COSTS AND OUTCOMES OF THREE APPROACHES

4.1 The Schistosomiasis Control Approaches in the Three Communities.

First four years of the was an implementation stage. Community A was given only chemotherapy, Community B was given molluscicide plus chemotherapy, Community C was given the environmental change, chemotherapy and one year molluscicide.

The second four years was an maintenance stage the disease control was maintained by the local anti-schistosomiasis station. In this period, the chemotherapy was given the people who asked to be treated (clinical treatment).   Some the marshes were sprayed with the molluscicide   before   the   flooding   season   (focal molluscicide). But the population screening was still carried on by the research team. The approaches in the whole study period are shown in Table 4.1.

Table 4.1 The Different Control Approaches
in Three Communities

Year	Community A	Community B	Community C
Intervention stage			
1	C	C + WM	C + WM + E
2	C	C + WM	C
3	C	C + WM	C
4	C	C + WM	C
Maintenance stage			
5	CT + FM	CT + FM	CT
6	CT	CT	CT
7	CT + FM	CT + FM	CT
8	CT + FM	CT + FM	CT

C = Selected Mass Chemotherapy was given by the research

team,
WM = wide mollusciciding was used by research team,

CT = Clinical treatment, only the people with
     schistosomiasis were treated by the local station
     when they asked,
FM = Focal mollusciciding only sprayed the chemical near
     the villages by local station,
E = Environmental change was charged by research team.

4.2 The Cost of the Three Approaches

The cost of all approaches during implementation stage and maintenance stage were recorded by the study team. The cost included:

Personnel Cost

All full and part-time personnel and all volunteers involved in the control program were calculated. This included all administrative and operation personnel. The amount of time that each person spent on the program were calculated. This quantity was expressed in terms of the number of weeks spent or the proportional time of person is duty on each program separately. The gross salary of each person was calculated on a weekly basis according the data of China National Statistics Annual Report. These gross earnings included all overheads including special incentives, overtime or hardship bonus, holiday, housing and travel allowances. The total cost of each person involved in the program was then assessed as the cost of the time spent by that person on the program.

When the personnel costs of were calculated, some assumptions were set as fellow:
1. The medical assistants and lab technicians is the earning of the national officer worker level that were announced by the China Government in the China National Annual Statistic Report.
2. The earnings of supervisor and medical doctor were 20% higher than the technician and medical assistants.
3. The earning of volunteer was 60% of technician and medical assistants.
4. The work time of each year is 48 weeks.

Table 4.2   The Earning of Officers in Study Period

Unit = per year

Year	Salary	Benefit	Total
1	812	162	974
2	836	182	1018
3	865	208	1073
4	1034	247	1281
5	1213	304	1517
6	1414	368	1782
7	1546	431	1977
8	1853	538	2391
9	2055	629	2684

Source: The data collected based on the China
National Statistics Annual Report

Although in the programme we did not need to pay
official is from the programme, the doctors and other
technicians in research were still counted into the cost of
each approach here by using the national data. The cost of
travel allowance and accommodation housing were from the
control programme budget. The results of personnel costs are
shown in Table 4.3.

Table 4.3 Personnel Weekly Earnings for the
Schistosomiasis Control Programme
in Study Period

Unit: per week

Year	Salary of technician	Cost of Doctor	Cost of volunteer	Travel Allowances	Travel housing
1	20.29	24.35	11.89	35	70
2	21.21	25.45	12.73	35	70
3	22.35	26.82	13.41	35	70
4	26.68	32.02	16.01	35	70
5	31.60	37.92	18.96	35	70
6	37.13	44.56	22.28	40	105
7	41.87	50.24	25.12	40	105
8	49.81	59.77	29.89	40	105
9	55.92	67.10	33.55	40	105

The travel allowances and accommodation were only for the medical doctor and technicians. They were paid from the budget of programme according to the criteria set by the government. The volunteers were from local communities and no travel housing and travel allowances were made for them.

Capital Cost

Building: One laboratory of a local control station was used in those projects. The laboratory was 50 square meters large and half the year was used for study project. It was built two years ago and the price of using the building was 200 yuan for each month.

Microscope: Four microscopes were used in the survey for six work weeks. The purchase cost (first cost) of the microscopy was 1200 yuan. The useful life of a microscope is 10 years and 48 work weeks for each year. The operation cost was 50 yuan for each year.

Vehicles: There was no special vehicle for the control program. The vehicles were rent for short times for submitting supply to the field and the cost was only calculated according the used time (days). The rent also included the costs of driving and gas.

We only listed the first year costs of three communities, and the costs of the other years are listed in the Appendix. All of the costs were adjusted to the present value.

4.2.1 The Cost of the Chemotherapy

1. The Recurrent Cost of Chemotherapy for the First Year

The first year personnel costs included the costs of supervisor, medical doctor, medical assistant, lab. technician and volunteer. The study team need one supervisor, one medical doctor, two medical assistant, two lab. technicians and eight volunteers. The survey time was two weeks and total personnel costs are listed in Table 4.4.

Table 4.4 Illustration of the Personnel Cost for the
Chemotherapy in the First Year

Item	Unit	Unit price	Total unit	Sub-total cost
Supervisor	Week	129.35	4	517.40
Medical doctor	Week	129.35	4	517.40
Medical assist	Week	125.29	8	1002.32
Lab technician	Week	125.29	8	1002.32
Volunteer	Week	12.17	16	194.72
Subtotal	**Week**			**3234.16**

The operational cost is given in Table 4.5. In the chemotherapy study, one car was needed for four days. According to the rent price, rent fee of each day was 200 yuan. Two bicycles were used, the repair and maintenance fee was 100. The microscopes were checked every year before the study, the check fee was 50 yuan.

Table 4.5 Operating Cost of Chemotherapy
in the First   Year

Item	Unit price	Total unit	Sub-total cost
Vehicle	200.00	4	800.00
Bicycle	100.00	1	100.00
Microscopy	50.00	4	200.00
Sub-total			**1100.00**

The consumable cost include the drug for treating the schistosomiasis and treating for the side effects. 3600 mg prazequantel for one person dose was 16 yuan. 0.2 yuan spent on treating side effects for one case. The price of one slide was 0.08 yuan and one Kato-Kaze plate was 0.3 yuan for population examination. Other consumables were glycerin and dyestuff for the Kato-kaze's examination. The cost of consumables is listed in Table 4.6.

Table 4.6 The Consumable Cost of Chemotherapy
in the First Year

Item	Unit	Unit price	Total unit	Sub-total cost
Praziquantel	Person	16.00	166	2656.00
Other drug	Person	0.20	166	33.20
Slide	Person	0.08	870	69.60
Kato-Kaze plates	Person	0.10	870	87.00
Other consumable	Person	0.30	870	261.00
5% wastage				155.34
Sub-total				**3262.14**

2. The Capital Cost for the Chemotherapy

When the capital cost was calculated, the assumption was set that the capital has a lifetime of n years. The inflation is i per year and remains unchanged through the next n years; the value of equipment at end of the next year was calculated.

Four microscopes were needed for population screening for one month. The purchase fee for a microscope was 1200 yuan. The life of a microscope is ten years. The assumption of inflation was 10%. The value of the microscope at the last year was:

$$C_{10} = 1200 \times (1+0.1)^{10}$$

$$= 3112.49$$

If the further cost C_n is to be distributed equally over the n years, the amount P_i to be saved by the end of each i will give C_n/n at the end of the nth year (if it is invested in the bank at interest rate r per year). As the amount P_n saved at end of the last year will not have generated any interest, we shall thus have:

$$P_1 = \frac{3112.49}{10(1+0.1)^{10-1}}$$

$$= 132.00 \text{ / per year}$$

Microscope cost was 132 for first year. The cost of microscope was divided for each month, that was 132 / 12 = 11.00 yuan for a month.

One weight scale was needed in the chemotherapy. The price of scale was 200 yuan. The lifetime of weight scale would be ten years. Then the unit cost of the weight scale for each month was 1.83 yuan.

$$C_{10} = 200 \times (1 + 0.1)^{10}$$

$$= 518.75$$

$$P_1 = \frac{518.75}{10(1 + 0.1)^{10-1}}$$

$$= 22.00 \text{ / per year}$$

$$22.00/12 = 1.83 \text{ / per month}$$

The bicycles were needed for four months in the chemotherapy. The price of one bicycle was 700 yuan. The lifetime of a bicycle would be ten years. Then the unit cost of the bicycle for the first each month was 6.42 yuan.

$$C_{10} = 700 \times (1 + 0.1)^{10}$$

$$= 1815.62$$

$$P_1 = \frac{1815.62}{10(1 + 0.1)^{10-1}}$$

$$= 77.00 \text{ /per year}$$

$$77.00 / 12 = 6.42 \text{ / per month}$$

A room was rented. The fee was 200 yuan for a month. Every year, a room was rent for a month for chemotherapy. The unit costs are shown in Table 4.7.

Table 4.7 The Capital Cost of Chemotherapy
in the First Year

Item	Unit	Unit price	Total unit	Sub total cost
Building	Month	200.00	1	200.00
Microscope	Month	11.00	4	44.00
Weight scale	Month	1.83	1	1.83
Bicycle	Month	6.42	4	25.68
Other equipment	Month	100.00		100.00
Sub-total				**371.51**

The total cost of chemotherapy in the first year was 7967.81 yuan; that included the personnel cost, operating cost, consumable cost and capital cost. The results of total costs are shown in Table 4.8.

Table 4.8 The Total Cost of Chemotherapy
in the First Year

Item	Sub-total cost
Personnel cost	3234.16
Operating cost	1100.00
consumable cost	3262.14
Capital cost	371.51
Total cost	**7967.81**

4.2.2   The Cost of the Molluscicide Plus Chemotherapy

We list the first year cost of the molluscicide and chemotherapy, the other years costs are detailed in Appendix B.

1.   The Recurrent Cost of Molluscicide plus Chemotherapy

The personnel cost in the first year of the molluscicide plus chemotherapy community included the costs of supervisor, medical doctor, medical assistant, laboratory technician and volunteer. The study team needed one supervisor, one medical doctor, two medical assistants, two laboratory technicians and eight volunteers. the survey time was two weeks. Spraying

molluscicide in the marshes needed another 115 volunteer working weeks. Total personnel costs were 4832.54 yuan, as listed in Table 4.9.

Table 4.9 Illustration of the Cost of Molluscicide and Chemotherapy in the First Year

Item	Unit	Unit price	Total unit	Sub-total cost
Supervisor	Week	129.35	4	517.40
Medical doctor	Week	129.35	4	517.40
Medical assist	Week	109.35	8	874.80
Lab technician	Week	109.35	8	874.80
Volunteer	Week	12.18	123	1498.14
Subtotal	**Week**			**4282.54**

The operational cost is given in Table 4.10. In the chemotherapy research team, one car was needed for four days. According to local rent price, rent fee of each day was 200 yuan. Two bicycles were used, the repair and maintain fee was 100 yuan. The microscopes were checked before the field study and the fee for checking microscopy was 50 yuan. Total operating costs were 1100 yuan in the first year.

Table 4.10 Operating Costs of Molluscicide Plus Chemotherapy in the First Year

Item	Unit	Unit price	Total unit	Sub total cost
Vehicle	Day	200.00	4	800.00
Bicycle	Year	100.00	1	100.00
Microscopy	Year	50.00	4	200.00
Sub-total				**1100.00**

The consumable costs include the drugs for treating schistosomiasis and drugs for treating the side effects of praziquantels shown in Table 4.11. The price of one dose per person (3600 mg praziquantel) was 16 yuan, and other drug 0.2 yuan was for treating side effects. The price of one slide for screening the population was 0.08 yuan. Total cost for the consumables was 9196.40 yuan.

Table 4.11 The Cost of the Consumable of Molluscicide
Plus Chemotherapy in the First Year

Item	Unit	Unit price	Total unit	Sub-total cost
Praziquantel	Person	16.00	214	3424.00
Other drugs	Person	0.20	214	42.80
Molluscicide	KG	0.80	6125	4900.00
Slide	Person	0.08	816	65.28
Kato-kaze plates	Person	0.10	816	81.60
Other consumable	Person	0.30	816	244.80
5% wastage				437.92
Sub-total				**9196.40**

2. The Capital Cost of the Molluscicide and Chemotherapy

The capital cost was calculated with the same assumptions as far the chemotherapy community. The capital has a lifetime of n years. The inflation is i (10%) per year and remains unchanged through the next n years, the cost occurred the end of each year, the value of equipment at the nth year was calculated as expressed in Appendix B.

Four microscopes were needed for population screening for one month. The purchase fee for microscope was 1200 yuan. The life of microscopy is ten years. The assumption of inflation was 10% during the implementation period. The future value e of the microscopy at the last year of microscope life was:

$$C_{10} = 1200 \times (1 + 0.1)^{10}$$

$$= 3112.49$$

If the further cost C_n is to be distributed equally over the n years, the amount Pi to be saved by the end of each i will give C_n/n at the end of the nth year (if it is invested in the bank at interest rate r per year). As the amount Pn saved at begin of the last year will not have generated any interest, we shall thus have:

$$P_1 = \frac{3112.49}{10(1+0.1)^{10-1}}$$

$$= 132.00 \text{ / per year}$$

Microscope cost was 132 for first year. The cost of microscopy will be divided for each month, that is
132 / 12 = 11.00 yuan.

One weight scale was needed in the molluscicide and chemotherapy. The price of weight scale was 200 yuan. The lifetime of weight scale is 10 years. then

$$C_{10} = 200 \times (1+0.1)^{10}$$

$$= 518.75$$

$$P_1 = \frac{518.75}{10(1+0.1)^{10-1}}$$

$$= 22.00 \text{ / year}$$

$$22.00 \text{ / } 12 = 1.83 \text{ / month}$$

Two bicycles were needed for four months in the chemotherapy. The price of one bicycle was 700 yuan. The lifetime of a bicycle is 10 years. then

$$C_{10} = 700 \times (1+0.1)^{10}$$

$$= 1815.62$$

$$P_1 = \frac{1815.62}{10(1+0.1)^{10-1}}$$

$$= 77.00 \text{ /year}$$

$$77.00/12 = 6.42 \text{ /month}$$

The total capital cost of molluscicide and chemotherapy in the first year was 371.50 yuan. the results was listed in Table 4.12.

A room of 50 square meters was used during the implement of chemotherapy. According local regulation, the room rent charge was 200 yuan for a month. Every year, the room was used for one month for molluscicide and chemotherapy.

The sub-total cost of the molluscicide and chemotherapy for the first year 371.50 yuan. The result is shown in Table 4.12.

Table 4.12 The Capital Cost for the Molluscicide Plus Chemotherapy in the First Year.

Item	Unit	Unit price	Total unit	Sub-total cost
Building	Month	200.00	1	200.00
Microscope	Month	11.00	4	44.00
Weight scale	Month	1.83	1	1.83
Bicycle	Month	6.42	4	25.67
Other equipment	Month	100.00		100.00
Sub-total				**371.50**

The total cost for the molluscicide and chemotherapy was 14950.44 yuan as demonstrated in Table 4.13.

Table 4.13 Total Cost of Molluscicide Plus Chemotherapy in the First Year

Item	Sub-total cost
Personnel cost	4282.54
Operating cost	1100.00
Consumable cost	9196.40
Capital cost	371.50
Total cost	**14950.44**

The costs of other years are listed in Appendix A and all of the costs for the chemotherapy are adjusted to the present value.

4.2.3 The Cost of the Environmental Change Plus Chemotherapy and Molluscicide

The first year cost of the environmental change is given here, the other years costs are listed in Appendix C.

1. The Recurrent Cost of Environmental Change in the First Year

Although a dike was built around the marshes in the first year, we also gave chemotherapy to the community and sprayed molluscicide within and out of the dike. The first year personnel costs included the costs of suppresser, medical doctor, medical assistant, lab. technician and volunteer. The study team need one supervisor, one medical doctor, two medical assistants, two lab. technicians for two weeks. 52 volunteers for giving the molluscicide and chemotherapy. The survey time was two week and total personnel costs are shown in Table 4.14.

Table 4.14 The Personnel Cost for the Environmental Change Plus Chemotherapy and Molluscicide in the First Year

Item	Unit	Unit price	Total unit	Sub-total cost
Supervisor	Week	129.35	4	517.40
Medical doctor	Week	129.35	4	517.40
Medical assist	Week	109.35	8	874.80
Lab technician	Week	109.35	8	874.80
Volunteer	Week	12.18	208	2533.44
Subtotal				**5317.84**

The operating costs were the same as far the other two communities. the operating cost included the vehicle, bicycle and microscope. The total operating cost for the first year was 1100 yuan. The results are shown in Table 4.11.

The consumable costs in this year were 20510.36 yuan. The items of consumable cost are shown in Table 4.15.

Table 4.15 The Consumables Cost of the Environmental
Change Plus Chemotherapy and Molluscicide
in the First Year

Item	Unit	Unit price	Total unit	Sub-total cost
Praziquantel	Person	16.00	102	1632.00
Other drug	Person	0.20	102	20.40
Molluscicide	KG	0.80	22000	17600.00
Slide	Person	0.08	586	46.88
Kato-kaze plates	Person	0.10	586	58.60
Other consumable	Person	0.30	586	175.80
5% wastage				976.68
Sub-total				**20510.36**

2. The Capital Cost for the Environmental Change in the First Year

The capital cost are shown in Table 4.16. The total capital cost was 4471.50 yuan. The way of calculate was the same with the other capitals listed above.

Table 4.16 The Capital Costs of Environmental Change
Plus Chemotherapy and Molluscicide
in the First Year

Item	Unit	Unit price	Total unit	Sub-total cost
Dike	Year			4400.00
Building	Month	200.00	1	200.00
Microscopy	Month	11.00	4	44.00
Weight scale	Month	1.83	1	1.83
Bicycle	Month	6.42	4	25.67
Other equipment	Month	100.00	1	100.00
Sub-total				**4771.50**

The total cost of this community was 67,299.70 yuan (Table 4.20) in the first year of environmental change.

Table 4.17 Total Cost for the Environmental Change
Plus Chemotherapy and Molluscicide

Item	Sub-total cost
Personnel cost	5317.84
Operating cost	2100.00
consumable cost	20510.36
Capital cost	4771.50
Total cost	**32,699.70**

4.2.4 The Cumulative Cost of Each Approach

The costs all occur at the beginning of each year. The costs of each approach were made by discounting future costs to present values. The calculation is performed as shown in Expression 3.1. The costs of each approach for whole study periods were listed in Appendix A, Appendix B and Appendix C. The costs of cumulative present value of the three approaches are shown in Table 4.21.

Table 4.18 The Cost of Cumulative Present Value of the Three Approaches in the Whole Control Period

	Year	1	2	3	4
CH*	Present Value	7967.81	5941.08	5513.55	5546.60
	Cumulative Cost	7967.81	13908.89	19422.44	24969.04
MO**	Present value	14950.44	11934.21	11707.52	11654.27
	Cumulative Cost	14950.44	26884.65	38592.17	50246.44
EN***	Present Value	32699.70	13144.17	12601.40	12067.71
	Cumulative Cost	32699.70	45843.87	58445.27	70512.98
	Year	**5**	**6**	**7**	**8**
CH	Present Value	9386.53	5770.42	8923.50	8816.53
	Cumulative Cost	34355.57	40125.99	49049.49	57866.02
MO	Present Value	7425.59	5573.92	9707.19	9853.93
	Cumulative Cost	57672.03	63245.95	72953.14	82807.07
EN	Present Value	11151.45	11773.48	12231.41	12400.31
	Cumulative Cost	81664.43	93437.91	105669.32	118069.63

*   CH = Chemotherapy
**   MO = Molluscicide + Chemotherapy
*** EN = Environmental change + Molluscicide
         + Chemotherapy

4.3 The Outcomes of the Three Approaches

4.3.1 The Prevalence of Schistosomiasis in Three Communities

The prevalence in the chemotherapy community is shown in Table 4.19. Before the control, the prevalence of schistosomiasis was 19.23%. During the chemotherapy, the prevalence decreased. When in the

five years, the approach stopped, the prevalence increased soon. In the sixth and seventh year, the molluscicide was given by the local anti epidemic station. If there were no such approach, the prevalence of schistosomiasis increased more quickly.

Table 4.19 The Prevalence of Schistosomiasis in the Chemotherapy Community

YEAR	FEMALE	MALE	Total
0	19.18	19.28	19.23
1	7.93	8.03	7.98
2	4.25	7.29	5.79
3	6.21	8.10	7.17
4	6.25	3.71	4.92
5	4.69	7.58	6.21
6	11.79	15.16	13.58
7	8.73	14.81	11.90
8	8.48	10.03	9.27

Table 4.20 The Prevalence of Schistosomiasis in the Molluscicide Plus Chemotherapy Community

YEAR	FEMALE	MALE	TOTAL
0	27.20	25.30	26.23
1	6.83	7.33	7.08
2	4.14	2.67	3.40
3	6.02	2.59	4.28
4	3.26	4.20	3.73
5	4.75	3.65	4.20
6	6.72	7.24	6.97
7	8.07	12.62	10.34
8	10.90	13.99	12.45

Before the molluscicide and mass chemotherapy, the prevalence of schistosomiasis was 26.79%. During the implementation period, the prevalence decrease yearly. In the 5th year, the prevalence decreased to 3.73%. The molluscicide and mass chemotherapy stopped at the 5th year. After control implementation, the prevalence of schistosomiasis increased.

Table 4.21 The Prevalence of Schistosomiasis in the
Environmental Change Community

YEAR	FEMALE	MALE	TOTAL
0	17.30	17.34	17.32
1	6.88	6.12	6.57
2	5.31	2.96	4.32
3	1.67	0.81	1.32
4	0.91	1.41	1.15
5	1.06	0.74	0.92
6	1.36	1.11	1.25
7	0.50	0.34	0.44
8	1.26	0.33	0.86

In environmental change community, a dike was built and changing the snail ridden marshes to a fish pool. Before of the implementation, the prevalence of schistosomiasis was 17.32%. In the beginning four years, the prevalence of schistosomiasis decreased yearly. After stopping implementation, the prevalence of schistosomiasis still remained at a very low level (< 1%).

4.3.2 The Intensity of Infection of Schistosomiasis

From Figure 4.3 and Figure 4.4, we can see that the tread of intensity of infection showed same pattern as the prevalence of schistosomiasis in the chemotherapy community and molluscicide community. After the intervention of environmental change, the prevalence of infection decreased very quickly. Because every year only a few people got infection in the environmental change community, we did not calculate the intensity of infection here.

Figure 4.1 Prevalence and Infected
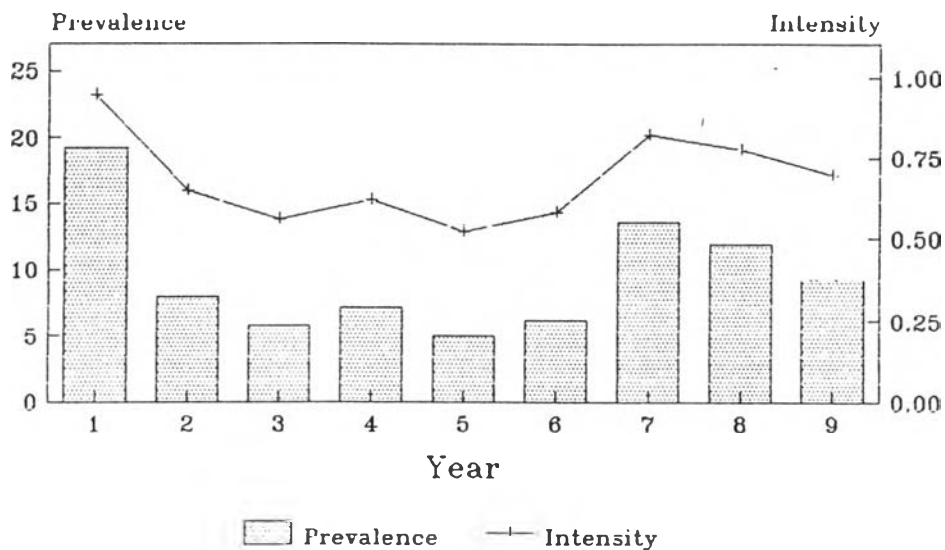## Intensity with Schistosomiasis
In Chemotherapy Community

Figure 4.2 Prevalence and infected
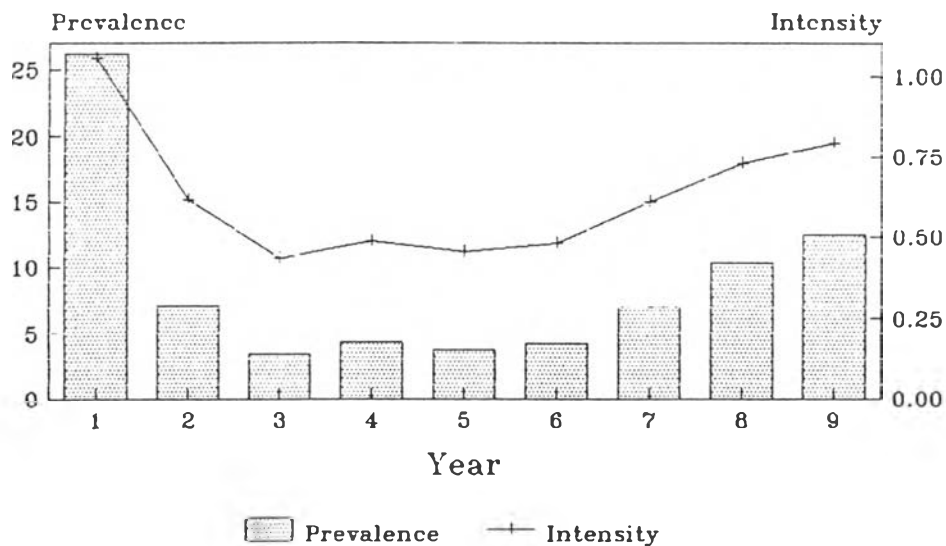## Intensity with Schistosomiasis
in Molluscicide Community

Table 4.22 Infection Density of Population of
               Schistosomiasis in Chemotherapy Community
               [Mean = LOG(X+1)]

Year	Sex	N Obs	Mean	Std Dev
0	Female	417	0.4600	0.9453
	Male	446	0.4624	0.9471
	total	863	0.4612	0.9457
1	Female	391	0.1901	0.6487
	Male	411	0.1925	0.6524
	Total	802	0.1914	0.6502
2	Female	424	0.1018	0.4840
	Male	439	0.1748	0.6241
	Total	863	0.1389	0.5605
3	Female	419	0.1488	0.5792
	Male	432	0.1943	0.6551
	Total	851	0.1719	0.6189
4	Female	368	0.1499	0.5812
	Male	404	0.0890	0.4539
	Total	772	0.1180	0.5191
5	Female	320	0.1124	0.5076
	Male	356	0.1819	0.6357
	Total	676	0.1490	0.5793
6	Female	390	0.2828	0.7744
	Male	442	0.3635	0.8609
	Total	832	0.3257	0.8220
7	Female	401	0.2093	0.6776
	Male	439	0.3550	0.8526
	Total	840	0.2855	0.7770
8	Female	377	0.2035	0.6692
	Male	399	0.2404	0.7211
	Total	777	0.2222	0.6957

Table 4.23 Infection Density of Schistosomiasis in
the Molluscicide and Chemotherapy Community
[Mean = LOG(X+1)]

Year	Sex	N Obs	Mean	Std Dev
0	Female	397	0.6523	1.0684
	Male	419	0.6066	1.0437
	Total	816	0.6289	1.0554
1	Female	366	0.1638	0.6057
	Male	382	0.1758	0.6258
	Total	748	0.1699	0.6157
2	Female	411	0.0992	0.4781
	Subtotal	412	0.0640	0.3870
	Total	823	0.0816	0.4350
3	Female	415	0.1445	0.5712
	Male	425	0.0621	0.3812
	Total	840	0.1028	0.4859
4	Female	337	0.0783	0.4267
	Male	333	0.1008	0.4819
	Total	670	0.0895	0.4548
5	Female	337	0.1138	0.5107
	Male	329	0.0875	0.4502
	Total	666	0.1008	0.4816
6	Female	402	0.1611	0.6010
	Male	387	0.1735	0.6220
	Total	789	0.1672	0.6110
7	Female	409	0.1935	0.6539
	Male	412	0.3026	0.7973
	Total	819	0.2483	0.7310
8	Female	376	0.2615	0.7484
	Male	386	0.3355	0.8329
	Total	762	0.2990	0.7927

4.3.3 The Other Outcomes of the Control Approaches

1. Snail Population Change in the Chemotherapy Community

The results of snail population counts in the chemotherapy community are shown in Table 4.24. Both the density of snail and density of infected snails remained high level in study period and there were no trends of change to be found during this time.

Table 4.24 Densities of Snail and Infected Snail
in the Chemotherapy Community
(Snail / 0.11 square meter)

```
-------------------------------------------------
Time(Year)      Density          Density of
                of Snail         infected snail
-------------------------------------------------
Implement stage
  1             2.30             0.0621
  2             2.40             0.0122
  3             5.30             0.0281
  4             4.20             0.0989
-------------------------------------------------
Maintenance stage
  5             0.70             0.0047
  6             4.71             0.0111
  7             8.19             0.0642
  8             3.02             0.0343
-------------------------------------------------
```

2. Snail Population Change in the Molluscicide Community

Table 4.25 provides the result of snails in the molluscicide community. In this community, the molluscicide and chemotherapy were engaged. Before the mollusciciding, the density of snails was 1.51 / 0.11 m^2 (one square cun-Chinese unit).   During the mollusciciding, both the density of snails and the density of infected snails decreased quickly. After two years mollusciciding, the density of infected snails decreased to close zero. In the maintenance period, the approach of wide molluscicide stopped, both density of snail and density of infected snail increased. In the sixth year (stopping wide mollusciciding for two years, the densities of snails and infected snails were back to nearly pre-approach levels.

Table 4.25 The Densities of Snails and Infected Snails
in the Molluscicide Plus Chemotherapy
Community (Snail/ 0.11 Square Meter)

Time(Year)	Density of Snails	Density of infected snails
Implement period		
1	1.51	0.0111
2	0.25	0.0024
3	0.75	0
4	0.22	0
Maintenance period		
5	0.21	0.0034
6	4.01	0.0114
7	5.20	0.0058
8	0.68	0.0115

3. Snail Population Change in the Environmental Change Community

The result of snail counts in the environmental change community is shown in Table 4.26. Before the environmental change, the density of snails was 5.70 per 0.11 m^2 and density of infected snails was 0.2004/0.11 square meter. After environmental change, the density of snails decreased very quickly. In the third year, the density of snails decreased to the 0.02/0.11 square meter and no infected snail was found. In the fourth year no snail was found in the marshes of this community. In the sixth to the eighth year, very few snails still could be collected from this area, the density of snails was very low and no infected snail was found.

Table 4.26 The Density of Snails Population in
the Environmental Change Community
(Snails / 0.11 square meter)

Time(Year)	Density of Snails	Density of infected snails
1	5.70	0.2004
2	0.10	0.0007
3	0.02	0
4	0	0
5	0	0
6	0.09	0
7	0.03	0
8	0.06	0
9	0	0