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WORLD HEALTH ORGANIZATION

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ORGANISATION MONDIALE DE LA SANTE

MALARIA CONFERENCE FOR WESTERN PACIFIC AND SOUTH EAST ASIA REGIONS

Taipei, 15-27 November 1954

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The Secretary of the Expert Committee on Malaria has the honour to communicate hereunder the following note:

INFORMATION ON THE MALARIA CONTROL PROGRAMME IN JAPAN

1. Present status of malaria control in the country

1.1 87,000,000 in 1953.

1.2 516,642

1.3 Malaria morbidity and mortality statistics for the last 15 years.

Year	Case	Morbidity	Death	Mortality
1939	...	...	95	0.1
1940	...	...	146	0.2
1941	...	...	86	0.1
1942	...	...	144	0.2
1943	...	...	...	...
1944	...	...	...	...
1945	...	...	...	...
1946	28,210	37.0	102	0.1
1947	11,825	15.1	456	0.6
1948	4,953	6.2	224	0.3
1949	3,716	4.5	120	0.1
1950	1,016	1.2	73	0.1
1951	480	0.6	38	0.0
1952	262	0.3	38	0.0
1953	168	0.2	33	0.0

Remarks: 1) Malaria has been a notifiable disease since May 1946.

2) Data not available

1.4 In 1953 - 387,560

1.5 In 1953 - Hikone City and its adjoining counties in Shiga Prefecture.

1.6 Data detailed in Annex I.

1.7 The malarious region in Japan is circumscribed to the above stated area, though anophelines are found breeding at other places in the country. Data in this report, therefore, was collected on the malaria control activites operated in Shiga Prefecture - the only malarious region - especially on that of the City of Hikone in the Prefecture.

(1) Parasitic rates in Shiga Prefecture, July, 1949.
(Examined by Prefectural Health Dept. and local Health Centers)

	Number examined	Parasite positive	Parasite rate (%)
Inhabitants in			
Inasaka Village	140	9	6.34
Ine V	164	4	2.44
Sasaedami V	42	2	4.76
Hachiman Town	450	0	-
Azuchi V	336	3	0.89
Kaneta V	407	3	0.73
Notokawa T	694	4	0.58
Sakurakawa V	333	2	0.69
Workers of the Omi Textile Fabrics	484	2	0.41
Total	5,050	29	0.95

(2) Parasite rates and spleen rates in Hikone City, Shiga Prefecture, July 1948

By Group	Age distribution	Number examined	Parasite positive	Parasite rate (%)	Number examined	Spleen enlarge	Spleen rate(%)
Employees (female), Omi Silk Co.Plant	15-39	308	1	0.3	326	7	2.1
Employees, Toyo Textile Fabrics Co.	15-53	109	1	0.9	117	9	7.7
Employees, Kanegasaki Spinning Co.	15-55	61	1	1.6	66	16	24.2
Inhabitants in Hikone City	19-55	13	0	0	14	5	35.7
Schoolchildren, Joto Primary School	12-14	10	0	0	11	0	0
" Johuku P.S.	12-13	28	0	0	35	8	22.9
" Josei P.S.	12-14	39	2	5.1	46	11	24.4
" Takei P.S.	7-11	167	6	3.6	168	5	3.0
Total	7-55	735	11	1.5	778	61	7.8

By Age

Age	Number examined	Parasite positive	Parasite rate	Number examined	Spleen enlargement	Spleen rate	Number examined	Infection in the past	%
7-10	170	6	3.5	166	5	3.0	166	58	34.9
11-5	88	2	2.3	99	19	19.1	99	31	31.3
16-20	232	1	0.4	296	15	5.1	296	52	17.6
21-25	139	1	0.7	144	10	6.9	144	32	22.2
26-30	25	0	0	27	3	11.1	27	14	51.9
31-35	15	0	0	14	2	14.3	14	9	64.3
36-40	11	0	0	11	2	18.1	11	7	63.6
Over 41	19	1	5.3	21	5	23.8	21	16	76.2

Entomological Observation

(1) Adult mosquitoes collected in light traps in Hikone City, Shiga Prefecture (June 1950)

		Female	Male	Total	%
1.	Culex tritaeniorhynchus	11,724	1,005	12,729	80.3
2.	Anopheles hyrcanus sinensis	1989	224	2,213	13.9
3.	Culex rubithoracis	168	191	359	2.2
4.	Mansonia ochraces	184	81	265	1.6
5.	Culex pipiens pallens	38	22	60	0.3
6.	Aedes vexans niponii	49	0	49	0.3
7.	Culex vishnui	45	4	49	0.3
8.	Mansonia uniformis	25	17	42	0.2
9.	Culex bitaeniorhynchus	18	1	19	0.1
10.	Culex sinensis	15	2	17	0.1
11.	Culex orientalis	10	2	12	0.0
12.	Armigeres subalbatus	6	4	10	0.0
13.	Culex hayashi	5	4	9	0.0
14.	Culex vorax	6	0	6	0.0
15.	Aedes japonicus	6	0	6	0.0
16.	Aedes albopictus	5	0	5	0.0
17.	Culex mimeticus	1	0	1	0.0
18.	Culex whitmorei	1	0	1	0.0
		14,295	1,557	15,852	

(2) Insect-borne diseases statistics

		Dysentery	Typhoid F.	Paratyphoid F.	Japanese B enceph
1947	Japan	39,219(50.2)	17,809(22.8)	4,728(6.1)	263(0.3)
	Shiga P.	298(24.7)	127(14.8)	29(3.4)	-(-)
1948	Japan	14,665(18.3)	9,486(11.9)	2,917(3.6)	4,757(509)
	Shiga P.	94(10.8)	53(6.1)	15(1.7)	47(5.4)
1949	Japan	23,961(29.3)	6,391(7.8)	2,189(2.7)	1,284(1.6)
	Shiga P.	76(8.8)	31(3.6)	19(2.2)	6(0.7)
1950	Japan	49,780(59.8)	4,883(5.9)	1,771(2.1)	5,196(6.2)
	Shiga P.	65(7.5)	40(4.6)	4(0.5)	9(1.0)
1951	Japan	93,039(110.0)	3,878(4.6)	1,302(1.5)	2,188(2.6)
	Shiga P.	77(9.0)	40(4.7)	2(0.2)	40(4.7)
1952	Japan	111,709(130.0)	2,521(3.4)	835(1.0)	3,545(4.1)
	Shiga P.	281(32.8)	29(3.4)	2(0.2)	11(1.8)

Remarks: Number in parenthesis presents morbidity per 100,000 population.

Health Statistics

(1) Malaria morbidity and mortality statistics in Shiga Prefecture for the last 15 years.

Year	Case	Morbidity	Death	Mortality
1939	...	...	1	0.1
1940	...	...	4	0.6
1941	...	...	-	-
1942	...	...	2	0.2
1943	...	...	...	...
1944	...	...	...	...
1945	...	...	...	...
1946	2,036	273.3	...	...
1947	1,881	219.2	9	1.1
1948	2,258	261.9	14	1.6
1949	2,200	254.6	6	0.7
1950	291	33.8	3	0.4
1951	87	10.1	-	-
1952	31	3.6	-	-
1953	4	0.5	-	-

1.8 Information available on general improvments that may have followed malaria control.

(a) in the field of public health

1) Antimalaria residual spraying has not only resulted in reducing malaria cases, but also brought benefits on the control of other communicable diseases, such as dysentery, typhoid and paratyphoid fevers and Japanese B encephalitis (See attached health statistics).

2) Inhabitants living in malarious area became conscious that organized health activities would bring a great benefit on insect and rodent control, as well as on whole health problems.

(b) in the social and economic fields

1) Malaria control appears to have lowered the household expenses on medical care and sanitation, and the inhabitants protected are enjoying pleasanter summer life without mosquito nets.

2) As one of the permanent anti-larval measures, the City of Hikone has reclaimed the moats or ditches around the old castle, reconstructed concrete drainage in place of them. The City has so far gained some 53,000 sq metres of land, a part of which has been utilized as the citizens' park.

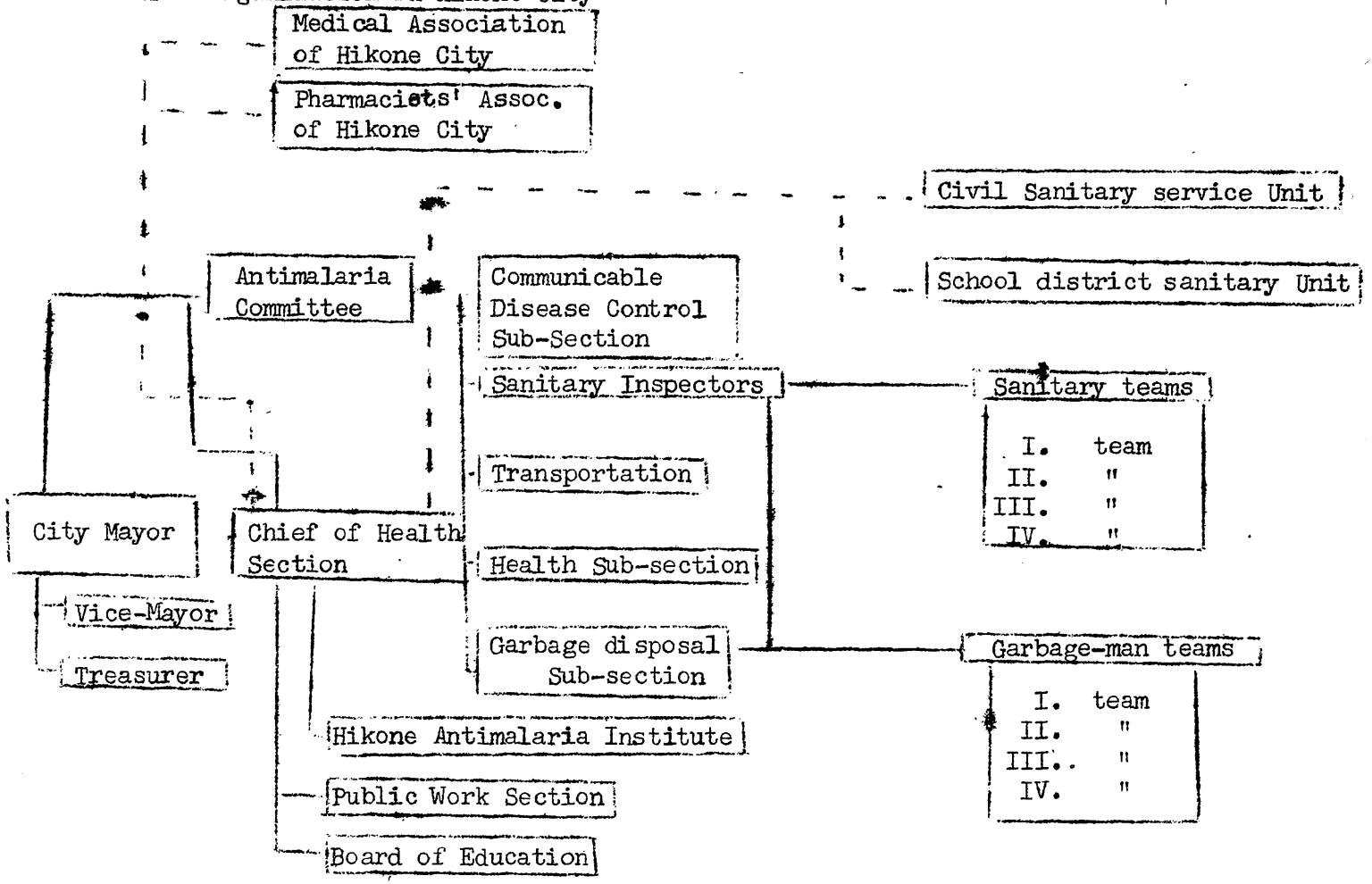
2. Organization, methods, and training facilities of the present programme

2.1 Organization

In Japan there is a well-organized system for insect and rodent control programme, but malaria is not particularly aimed at in its operations. This is because the epidemical malaria cases are circumscribed within a small area.

The only organization for malaria control is found in Hikone City, and its scheme isshown in the following.

Malaria control organization in Hikone City



2.2 Methods of malaria control

2.2.1 As stated in the last paragraph of item (1), the reclamation work of the moats and ditches around the old castle of Hikone, has been in operation since 1949.

2.2.2 Although control by drug prophylaxis has not been put stress on, anti-malaria drugs were administered freely through local health centers to the people who were infected with malaria in the proceding year. 7,900 atabrine, 11,000 quinine and 145 plasmochin pills were distributed from the prefectural Health Division to 8 health centers in 1951.

2.3 Training facilities

The Hikone Antimalaria Institute is in operation in various research works, but it is not available for the training itself.

3. Plans for the future

The primary stage of antimalaria campaign in Hikone City was just completed in this year. But the City health authorities are not satisfied with the present stage of campaign, so they will proceed further campaigns in coming years. Residual spraying will be continued at the same scale and the reclamation work of swamps in the city's jurisdiction will be carried out in wider areas.

ANNEX 1

1. 736.2 square km

2. Number of houses and all other structures sprayed

Year	Number of structures (total)
1948	4,450
1949	7,281
1950	52,288
1951	46,377
1952	68,614
1953	77,415

3. 387,750

4. 128,892

5. 2 to 4 times

6. Insecticides and formulations used: total annual consumption

Year	5%DDT in oil	10%DDT powder	Pyrethrene emulsion
1948	3,115 gallons	3,000 kg.	3,950 gallons
1949	5,096	34,000	8,100
1950	36,601	37,078	5,150
1951	32,463	12,985	2,511
1952	48,029	13,722	1,961
1953	53,190	15,483	2,153

7. 5% DDT in oil ... 0.05 litre per sq metre - Residual spraying

5% DDT in oil ... 0.006 to 0.01 litre per sq metre - As larvicide
10% DDT powder ... 0.02 gram per sq metre
Dyrethrene Emulsion ...0.0025 litre per sq metre

8. Hand-operated sprayers, power sprayers, engine dusters, fogmachine.

9. Yes

10. 3,012 sq metres

11.

11.1 Total cost per year: ¥ 15,356,250

11.2 Percentage of the total sum expended on insecticides formulations: 77%

11.3 Annual cost per capita of the population directly protected by residual spraying: ¥ 22.80

Annex 1

12. Cost of operations by other methods of anopheles control, if any

Hikone City (population 46,680) paid ¥ 50,300,000 in these 5 years to the expenditures of antimalarial sanitary engineering.

12.1 Total cost of operations per year: ¥10,060,000

12.2 Annual cost per capita of the population protected by the above methods: ¥ 215.50

13. Cost of control operations by drug prophylaxis, if any

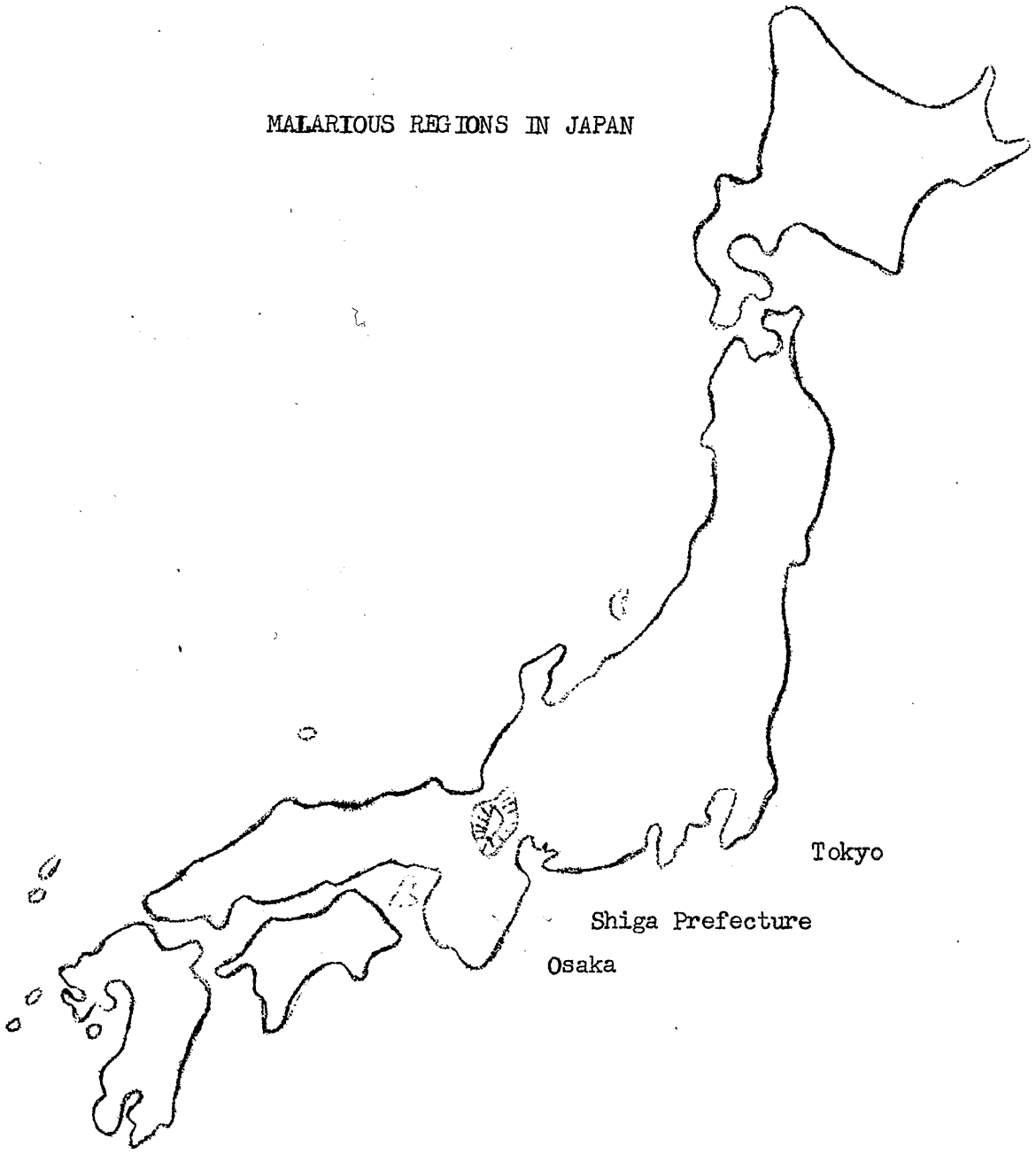
13.1 Total cost per year (1951)

Atabrine	¥ 5,135
Quinine	¥ 6,930
Plasmochin	¥ 203
TOTAL	¥12,268

13.2 Annual cost per capita of the population thus protected: ¥ 0.31

APPENDIX

MALARIOUS REGIONS IN JAPAN



//// malarious area