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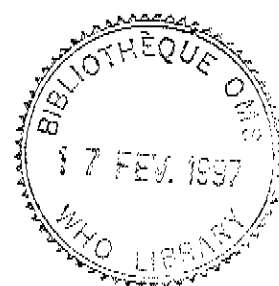
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Eradication of Dracunculiasis in Pakistan

Report of the International Certification Team

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WHO Consultants
7 September - 7 October 1996



WORLD HEALTH ORGANIZATION

DIVISION OF CONTROL OF TROPICAL DISEASES

1996

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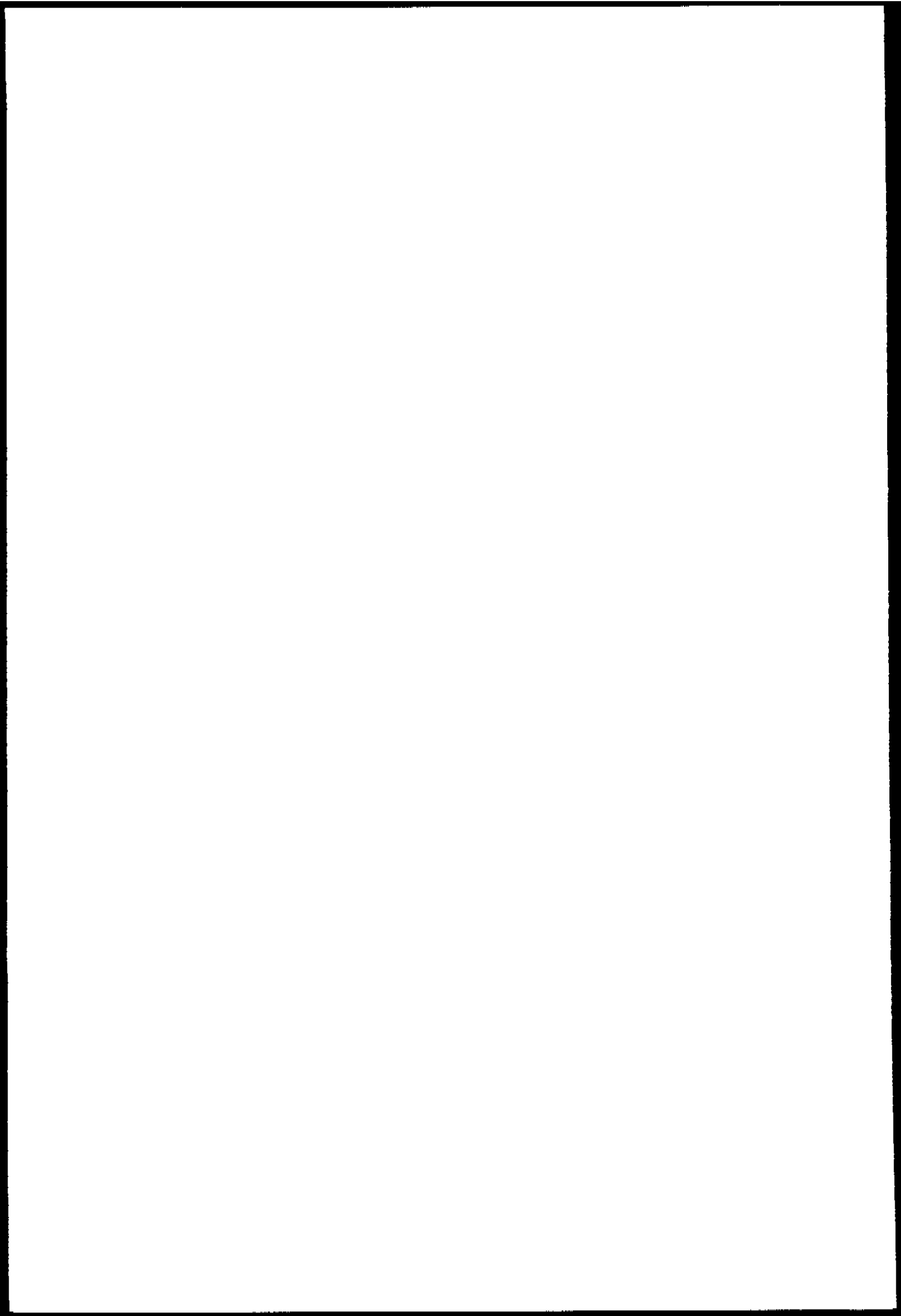
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**Eradication of Dracunculiasis in Pakistan:
Report of the International Certification Team**

CONTENTS

	Page
Executive Summary	3
1. Background	4
2. Visit of the International Certification Team	8
3. Findings	9
4. Conclusions and Recommendations	18
Acknowledgements	19
Annex 1	20
Annex 2	22
Annex 3	28
Annex 4	29



EXECUTIVE SUMMARY

The International Certification Team (ICT) visited Pakistan from 7 September to 7 October 1996.

During the first week in Pakistan, team members had official visits with authorities of the Ministry of Health, National Institute of Health and also with WHO Representative to discuss the details of the activities that had led to the eradication of dracunculiasis. During the same period, they also prepared checklists and questionnaire for village study for use during the field visits.

Field visits took place during the following 15 to 17 days, during which previously infected villages were studied. Selection of the villages was made according to the recommendations of the International Commission for the Certification of Dracunculiasis Eradication (ICCFE). The whole previously infected areas of the country was covered. Reporting and surveillance system was carefully checked. Also methods of health education, poster distribution, temephos (Abate) treatment, rumour registry, case-containment files, results of case examination of rumour claims, all were carefully investigated. Village studies showed very high level of knowledge of the people in all areas about the disease, its prevention, reward for reporting of cases and situation of the disease in their villages during the last 5 to 6 years.

Although the routine reporting system of communicable diseases was neither complete nor very reliable, because of effective health education and high level of awareness of the people and also because of very effective reward system and rumour registry, the team believes that the disease has been eradicated in the country. ICT recommends continuation of rumour registry and reward system and also vigilant surveillance in villages neighbouring endemic areas in India to prevent re-introduction of the disease.

1. Background

Dracunculiasis has been endemic in some of the least developed areas of the country since old times. Exact figures of morbidity are not available but according to some reports, over 5 000 cases were treated in various hospitals and dispensaries of the country in 1958-59 and nearly 14 000 cases were recorded in the Punjab Province in 1980.

Guinea Worm Eradication Programme started in 1987. The details of the activities of this Programme are given in the Pakistan Country Report on Guinea Worm Eradication. Table 1 presents the milestones of this Programme. In brief, the National Institute of Health (NIH) was designated as the institution responsible for the implementation of the eradication process.

Major financial support, apart from that of the Government, was initially provided by the Global 2000 Inc. and BCCI Foundation, but in October 1991 they left the Project prior to the realization of dracunculiasis eradication. On the basis of the request of the Government, WHO technical support was coupled in 1992 with a financial support. For details of WHO contribution to the Project please see Annex 1 of this report. UNICEF took also part in the financial support of the Programme.

National case search, followed by "specific searches" by specially selected health workers were carried out in all main provinces of the country. Table 2 shows the results of these searches which demonstrate that in parts of Sindh, Punjab and NWFP, out of 4053 villages visited, 220 villages with more than 400 000 population were infected. In later phases, these figures increased because new infected villages were found in the same areas. After a pilot programme, control activities started in 1988 including health education, filter distribution, Abate treatment of ponds and later, case-containment and surveillance in all infected villages supported by the introduction of a reward system and a rumour registry. Sustaining these activities gradually controlled transmission and decreased the number of cases.

Table 3 shows the number of endemic villages from 1988 to 1995. Figures from this table demonstrate that in 1993 there remained only one infected village in NWFP. Table 4 shows the number of cases during the same period. The last 2 cases were seen in one village (Ganju), one in June and the other on 6 October 1993. This was the last case found in the country despite all efforts to find any case of the disease. Therefore, on 6 October 1996, the country had been free of Guinea worm for exactly three years. Consequently, the Government of Pakistan provided a detailed Country Report and officially requested the International Commission for the Certification of Dracunculiasis Eradication to certify the eradication of the disease in Pakistan. The activities, findings, conclusions and recommendations of the International Certification Team follow.

Table 1

Milestones of the Pakistan Guinea Worm Eradication Programme

1986 (November)	President Carter Visits Pakistan, Joint CDC/Carter Center Seminar.
1986 (December)	CDC/Global 2000 ¹ technical assistance team visits Pakistan.
1987 (February)	National GWEP Office established at NIH ² , Islamabad, National Programme Manager designated, Arrival of Global 2000 Resident Advisor.
1987 (April-June)	National case search.
1987 (September)	Implementation of surveillance and control interventions begin.
1988 (January)	End-of-year review at Carter Center with CDC.
1988 (February)	Interventions implemented in all known endemic villages.
1988 (March)	National Conference.
1988 (September)	In-country evaluation (CDC/Global 2000).
1989 (November)	Programme review (CDC/Global 2000).
1990 (January)	Case-containment strategy begins to be implemented.
1990 (August)	New National Programme Manager designated.
1991 (January)	In-country evaluation (CDC/Global 2000), 1000 Rupees reward offered for reporting a case.
1991 (October)	In-country evaluation (CDC/Global 2000).
1991 (November)	Direct Global 2000 assistance ends.
1992 (November)	In-country evaluation (WHO/CDC).
1993 (January)	Reward increased to 3000 Rupees to each patient for complying with containment measures and 500 Rupees for person reporting a case.
1993 (October)	Last case reported from the village of Ganju, NWFP.

¹ Global 2000 is part of the Carter Center.

² National Institute of Health.

Table 2

Infected localities Pakistan - Special search

Provinces / Districts / Tehsils			Villages in Tehsil		N° of Infected Villages		
Province	District	Tehsil	N° Existed	N° Visited	< 10 cases	> 10 cases	Total infected
NWFP	Bannu	Lakki	191	191	15	6	21
	D.I. Khan(1)	D.I. Khan(1)	379	375	14	3	17
	D.I. Khan	Kulachi	116	116	21	2	23
	D.I. Khan	Tank	107	107	2		2
Punjab	D.G. Khan(2)	Taunsa	455	436	57	8	65
Sindh	Tharparkar	Chachro	599	550	53	39	92
	"	Nagarparkar	390	373	0	0	0
	"	Miti	383	330	0	0	0
	"	Diplo	550	521	0	0	0
Baluchistan	Loralai		542	542	0	0	0
	Zobe		354	354	0	0	0
	Kohlo		65	64	0	0	0
	D. Bughti(3)		99	94	0	0	0
Total			4230	4053	162	58	220

(1) Dera Ismail Khan

(2) Dera Ghazi Khan

(3) Dera Bughti

Table 3

Pakistan Guinea Worm Eradication Programme
Number of endemic villages by provinces an by year: 1988-1995

Province	Year								
	1987	1988	1989	1990	1991	1992	1993	1994	1995
Punjab	70	48	65	18	9	1	0	0	0
Sindh	259	90	70	31	20	2	0	0	0
NWFP(*)	79	18	11	7	6	4	1	0	0
Total	**408	156	146	56	35	7	1	0	0

(*) North West Frontier Province

(**) National case search: Estimate of the number of villages that reported having had cases of dracunculiasis in 1987 or during the previous three years.

Table 4

Pakistan Guinea Worm Eradication Programme
Monthly reports from village-based surveillance
Number of cases by province and by year: 1988-1995

Province	YEARS								
	1987	1988	1989	1990	1991	1992	1993	1994	1995
Punjab	-	307	234	42	19	1	0	0	0
Sindh	-	644	232	91	31	4	0	0	0
NWFP(*)	-	159	68	22	56	18	2	0	0
Total	**2400	1110	534	160	106	23	2	0	0

(*) North West Frontier Province

(**) National case search: Estimate of the number of cases that occurred in 1987

2. Visit of the International Certification Team

2.1 *Activities during the first week*

Two members of the International Certification Team (Drs Nadim and Meyer-Lassen) arrived in Islamabad on the morning of 8 September 1996 and started the work the same morning. The third member (Dr Hajar) arrived and joined the team the next day. The following is a summary of the work during the first week:

- Preparation of plan of work including official visits in Islamabad, field visits and preparation of the final report.
- Detailed discussion with Dr Azam, Guinea Worm Eradication Programme manager about the background and activities since the beginning of the Eradication Programme.
- Official visit to the office of WHO Representative, Pakistan to hear about the support provided by WHO for implementation of the Eradication Programme.
- Meeting with the Director General of Health, Government of Pakistan.
- Meeting with the Secretary of Health, Government of Pakistan.
- Preparation of checklists (at the district level and at the village level) and of a questionnaire for village studies. Also, preparation of a master sheet for analysis of the data obtained in the village questionnaire (see Annex 2 for checklists, questionnaire and master sheet).
- Meeting with Dr (Gen) Burney, former Executive Director of NIH and Dr Abdur Rab former Manager of the National Guinea Worm Programme.

After finishing this preliminary work in Islamabad, according to a pre-arranged plan (see Annex 3), each team member started the field visit of previously endemic areas. Visit to NWFP (Dera Ismail Khan and Bannu) started on 11 September 1996 (afternoon) - visit to Punjab (Dera Ghazi Khan and adjacent areas in Baluchistan province) started on 12 September 1996, and the visit to Sindh (Tharparkar desert) started on 14 September 1996.

2.2 *Field visit to Sindh Province*

Dr Nadim went to Karachi on 14 September accompanied by Dr Azam. At the airport, they were met by Dr M. Ayub Kasmani, the Regional Programme Manager for Dracunculiasis Eradication. They went directly to Hyderabad where the Director General of Health of the province has his office. On arrival, they were briefed about the details of the work in Sindh during the years 1987-1996. Next day, the team went to Mirpur Khas which is the headquarters of the Division in which all previously infected villages are located. The

Divisional Director of Health Services had invited District Health Officers from all four districts of the Division. The purpose of the visit and methods of work were explained to all of them so that on their return, they could prepare the required documents for the certification of eradication. In the evening, the team went to Miti, headquarters of Tharparkar district. The following two days were spent in Miti. Dr Azam returned to Islamabad and Drs Nadim and Ayub continued visits of villages, Rural Health Centres (RHCs), Basic Health Units (BHUs) and Districts Health Offices (DHOs) in Tharparkar, Umerkot, Sanghar and Mirpur Khas. This field visit finished on 30 September 1996.

2.3 Field visit to Punjab Province

Dr Hajar went to Lahore on 12 September. He met the Director General of Health Services of the Province. The purpose and method of work for certification of Guinea Worm eradication were the main subject of the discussion. On 14 September, he went to Multan and from there to Dera Ghazi Khan (D.G.Khan), where all previously infected villages of the Province are located. He visited villages, BHUs, RHCs and DHOs to fulfil the activities mentioned in the checklist and fill the village questionnaires. He also went to Quetta, Capital of the Baluchistan Province to meet the Director General of Health Services of that Province. The purpose of this visit was to make sure that no cases had been seen during the last four years in any villages of Baluchistan which is adjacent to the previously infected areas of D.G. Khan district of Punjab. He was accompanied during the whole period of the visit by Dr Abdul Rasheed, Regional Manager of the Guinea Worm Eradication Programme and also by Dr Azam in parts of this visit. This field visit was finished on 27 September 1996.

2.4 Field visit to NWFP

Dr Meyer-Lassen went to Peshawar on the afternoon of 11 September. He was accompanied by Dr Azam. They had a meeting with the Director General of Health Services of the province. They were briefed about the details of work in D.I. Khan, the only previously infected area in the Province. Then Dr Meyer-Lassen went to D.I. Khan where he was joined by Mr Qaiser Abbas, the Regional Programme Manager. After detailed review of the work in the province, they started visiting villages in the area. On 27 September Dr Meyer-Lassen went back to Islamabad and then on 27 September, accompanied by Dr Azam, he went to Azad Jammu & Kashmir to meet the Director General of Health Services in that region. Azad Jammu & Kashmir are not and have never been endemic areas, this visit aimed only at making sure that all parts of the country had been visited. They went back to Islamabad on 30 September 1996.

3. Findings

3.1 Villages under operation

At the beginning of the Programme, all previously infected villages in all areas were included in the list for operations, including both the villages with cases in 1987 and those where cases had been seen before. For each village, a village implementor (VI) had been

selected. Altogether about 600 VIs worked in this Programme. In 1989, 48 sector supervisors were identified and trained. Each one was responsible for the supervision of the work of 10-20 village implementors.

3.2 Monthly reports

Monthly reports were sent by sector supervisors as long as village implementors were active, but in 1991 and 1992 they were gradually excluded from the Programme. At the end of 1992, for practical purpose, the sending of monthly reports became part of the duties of BHUs, RHCs, hospitals and dispensaries. The International Certification Team members checked monthly reports in all areas. As long as village implementors and sector supervisors were active, monthly reports were available. But afterward, there had been many setbacks in this activity.

Many of the above mentioned health facilities were sending quarterly reports of notifiable diseases. Even this was not available for all quarters. At least four different forms were being used. In two of these forms, Guinea worm was excluded as a notifiable disease. In these health facilities, it had been asked to send separate reports for Guinea worm but only a few of them did this, and for a very short period of time. The reason Guinea worm was excluded from the latest reporting form (Health Management Information System) was that those who prepared the reporting process believed that Guinea worm was a disease of the past. Most health facilities were using this form for monthly or quarterly reporting. In brief, the reporting system since 1992 was not complete. Reports were not available and where they were available, they were not reliable. Zero reporting was not observed and in many cases numbers of cases reported in monthly reports were different from those of quarterly report from the same area for the same months.

3.3 Poster distribution

The poster distribution was excellent. Posters were distributed to all villages in health facilities, schools and prominent places in the village (mosque, bus-stand, traveller's house etc). These were repeatedly checked and replaced when they were missing. In some areas they have added painting on the road sides along major roads or on the doors in schools to prevent fading or removing.

3.4 Health education activities

This aspect was also very satisfactory. All possible means for health education were used including radio, news media, especially megaphone announcements once every month in each village and also face-to-face education. Health education of women was done by traditional birth attendants in many areas.

3.5 Distribution of filters

This was a very active part of the programme until 1994. Filters were handed to village implementors or to sector supervisors to distribute them to each and every household

until 1992. After that date, filters were being distributed, only when necessary, by the staff of health facilities.

3.6 *Temephos (Abate) treatment of ponds*

This activity was continued up to 1995, but in 1994 and 1995 it was used only in a few villages where cases were reported in the last 3 years or villages near the border with India.

3.7 *Rumour registers*

Rumour registers were checked in all areas. There were claims even in August 1996 in Sindh, July 1996 in Punjab and September 1996 in NWFP. All confirmed cases in 1992 and 1993 had been found through this system. After that, although there had been many claims, all of them had been examined and none of them was confirmed. In fact, the main basis of the claim of authorities for eradication of dracunculiasis was the awareness of the people about the reward and absence of proven cases among rumour cases after October 1993.

3.8 *Findings in village studies*

Altogether 65 villages were visited and studied by team members in their respective areas. A list of villages studied in each area is given in Annex 4. Sources of drinking water were ponds (during the rainy season and afterward as long as water was there). In Tharparkar desert, in most villages this year, ponds lasted for only one to three weeks because there was little rain, but in D.G. Khan and D.I. Khan, they last for several months. The size of the ponds varies from 150 to 500 m². People enter the water up to mid-leg, wash their hands, forearms, face, neck and their legs. Then they fill their container a few feet away. As in most cases pond water is turbid, they let the container stand in their house for 8-12 hours. Then they filter it with a piece of white cloth. Pond water is at first clear, but later it becomes turbid especially in the evenings.

In some areas, wells are not very deep, about 30 feet. Water is fresh (sweet) but the amount of water is not large. In other areas, wells are deep (300-350 feet); they have more water but the water is hard and a little bit salty.

Almost all the village informants interviewed were male. Only five women were interviewed in D.G. Khan where the sister of a previous village implementor helped to interview them. In other situations, women were reluctant to come because this is against the prevailing culture in the villages. It was not possible for team members to go directly to the houses because no female health staff was available to interpret. Average age of interviewed persons was mostly between 30 to 50 years but the range was from 12 to 75 years.

Almost all village informants were farmers. In addition, some of them had other jobs e.g. village chiefs, teachers, policemen, shopkeepers, students (high school or college) etc.

Table 5

Knowledge of informants about dracunculiasis, by province.

Level of knowledge (% of respondents)				
Province	Good	Partially correct	Poor	Total
Sindh	98	1	1	100%
Punjab	97	0	3	100%
NWFP	100	0	0	100%
All areas	98.3	0.3	1.4	100%

This table shows the knowledge of informants about Guinea worm. Practically everybody knew what the disease is.

Table 6

Knowledge of informants about dracunculiasis transmission, by province.

Level of knowledge (% of respondents)				
Province	Correct	Partially correct	Incorrect	Total
Sindh	92	3	5	100%
Punjab	91	4	5	100%
NWFP	92.7	7.3	0	100%
All areas	91.9	4.7	3.4	100%

This table shows their knowledge about transmission. Here also, more than 90% in all areas knew exactly how the disease is transmitted.

Table 7

Answers of informants about seeing the posters before, by province.

Answers (% of respondents)			
Province	Yes	No	Total
Sindh	99	1	100%
Punjab	94	6	100%
NWFP	99.3	0.7	100%
All areas	97	03	100%

This table shows that almost all of the respondents had seen posters of Guinea worm before.

Table 8

Knowledge of informants about method of prevention, by province.

Level of Knowledge (% of respondents)				
Province	Correct	Partially correct	Incorrect	Total
Sindh	89	10	1	100%
Punjab	82	13	5	100%
NWFP	69.8	30.2	0	100%
All areas	82.4	17.6	2	100%

This table shows knowledge of informants about methods of prevention. It shows that only 2 % of them were not aware of the methods.

Table 9

Informant's source of information about prevention, by province.

Source of information (% of respondents)				
Province	Health staff	Friends or neighbours	Other means	Total
Sindh	95	2	3	100%
Punjab	85	12	3	100%
NWFP	44.8	55.2	0	100%
All areas	75.4	22.6	2	100%

*This table shows that most people were informed by the health staff.
This a very good indicator of excellent health education activities.*

Table 10

Answers of informants about use of cloth filters in their household, by province.

Answers (% of respondents)					
Province	Yes	Sometimes	No	Not applicable	Total
Sindh	86	1	3	10	100%
Punjab	21	60	11	0	100%
NWFP	40.6	33.3	5.2	20.8	100%
All areas	52.1	31.4	6.4	10.1	100%

*This table shows that most people filter their drinking water.
Here it should be mentioned that in Punjab and NWFP those who answered "sometimes", were filtering rainwater, not well-water.*

Table 11

Answers of informants about the last time a case was seen in the village, by province.

Date last case was seen (% of respondents)				
Province	Last 3 years	More than 3 years	Do not know	Total
Sindh	0	87	13	100%
Punjab	0	86	14	100%
NWFP	0	96.9	3.1	100%
All areas	0	89.9	10.1	100%

This table is another proof that no case has been seen in the last 3 years. 90% say they had the disease in the village more than 3 years ago, and 10% said they do not know.

Table 12

First time informants became aware of the reward, by province.

Time (% of respondents)				
Province	Recently	More than one year ago	Never	Total
Sindh	0	99	1	100%
Punjab	3	90	7	100%
NWFP	2.1	95.8	2.1	100%
All areas	1.7	94.9	3.4	100%

This table shows that only 3.4% of respondents were not aware of the reward and 95% were aware of the reward more than one year before being interviewed.

Table 13

Answers of informants about filtering drinking water in all households, by province.

Answers (% of respondents)					
Province	Always	Some people or sometime	Never	N.A	Total
Sindh	76	14	0	10	100%
Punjab	0	88	2	10	100%
NWFP	19.8	56.2	2.1	21.9	100%
All areas	32.1	52.6	1.4	13.9	100%

This table is similar to table 10, but it deals with filtering of drinking water by other people in the village. Here also, attention should be on those who said "Never". This is a very small percentage.

Table 14

Answers of informants about chemical treatment of the source of drinking water, by province

Answers (% of respondents)					
Province	Yes	Possibly in the past	No	N.A	Total
Sindh	85	0	5	10	100%
Punjab	80	4	1	15	100%
NWFP	29.2	10.4	22.9	37.5	100%
All areas	65.2	4.7	9.5	20.6	100%

This table shows that most people were aware that their source of drinking water had been treated by a chemical in the past. Less than 10 percent said they did not know, most of them in NWFP, where there is access to safe drinking water in most areas.

3.9 *Special findings in Sindh*

All previously infested areas are located in Tharparkar desert. This is a semi-desert area of fine sands but covered with vegetation, including shrubs and trees. Life is primitive in this area. Only a few villages have access to safe drinking water or electricity. There is no road in the area, only tracks covered with thick layers of sand. Travelling by car is possible only by 4 wheel drive cars. Half of the rural population are hindus, the other half moslems, but they live peacefully with each other. To the east, Tharparkar reaches to the border with India, where the desert continues. Some of the infected villages in India are in that part of the country. The border line has been secured by India's army, using barbed wires and other means so that, according to villagers near the border, travelling from one country to the other in this area is almost impossible.

3.10 *Special findings in Punjab*

Eight villages were located in mountainous areas, difficult to reach. The main source of water are ponds which last 4-5 months, and then the people search for water in areas with wells. Eleven villages have wells because of water supply projects during the last 5 years. Ponds were used for animals.

3.11 *Special findings in NWFP*

The infrastructure of the endemic area was relatively good, as all villages were accessible by car. Most were connected to the electrical grid and to the public health water schemes, although they were not working round the clock. Thus, only 3 out of the 26 villages visited in the area depended solely on pond water. According to the Public Health Engineering Department in D.I. Khan, 92% of the inhabitants are supplied with safe water from a total of 125 schemes. The improvement in safe water supply began during the sixties and was followed by a significant reduction in the incidence of this previously highly endemic disease.

4. Conclusions and recommendations

During the field visits, the ICT selected villages in the previously endemic areas according to the criteria for certification of eradication recommended by the International Commission for the Certification of Dracunculiasis Eradication. This included the villages with the highest number of cases during 1988-1993, those neighbouring India, some in areas adjacent to previously infected areas, and remote villages with difficult accessibility.

Based on the following observations:

- A high level of knowledge among the people about the disease and its prevention.
- Very effective and widespread health education.
- Awareness of all people about the reward.
- Rumour registry in the last 5 years and examination of all rumour claims (All cases in 1992 and the two cases in 1993 were found in this system. Other claims were not confirmed.)
- Case containment of all cases found in 1992 and 1993, the same day the worm had emerged.
- Last but not least, total absence of the disease in previously infected areas during the last 3 years,

Despite incomplete and unreliable monthly report system, the International Certification Team firmly believes that the programme has been successful and that dracunculiasis has been effectively eradicated from Pakistan.

The ICT recommends continuation of the rumour registry and of the reward system. Vigilant surveillance in the eastern part of Tharparkar desert to find any possible imported cases is recommended.

ACKNOWLEDGEMENTS

We are indebted to the staff of the National Institute of Health, WHO Representative Office and also to other health staff at the Provincial level who helped us to carry out our duties. We also thank the rural inhabitants who cooperated with us during village visits. Special thanks are due to Dr Azam, National Programme Manager, Dr M.A. Barzgar, WHO Representative and to Drs M. Ayub Kasmani, Abdul Rashid Qaisrani and Mr Qaiser Abbas, Regional Managers in Sindh, Punjab and NWFP respectively.

Names of People visited by the team during the mission:

- Dr Mohammad Azam, National Programme Manager GWEP, NIH, Islamabad
- Dr M.A. Barzgar, WHO Representative, Pakistan
- Dr Syed Mohsin Ali, Secretary of Health, Government of Pakistan
- Professor N.M. Shaikh, Director General of Health, Government of Pakistan
- General Dr M.I. Burney, Former Executive Director of NIII
- Dr M. Abdur Rab, Director, Health Services Academy, Former National Programme Manager, GWEP, NIH
- Dr Khalid Saif Ullah Khan, Director General of Health, Punjab
- Dr Abdul Rashid Qaisrani, Regional Manager, GWEP, Punjab
- Dr Nasr Ullah Khan, Director General Health, Baluchistan
- Dr Azmat Ullah Afridi, Director General of Health, NWFP
- Mr Qaiser Abbas, Regional Manager, GWEP, NWFP
- Dr Asgher Ali Shah, Director General Health, AJK
- Dr Mohammad Ayub Kasmani, Regional Manager, GWEP, Sindh

And a host of District Health Officer, CDC managers, and other senior health staff in all areas visited by team members.

ANNEX 1

Guinea Worm Disease Eradication Programme

The WHO role as partner in the implementation of the Project

In collaboration with the government of Pakistan and several international partners, WHO has played an effective role in starting the implementation of the Guinea Worm Eradication Programme in 1986. The major financial support was initially provided by Global 2000 Inc. and the BCCI Foundation, while WHO was a partner in providing the necessary technical support to the Programme.

In October 1991 Global 2000 Inc. and the BCCI Foundation left the project prior to the realization of the goal of total eradication of dracunculiasis. On the request of the government, the WHO technical support was coupled, in 1992, with a financial support. WHO has, jointly with collaborating agencies, provided technical advice on all the necessary control measures. These included the distribution of filters to households in the endemic villages, chemical treatment of ponds and health education. The WHO support to the Programme is summarized as follows:

- In 1992, a WHO mission was sent to assess the Programme implementation and advised on the consolidation and acceleration of eradication strategies. These included active surveillance, case reporting and case containment measures, and the continuance of WHO technical support was ensured.
- In 1993, a financial support of US \$ 80 000 was allocated to the Programme for its implementation. An additional US \$ 72 000 were allocated in the subsequent years to sustain surveillance and case containment efforts. The reporting of two cases in 1993 was possible due to vigilant surveillance which was supported by WHO.
- Under the WHO fellowship programme, the national project manager was given the opportunity to visit several African countries where the disease is still endemic and participate in several international meetings. This has contributed to strengthen field exposure and technical experience of the national project manager towards the eradication of dracunculiasis.
- An external evaluation of activities was conducted in 1994 to assess the effective delivery of programme services. The mission re-emphasized the need to sustain the ongoing containment strategies, to ensure the attainment of the eradication goal.
- The WHO country office has ensured a constant technical advice through the WHO Representative and a direct support to programme field activities. In this

regard the WHO Provincial Operation Officers were given the task to support eradication strategies at the operational level. The WHO Representative supported by the WHO Eastern Mediterranean Regional Office and Headquarters, has ensured the necessary coordination with the national efforts for disease eradication and bestowed technical guidance.

■ As no cases were reported since 1993, WHO has sent an International Certification Team to Pakistan to review the National Guinea Worm Eradication Programme and make recommendations on the steps which had been taken to uncover any remaining foci during the three years of zero case reporting. The report of the team will be reviewed by the International Commission for the Certification of Dracunculiasis Eradication, planned for 23-24 January 1997.

ANNEX 2

Reminder for the team member visiting the provincial Director General of Health (DGH)

- Discuss with the Programme Manager of Communicable Diseases Control what they have been doing in the last 3 years for the control of dracunculiasis, problems they faced and what they did to solve the problems.
- While visiting DGH of the province, explain the purpose of the visit and your plan of work.
- Make arrangements for visits to the Districts, BHUs and villages.
- Make sure where and how the team will spend the nights during the field visit.
- Please make notes of your day's observations the same evening - Only important points that have to be mentioned in the final report.

Certification of Guinea Worm Eradication in Pakistan

1. Checklist to be filled at district level

- How many villages were under your supervision from 1993 through 1996 (by year)?
- Examination of all the monthly reports from the Basic Health Units (including Zero Reports) from 1993 through 1996.
- Examinations of all case containment forms filled, for all cases during 1992 and 1993.
- Cross-check original village reports (Basic Health Units Reports).
- How many posters have you distributed (if not to all villages give list of villages receiving posters) and where in the villages are they to be found ?
- Details of Health Education activities from the District level (in houses, in mosques, at water collection sites, at schools, others).
- How did you distribute the filters (directly to the households, at water collection sites, at a fixed place, other methods) ?
- How many water collection sites were treated with Abate during 1994 and 1995?
- How much Abate was utilized?
- Examination of all "suspected cases", "rumour-reports" from 1993 through 1996.

Certification of Guinea Worm Eradication in Pakistan

2. Checklist of work to be done at village level

- Visit the headman of the village and explain the purpose of the visit.
- See the BHU worker in charge of this village.
- Meet the school principal/teacher, if there is any, and try to persuade him to be one of your informants.
- Check how they prepare, keep and send monthly reports to the district.
- Visit the source of drinking water.
- Note how people collect water for drinking from the source.

Certification of Guinea Worm Eradication in Pakistan

3. Form to be filled at village level

1. Province
2. District
3. BHU
4. Village
5. Date of visit
6. Population of the village
7. Date last case was reported
8. Type of the source of drinking water.

- Ponds
- Wells
- Open cisterns
- Others (specify)
- Roofed cisterns

9. Size of the source in square meters (approximate)

10. Condition of water

- Clear
- Turbid
- Slightly turbid

11. Informants' characteristics

Informant N°	Age (Years)	Sex	Job	Status in the village	Duration of residence
1					
2					
3					
4					
5					
6					

Results of interviews with informants.

Information to be collected	Informants response					
	1	2	3	4	5	6
1. Do you know what Guinea Worm is ? 1. Yes 2. To some extent 3. No						
2. Do you know how one gets it ? 1. Yes 2. To some extent 3. No						
3. Have you seen this or any similar poster before ? 1. Yes 2. No						
4. Do you know anything about its prevention ? 1. Yes 2. Partly 3. No						
5. If yes, how did you learn about it ? 1. From health staff 2. From friends or neighbours 3. Other means						
6. Do they use cloth filters in your household for drinking water ? 1. Yes 2. Sometimes 3. No						
7. When was the last case seen in your village ? 1. Within the last 3 years 2. More than 3 years ago 3. Do not know						
8. When was the first time you became aware of the reward ? 1. Just recently 2. More than one year ago 3. Never						
9. Do people filter their drinking water in your village ? 1. Always 2. Some people or sometimes 3. Never						
10. Do you know of any chemical treatment of the sources of drinking water ? 1. Yes 2. Possibly in the past 3. No						

ANNEX 3

Plan of visit to previously infected areas

Dr Abolhassan Nadim

Islamabad - Karachi - Hyderabad	14.9.96
Hyderabad - Mirpur Khas - Miti	15.9.96
Miti - Chachro	17.9.96
Chachro - Kinsar	21.9.96
Kinsar - Umerkot	24.9.96
Umerkot - Mirpur Khas	26.9.96
Mirpur Khas - Karachi - Islamabad	30.9.96

Dr Mohamed M. Hajar

Islamabad - Lahore	12.9.96
Lahore - Multan	14.9.96
Multan - D.G. Khan	14.9.96
D.G. Khan - Taunsa - D.G. Khan	15.9.96
D.G. Khan - Baluchistan - Quetta	22.9.96
Baluchistan - D.G. Khan	23.9.96
D.G. Khan - Islamabad	27.9.96

Dr John Meyer-Lassen

Islamabad - Peshawar	11.9.96
Peshawar - D.I. Khan	13.9.96
D.I. Khan - Islamabad	27.9.96
Islamabad - Muzaffarabad	29.9.96
Muzaffarabad - Islamabad	30.9.96

ANNEX 4

Table 15

List of villages studied in Sindh Province

N°	Name of the village	District	Approximate population	N° of cases 1988/1992
01	Railo	Tharparkar	500	0
02	Chachi	"	700	37
03	Chaho	"	600	0
04	Bidwa	"	200	6
05	Roher Kellan	"	700	25
06	Sako	"	200	24
07	Kathe Ji Veri	"	1000	29
08	Kinri	"	600	17
09	Karangiri	"	400	0
10	Pirani Jo Par	"	700	18
11	Becknar	"	600	57
12	Phulrabah	"	700	22
13	Musc Ji Dhani	"	600	2
14	Jhamrari	Umerkot	500	47
15	Chitryo	"	400	25
16	Jhanrio Thar	"	1200	1
17	Essa Mangerio	"	500	2
18	Bhojrojo	"	1000	10
19	Rato Kot Ghujri	Sanghar	1200	4

Table 16

List of villages studied in D.G. Khan, Punjab

N°	Name of village	District	Approximate population	N° of cases 1988/1992
01	Alli Pheri	D.G. Khan	500	24
02	Zein	"	700	3
03	Bindir	"	500	24
04	Basti Tundani	"	1200	0
05	Chooil	"	1000	1
06	Sadar Kalat	"	3000	0
07	Sarati	"	500	1
08	Pirdan West	"	600	0
09	Jhoke Rohail	"	700	4
10	Mirani	"	500	12
11	Theekar	"	1300	7
12	Gatta-Rekh	"	800	25
13	Thungo	"	200	39
14	Khund Bun	"	600	20
15	Rakni	"	7000	0
16	Kharer Buzadar	"	1500	0
17	Nou Abad	"	2400	0
18	Muchani	"	300	0
19	Shadiwale	"	3000	0
20	Durkani	"	1500	0

Table 17

List of villages studied in NWFP

N°	Name of village	District	Approximate population	N° of cases 1988-1993
01	Fateh Ali	D.I Khan	1200	2
02	Buzdar	D.I Khan	1000	0
03	Gurwali	D.I Khan	1000	2
04	Jhok Machian	D.I Khan	1500	17
05	Umer Khel Pakka	D.I Khan	3600	0
06	Shinki Pakki	D.I Khan	550	0
07	Khan Khel Pakka	D.I Khan	1200	0
08	Rashid	D.I Khan	2000	1
09	Rangpur Janubi	D.I Khan	5000	1
10	Sikander Janubi	D.I Khan	1900	0
11	Droli	D.I Khan	300	0
12	Jamal	D.I Khan	500	0
13	Dhandla	D.I Khan	1000	5
14	Miran	D.I Khan	3000	2
15	Shabat Killa	Lakki	700	0
16	Sarga Kharu Khel	Lakki	1000	1
17	Faqir Killa	Lakki	1000	1
18	Kona	D.I. Khan	2000	0
19	Zandani	D.I. Khan	1800	0
20	Chaudwan	D.I. Khan	10000	7
21	Kot Musa	D.I. Khan	1000	1
22	Gandi Umer Khan	D.I. Khan	12000	1
23	Old Khan Gara	D.I. Khan	300	0
24	Jhok Machori	D.I. Khan	1000	19
25	Ganju	D.I. Khan	5000	232
26	Sara Gara	D.I. Khan	5500	8

