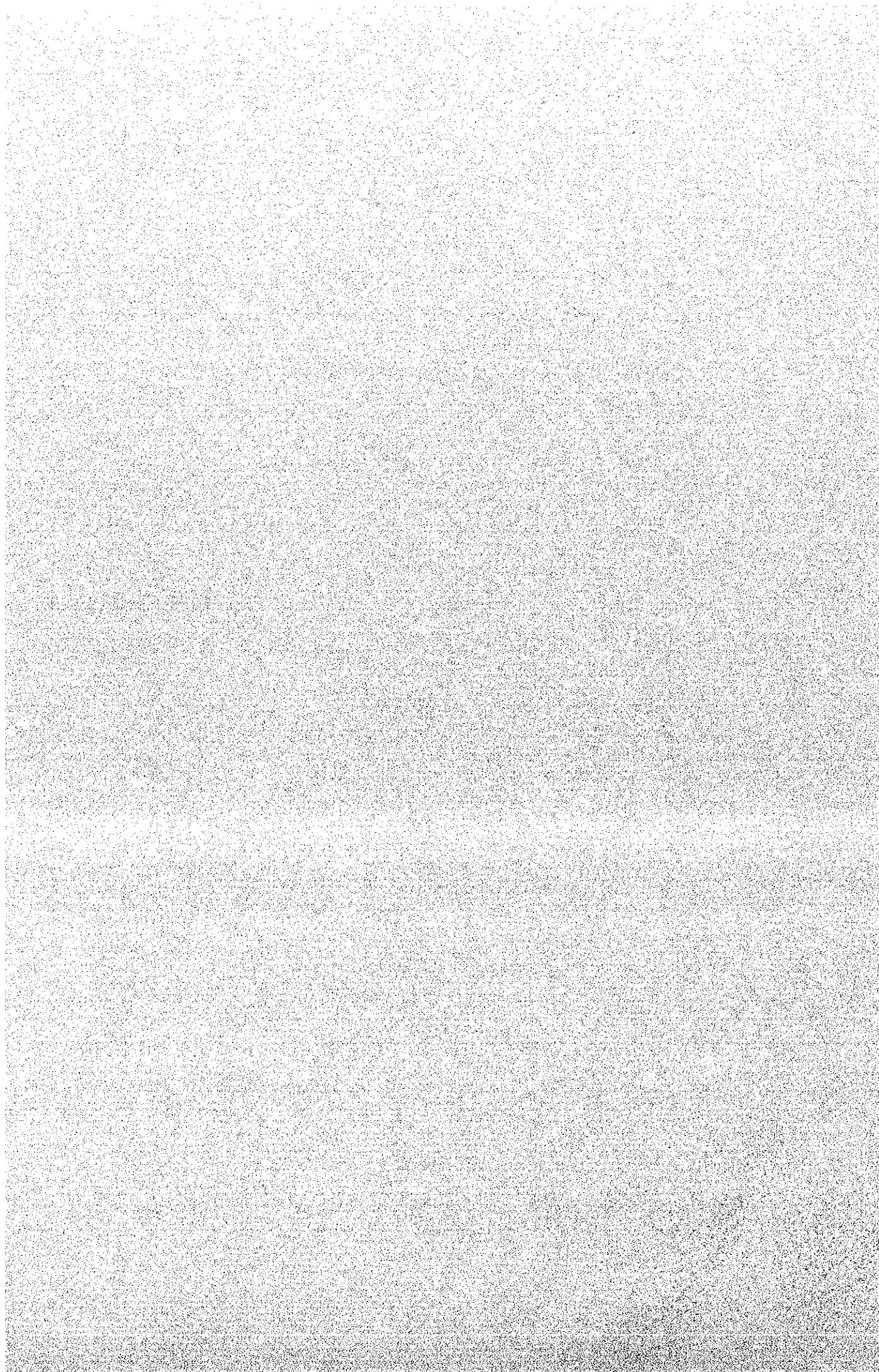
R. Others

No	Equipment	Quantity
1	Washing machine	3
2	Drying machine	2
3	Incinerator for medical waste	1
4	Mortuary cooler for 2 bodies	3
5	Autopsy table	1
6	Autopsy instruments set	1
*7	Ironing machine	2

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9. 事前評価表



9. 事前評価表

対象事業名	スリ・ランカ国 マータラ総合病院機材整備計画																		
援助の妥当性	我が国とスリ・ランカは密接な友好関係を有している。																		
	スリ・ランカ国は、インド洋の主要な航路を擁し、地政学上重要な位置を占める。また、共通の文化的基盤を有する親日国であり、経済面等での我が国に対する期待感も強い。																		
	日本国政府は幅広い人的交流の推進、文化・学術交流等や社会セクター、経済インフラ整備、人的資源開発等 ODA による協力を進めており、我が国の経済協力は 98 年度までの援助実績 (E/N ベース) 有償資金協力 4890.41 億円 (内 98 年度実績 261.02 億円) 無償資金協力 1502.36 億円 (同上 43.19 億円) となっている。また民間レベルでの経済活動も盛んである。																		
	貿易 (「ス」中央銀行年報及び我が国通商白書より)																		
	スリ・ランカへの輸出 4.8 億米ドル (98 年) スリ・ランカからの輸入 2.2 億米ドル (98 年) 日本からの直接投資 (我が国大蔵省統計、許可・届出ベース) 1951 年度から 98 年度までの累計で 158 件、756.3 億円																		
	スリ・ランカ国では保健医療事情は他の近隣諸国と比べ良好である。しかしながら、国内では依然地域格差が大きく、1999 年から始まった「保健医療開発 5 カ年計画」では「すべての人に健康を」をスローガンに医療保健サービスの地域格差是正に取り組んでいる。																		
	人口	18,639,000 人																	
	1 人当たりの GNP	820 ドル																	
	対象地域の主な保健指標																		
		<table><thead><tr><th></th><th>乳幼児死亡率</th><th>妊産婦死亡率</th></tr></thead><tbody><tr><td>マータラ</td><td>24.9</td><td>1.2</td></tr><tr><td>ハンバントータ</td><td>3.3</td><td>1.8</td></tr><tr><td>ラトナプラ</td><td>22.7</td><td>2.7</td></tr><tr><td>ゴール</td><td>21.8</td><td>1.6</td></tr><tr><td>スリ・ランカ</td><td>17.3</td><td>2.3</td></tr></tbody></table>		乳幼児死亡率	妊産婦死亡率	マータラ	24.9	1.2	ハンバントータ	3.3	1.8	ラトナプラ	22.7	2.7	ゴール	21.8	1.6	スリ・ランカ	17.3
	乳幼児死亡率	妊産婦死亡率																	
マータラ	24.9	1.2																	
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ラトナプラ	22.7	2.7																	
ゴール	21.8	1.6																	
スリ・ランカ	17.3	2.3																	
事業の目的	スリランカ国政府はマータラ県及びハンバントータ県の地域住民に対																		

	<p>する医療サービスの改善を目的として「マータラ総合病院整備計画」を策定した。</p> <p>マータラ総合病院は主にマータラ県及びハンバントータ県をカバーし、1994年に州保健局管轄の基幹病院から保健省管轄の総合病院に格上げされた。しかし、病床／診療スペース及び医療機材の不足が著しく、総合病院としての機能を十分果たせないでいる。そのため、本来マータラ総合病院に来るべき患者が近隣のゴール県所在の教育病院（トップレファラル）で診療／治療を受けるバイパス現象が起きている。</p> <p>本件は、必要な医療機材を調達することによってマータラ総合病院の医療サービスの質及び当該地域のレファラル体制の強化を目的としている。</p>
事業内容	
対象	マータラ総合病院
直接受益者	マータラ総合病院の患者
間接受益者	マータラ県、ハンバントータ県、テッサマハラマヤ県及びラトナブラ県南部在住の住民
目標、成果など	
上位目標	マータラ及びハンバントータ県及び周辺地域住民が同地域内にて良好な医療サービスを受けることが可能となる
目標	マータラ総合病院の医療サービスレベルが向上する
成果	<ol style="list-style-type: none"> 1. マータラ総合病院の医療機材が整備される 2. 医療職員の院内感染の意識が高まる 3. 技師の資機材管理能力が向上する 4. 技師の技術が向上する
投入	<p>【日本側】</p> <ul style="list-style-type: none"> ・ 機材調達 ・ 技術指導（ソフトコンポーネント） <p>【スリランカ側】</p> <ul style="list-style-type: none"> ・ 職員の増員 ・ 予算確保
総事業費	3.62 億円
スケジュール	機材据付は 2002 年 1 月～2 月の予定
実施体制	マータラ総合病院及び保健省 BES
指標の目標	

成果に対する指標	1-1 患者の待ち時間が減少する 1-2 病床数が増加する 1-3 上位医療施設への紹介患者数が減少する 1-4 下位医療施設からの紹介患者数が増加する 1-5 入院患者数が増加する 1-6 手術の件数が増加する 1-7 救急外来が 12 時間体制から 24 時間体制になる 1-8 長期病棟入院患者数が 61.6%から 40%に減少する 1-9 妊産婦死亡率が年間 10 件から 5 件に減少する 1-10 介助分娩の回数が月 822 件から減少する 1-11 胎児死亡率が 2%から 1%に低下する 1-12 放射線／臨床検査の検診者数が増加する 1-13 現在行われていない病理組織の検査ができるようになる 1-14 患者に行う衛生教育の参加人数が増加する 1-15 スタッフに対する訓練（例：CPR 訓練コース）が強化される 2-1 院内感染対策委員会が新たに設置される 2-2 院内感染率が 25%から 15%に減少する 3-1 管理マニュアルが作成される 3-2 スペアパーツの在庫が適量になる 4-1 機材の稼働率が向上する 4-2 院内で職員対象に医療機材の講習会が定期的に開催される																				
プロジェクト目標に対する指標	1. 外来患者数が 20%増加する 2. 死亡率が年間 2%から低下する 3. 患者の満足度が上昇する 4. マータラ総合病院に対する信頼度が向上する																				
上位目標に対する指標	1. 下位医療施設の医療従事者の教育機会が増える 2. 乳幼児死亡率、妊産婦死亡率が全国平均に達するか、または全国平均を下回る <table><tr><td></td><td>妊産婦死亡率</td><td>乳児死亡率</td><td>新生児死亡率</td></tr><tr><td>マータラ</td><td>1.2</td><td>24.9</td><td>20.6</td></tr><tr><td>ハバントラ</td><td>2.7</td><td>3.3</td><td>1.9</td></tr><tr><td>ラトナプラ</td><td>1.8</td><td>22.7</td><td>17.4</td></tr><tr><td>スリ・ランカ平均</td><td>2.3</td><td>17.3</td><td>12.6</td></tr></table>		妊産婦死亡率	乳児死亡率	新生児死亡率	マータラ	1.2	24.9	20.6	ハバントラ	2.7	3.3	1.9	ラトナプラ	1.8	22.7	17.4	スリ・ランカ平均	2.3	17.3	12.6
	妊産婦死亡率	乳児死亡率	新生児死亡率																		
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ラトナプラ	1.8	22.7	17.4																		
スリ・ランカ平均	2.3	17.3	12.6																		
前提条件	・ 専門医（心臓医と病理医）の配属																				

	<ul style="list-style-type: none"> ・ 洗濯棟の設置 ・ 施設の改築
今後の評価計画	
事後評価に用いる成果指標	先に挙げた成果指標を用いる。
評価の時期	機材据付 5 年後

10. 電源電圧・水質検査表



10. 電源電圧・水質検査表

(1) 電源設備

電圧測定器による各室の電圧変動の測定結果は、以下の表のとおりである。その電圧変動範囲は－6％以内と比較的小さいので、一般的な医療機材の使用には問題がないと考えられる。

しかし、停電復帰時等の瞬時大電流等による医療機材の破損を防ぐため、一部機材については、定電圧装置（AVR）の配備が必要である。

表 各室の電圧測定結果

室名	日時 (9月)	1回目	2回目	3回目	平均値	電圧変動率(%)
図書室	25日09:40	224.0	220.0	223.0	222.33	-3.33
検査部	25日09:50	214.0	220.0	219.0	217.67	-5.36
放射線部	25日10:00	216.0	219.0	217.0	217.33	-5.50

(出典：現地調査資料)

(2) 給水設備（水質・水圧）

対象施設で採取した水の水質検査結果を次ページに示す。分析結果は、全ての項目に於いて許容値内の値となっており機材に与える影響はほとんどない。よって、高圧蒸気滅菌器・蒸留水精製装置等について軟水化装置等の前処理を行う必要はないと判断する。

水圧については、現在建設中の高架水槽が完成後、水圧の問題は無くなるとの見方もあるが、実際には完成後にはじめてわかるものである。よって、安全策として高圧蒸気滅菌器・蒸留水精製装置等に水圧ブースター等を付加する必要があると判断する。

水質分析報告書

試料番号					
試料の名称			マ-55病院 サンプル水 (水道水)		
採取年月日			H12.9.29		
分析年月日			H12.10.12		
試料の外観			無色透明		
pH (25℃)			7.25		
電気伝導率(25℃)	(μ S/cm)		65.1		
透過光濁度(度[カリン])	(度)		<1		
色度	(度)		<1		
COD _{Mn}	(mgO/l)		1.0		
酸消費量(pH4.8)	(mgCaCO ₃ /l)		13.0		
遊離二酸化炭素	(mgCaCO ₃ /l)		1.7		
カルシウム	(mgCaCO ₃ /l)		15.6		
マグネシウム	(mgCaCO ₃ /l)		3.0		
全硬度	(mgCaCO ₃ /l)		18.6		
7価カリウム[Na+K]	(mgCaCO ₃ /l)				
炭酸水素イオン	(mgCaCO ₃ /l)		13.0		
塩化物イオン	(mgCaCO ₃ /l)		8.2		
硝酸イオン	(mgCaCO ₃ /l)		0.9		
硫酸イオン	(mgCaCO ₃ /l)		5.8		
イオン状シリカ	(mgCaCO ₃ /l)		8.6		
全陽イオン	(mgCaCO ₃ /l)				
全陰イオン	(mgCaCO ₃ /l)				
イオン状シリカ	(mgSiO ₂ /l)				
全鉄	(mgFe/l)		<0.03		
マンガン	(mgMn/l)		<0.05		

摘要

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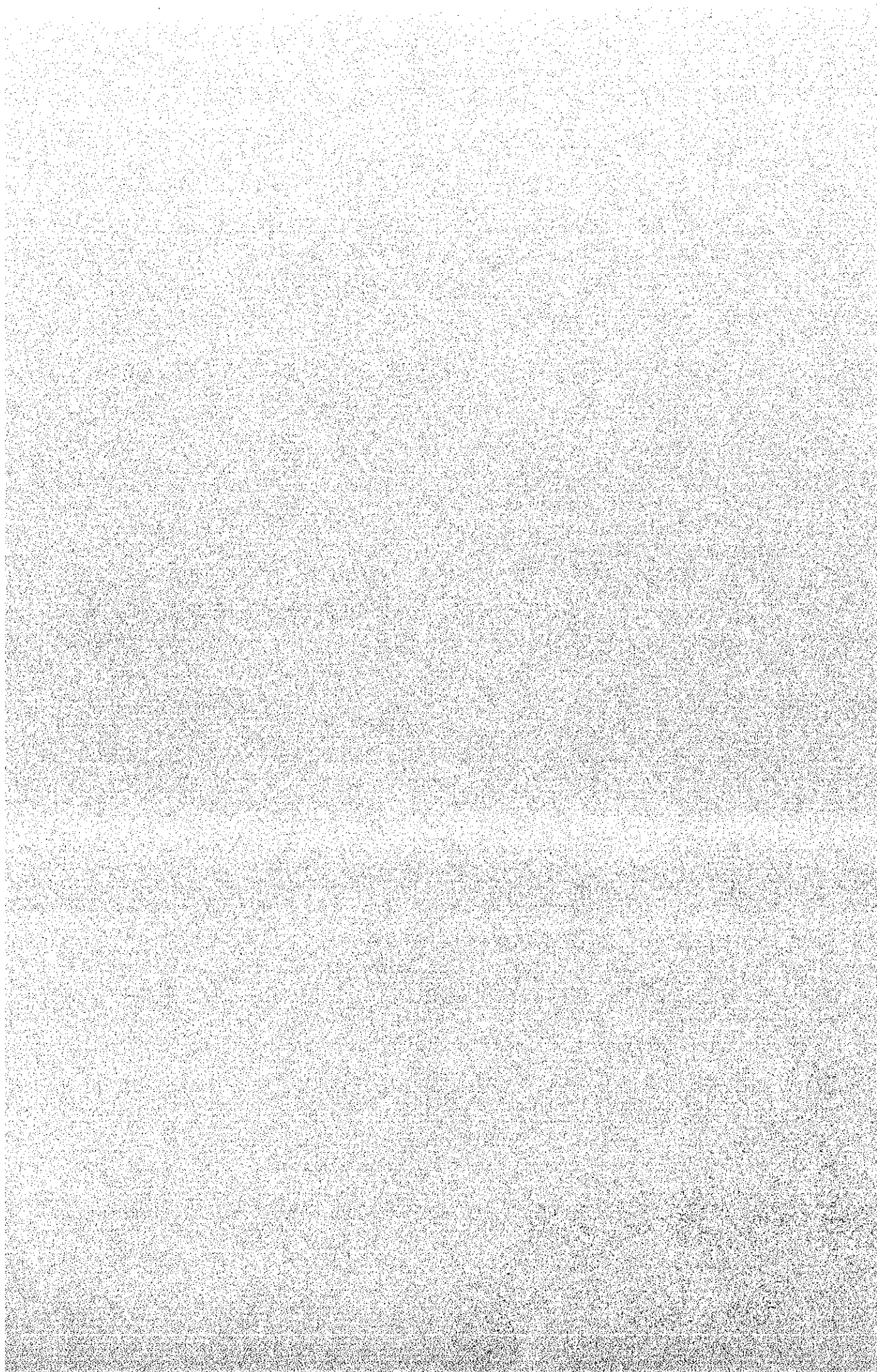
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担当	捺印
	

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JICA

