

**CHINA  
TUBERCULOSIS ASSISTANCE  
PROJECT**

**END-OF-PROJECT  
EVALUATION REPORT**

June 2002

Monitoring and Evaluation Unit  
Evaluation Series No 18

## Introduction

MSF started the Nujiang TB assistance program in March 1999, after signing a Memorandum of understanding with the Nujiang Prefecture Health Bureau and the Public Health Bureau's in Fugong and Gongshan Counties. The Directly Observed Treatment Short-course (DOTS) WHO TB control guidelines were followed. After the initial set-up phase of nine months, enrollment of patients started in January 2000. In April 2000 low cure rates (< 60%) were registered which led to a mid-term evaluation of the program under supervision of Professor Zhao Fengzeng in August 2000. Professor Zhao and his team<sup>1</sup> recommended increasing the patient detection rate, to strengthen DOTS and the laboratory work, to consolidate the training and (implicitly) to cooperate well with county governors and PHB directors. MSF wrote a response document<sup>i</sup> to the evaluation report, revised the TB control guidelines<sup>ii</sup>, organized refresher training together with PHB and implemented new working methods from February 2001 onwards. In June 2001 the MSF-H Health Advisor visited the project and came to the conclusion<sup>iii</sup> that these changes had had little impact on the treatment outcomes. In August the TB advisor of MSF-H performed a technical evaluation and recommended to stop enrolment of patients.

MSF acknowledged that in TB control an effective, inexpensive, simple and largely standardized technology should be in unison with the managerial skills to implement it. Hence the scope of this end-of-project evaluation is complementary to the technical evaluation of the TB advisor, Yared Kebede. The focus is on lessons learnt over time regarding the strategic and managerial aspects of the program.

Although the key-questions as formulated in the Terms of Reference (see Annex 1) are structured according to the evaluation criteria as described in the MSF-Holland Evaluation Manual of April 1999, this report answers them in line with the five pillars of strategic management of TB control programs. According to the World Health Organization Global Tuberculosis Program the success of an intervention using the DOTS strategy, depends on:

1. Government commitment to a national TB program;
2. Case detection through case-finding by sputum smear microscopy examination of TB suspects in general health services;
3. Standardized short-course chemotherapy to, at least, all smear-positive TB cases under proper case management conditions;
4. Regular uninterrupted supply of all essential anti-TB drugs;
5. Monitoring system for program supervision and evaluation.

Since this TB assistance program is a joint effort of MSF-H and Chinese counterparts, in the report the commitment of MSF will be discussed next to the commitment of the government (which includes political and health authorities).

All chapters of the report are divided into two sections. The first section contains the findings, a compilation of facts and opinions with reference to the respective sources. The second section entails conclusions & recommendations of the evaluation team, consisting of the team-leader (M&E advisor) and two members (project medical doctor and project translator).

---

<sup>1</sup> The other team members that participated partly in the evaluation are YTBI project director Li Qing Sheng and Nujiang PHB director Li Dong.

## **Acknowledgements**

The Evaluation Team wants to express its sincere appreciation to all the Nujiang TB project partners for their openness in sharing information and lessons learnt in our common effort to fight TB in Nujiang Prefecture. We would like to thank the health and government representatives in Liuku, Kunming and Beijing for reserving ample time to discuss the TB project in Nujiang with us. We very much appreciated the willingness of expatriate & national MSF staff in China to distill lessons from the experiences in the program. Former MSF staff provided us with historical facts and opinions, we are very grateful for their contribution to this evaluation.

June 2002

**Gunilla Kuperus, MSc., MPH.**  
**Judith Bovendeerd, M.D.**  
**Wang Bang Yuan, BSc.**

For questions, suggestions or comments regarding content or methodology, please contact the Monitoring and Evaluation Unit.

Gunilla Kuperus  
Advisor Monitoring and Evaluation Unit  
PO Box 10014  
1001 EA Amsterdam

Tel. + 31 20 520 8700

Fax. + 31 20 620 5170

E-mail: [Gunilla\\_Kuperus@amsterdam.msf.org](mailto:Gunilla_Kuperus@amsterdam.msf.org)

## Table of contents

Introduction.....	2
Acknowledgements.....	3
Table of contents.....	4
Glossary.....	5
Pillar I. Government commitment & MSF commitment to the TB assistance program.....	6
I.1. Findings.....	6
I.2. Conclusions and Recommendations.....	11
Pillar II. Case detection through sputum smear microscopy of TB suspects.....	14
II.1. Findings.....	14
II.2. Conclusions and recommendations.....	16
Pillar III. Standardised DOTS under proper case management conditions.....	19
III.1. Findings.....	19
III.2 Conclusions and recommendations.....	23
Pillar IV. Regular uninterrupted supply of all essential anti-TB drugs.....	27
IV.1. Findings.....	27
IV.2. Conclusions and Recommendations.....	29
Pillar V. Monitoring system for program supervision and evaluation.....	32
V.1. Findings.....	32
V.2. Conclusions and Recommendations.....	35
ANNEX 1 Terms of Reference.....	37
ANNEX 2 Itinerary and persons met during the evaluation.....	41
ANNEX 3 Expatriate staff overview.....	44
ANNEX 4 Distance to supervisor (Gongshan 2001 map).....	46
ANNEX 5 Yunnan health care system and TB program structure.....	48

---

<sup>i</sup> MSF Nujiang TB assistance Program, Response to Mid-Term Evaluation. MSF-H; December 2000.

<sup>ii</sup> The MSF Nujiang TB assistance project Tuberculosis Control Guidelines (final version); May 2001.

<sup>iii</sup> Trip report. MSF-H Health Advisor; 18 May- 4 June, 2001.

## Glossary

AES	Anti Epidemic Station
CDC	Center for Disease Control
CMT	Country Management Team
DOTS	Directly Observed Treatment Short-course
FGD	Focus Group Discussions
HA	Health Advisor MSF
HoM	Head of Mission MSF
IEC	Information, Education and Communication
MD	Medical Doctor
MoH	Ministry of Health
MoU	Memorandum of Understanding
MSF	Médecins sans Frontières
OD	Operational Director MSF
PC	Project Coordinator MSF
PHB	Public Health Bureau
RMB	RenMinBe, Chinese money (1 US\$ = 8.26 RMB)
TB	Tuberculosis
TCM	Traditional Chinese Medicine
TD	Township Doctors
VD	Village Doctors
YINGOS	Yunnan International Non-Governmental Organisation Society
YTBI	Yunnan TB Institute

## **Pillar I. Government commitment & MSF commitment to the TB assistance program**

### **I.1. Findings**

#### **A. Prior to MSF involvement**

In 1989 the Yunnan TB Institute (YTBI) treated 218 TB patients for a period of 3 months. This was abandoned due to financial constraints. In 1998 the YTBI supported the Ministry of Health TB project in Yunnan Province. Provincial guidelines<sup>1</sup> were developed formulating organizational and staff requirements at provincial, prefecture, county and village level. The WHO DOTS strategy was adopted whereby only new sputum positive patients would receive free treatment. Although funds<sup>2</sup> were planned to come from provincial, prefecture and county level, only the provincial level managed to raise enough funds. Unfortunately the program was stopped after one year due to lack of finances<sup>ii</sup>. The main constraints were the abundance of TB patients, the shortage of laboratory equipment and of qualified staff. Serious economic problems were foreseen because the biggest disease burden was on the young and middle aged: the labor force of the community<sup>iii</sup>.

#### **B. Assessment and design phase** (until March 1999)

From 20-27 November 1997 Richard Wiseman did the first MSF assessment in Nujiang together with employees from the Yunnan Red Cross. Government authorities gave an overview of the demographic, economic and social situation of the area. Health authorities provided detailed information on health structure, general pathology and TB control measures in Fugong and Gongshan counties. Although TB seemed to be a large problem the assessment concluded that an additional assessment should take place to determine the urgency of a TB program<sup>iv</sup>. The Medical Coordinator and Health Advisor visited Nujiang in June 1998. Nujiang prefecture government was very concerned about the tuberculosis situation and requested<sup>3</sup> MSF for assistance in the most affected counties, Fugong (pop. 86.000) and Gongshan (pop. 34.000). The Health Advisor recommended in his trip report to execute a TB intervention in these counties, although the most inaccessible part of Gongshan, Dulong Valley, was not assessed. The recommended activities involved active and passive case finding of TB cases, training of staff in diagnosis, DOTS, program supervision, and provision of supplies and equipment<sup>v</sup>.

The Annual Plan 1999 gave the go-ahead to start the project<sup>4</sup>, which led in February 1999 to a project proposal (second draft) and financial plan (EPE).<sup>vi</sup>

In March 1999 the project proposal<sup>vii</sup> was finalized. Because there was little information on the size of the TB problem, the 1990 WHO survey data were taken as reference. The reasons for MSF to propose an intervention in Nujiang prefecture were the poor minority groups, remoteness, harsh environment, high illiteracy rate and virtually none existing TB control. After the 1982 health reforms the National TB Plan had deteriorated and decentralization and commercialization of health care was introduced. Although the National TB control program in collaboration with the WHO had successful TB programs in 12 other provinces, Yunnan Province was not covered. MSF agreed to assist Nujiang Prefecture in the provision of free TB diagnosis and treatment using the DOTS protocol.

A Memorandum of Understanding was signed on March 25, 1999 between Public Health Bureau (PHB) Nujiang Prefecture, Public Health Bureaus (PHB) Fugong and Gongshan County and MSF as active partners and YINGOS as third party for a period of 18 months. Next to the agreement on staff and material requirements of all parties, a first (set-up) phase of 6 months was planned in which project guidelines and management tasks would be

---

<sup>2</sup> National TB Plan requires village doctors to see 200/100.000 people in a year to find 20 sputum positive cases.

<sup>3</sup> Confirmed by prefecture PHB in interview, April 2002.

<sup>4</sup> Information from interview OD. No MT minutes could be found.

defined. The role of YINGOS was defined as counselor to the MoU and mediator if any dispute would arise between the active partners.

### **Constraints**

\* Incidence rates of smear positive cases were based on a 1990 survey (60/100.000), which meant that the project started under the assumption that only 75 patients (in the estimated 116.000 population) would be treated during the program.

### **C. Set-up phase** (from April 1999- January 2000)

#### **Organization and Leadership**

In the set-up phase TB control guidelines<sup>viii</sup> were written in collaboration with YTBI and local PHB. MSF had good relationships with local PHB branches, AES and the wider community. In the project guidelines a framework was devised to enhance political commitment and support of local health officials. Technical and supervision meetings between partners at prefecture and county level were planned to guarantee good co-operation, open communication and information sharing. At provincial level the YTBI acted as the technical partner, providing training, technical guidance, and support for quality control. In return they would receive 3-monthly technical and progress reports and be involved in project evaluations. The TB supervisors and MSF medical staff were assigned to do the day-to-day implementation of the project and support and train Township and Village Doctors. Leaders consultation groups were set up with representatives of: women's union, health workers, political, community and religious leaders, teachers etc. to help support the project within the community. The Township and Village Doctors were responsible for direct observation of the TB patients and collection of sputum samples. The MSF team would assist the TB supervisors in their supervisory visits to the patients.

#### **Financial Resources Management**

It was agreed in the MoU that all partners would pay their own staffs salaries. However, in the July 1999 MSF developed an additional incentive system. MSF agreed to reimburse the costs of sputum testing (3 RMB) to the PHB, and provide Village doctors (VDs) and Township doctors (TDs) with a detection fee (15 RMB for each smear positive patient) and a cure fee (60 RMB for each patient who has had full treatment). Hospitals were entitled to receive a 20 RMB fee for each diagnosed TB patient referred to the TB department. Patients enrolled in this program would receive free DOTS treatment, with this exception that these patients had to sign an agreement to comply with the full course of treatment and pay a deposit (25 RMB) returned on full completion. MSF and TB supervisors would jointly administer the accounts for the patients' deposits.

In the set-up phase MSF provided financial and technical resources to implement DOTS. Fugong and Gongshan counties (120.000 people) would start off as pilot projects and duplicated to the two other counties when applicable. Rehabilitation of sputum testing laboratories in 2 counties and equipment was provided (also to prefecture level lab). MSF infrastructure was set-up (cars, office, apartments).

#### **Human Resources Management**

In the guidelines of July 1999 training and job performance requirements for TB supervisors, Township and Village Doctors were described. TB supervisors were not employed by MSF, but MSF medical staff would directly supervise their work. The TB supervisors would supervise the Township and Village Doctors.

A 2-week training program for TB supervisors (DOTS, project management, sputum microscopy) was organized in the set-up phase. Additionally, 142 Township and Village Doctors were trained (case finding, sputum collection, direct treatment supervision) by the TB supervisors

MSF had difficulties in finding the appropriate human resources, which made that the MSF nurse started the program as a PC, without a TB MD.

### **Publicity campaigns/IEC**

In December 1999 publicity campaigns were implemented in all townships on market days, except for Dulong Valley. Pamphlets describing the signs and symptoms of TB, the MSF Nujiang TB assistance project and the free DOTS treatment were distributed. Throughout the campaign audiotapes in both Mandarin and Lisu were broadcasting via loudspeakers the above information. Questions were answered by TB supervisors and through translators. Additionally, contacts were made with all the townships to arrange the distribution of sputum collection boxes and stamped posters and leaflets to the village doctors<sup>ix</sup>.

### **Constraints**

Village Doctors reported constraints during the evaluation of their training<sup>x</sup> in August 1999:

- \* Their salary problem and the hope that it would be solved during the project time.
- \* The difficulties in implementing DOTS in the widely distributed population of Gongshan.
- \* Necessity for free treatment of side effects. People are poor and not fit for TB drugs.

PC of MSF reported<sup>xi</sup> after the first 6 months of the set-up phase the following constraints:

- \* Inaccessibility: mountain villages are up to one day's walk from the road. Dulong Valley is extremely remote (3 days hike by foot to administrative village).
- \* All the patients will be treated as outpatients.
- \* Lack of suitable supplies: 2 days traveling on mountain road from Kunming
- \* Health care structure is severely under-resourced: active participation of health staff is difficult to achieve; they are used to being instructed, it takes time to "work together"
- \* Difficult to obtain reliable epidemiological data: hard to gauge true extent of TB problem.

### **D. Implementation Phase** (from 10<sup>th</sup> of January 2000 onwards)

Two TB control systems were available in China: The Ministry of Health National TB Plan and the World-Bank Loan Program. Nujiang prefecture was not included in either one.

### **Organization and leadership**

The relationship with Chinese authorities was felt to be very complex. MSF being a foreign NGO felt often shielded from and denied access to information<sup>xii</sup>. MSF employed an advisor to the Medical Coordinator to overcome this problem and to improve "guangxi"<sup>5</sup> between MSF staff, the TB supervisors, local authorities and the patients. Good organization and application of work standards was seen as crucial for good implementation and sustainability of the project<sup>xiii</sup>. At that time in several MSFH documents<sup>xiv</sup> adherence to Chinese cultural habits and respectful behavior was advocated.

In November 1999<sup>xv</sup> discussions on the feasibility of the assistance program took place between the PC and TB advisor whether to involve an expert consultant to regularly review the project. This idea was rejected because YTBI was the technical partner and planned to do a mid-term evaluation. The YTBI visited the project in June 2000 when the first signs of low conversion rates were reported by MSF and discussed. Additional training was then successfully provided by the YTBI to the TB supervisors.<sup>xvi</sup>

At the time of the mid term evaluation (August 2000) MSF staff was very much concerned about the low cure rates. The MSF medical staff had shifted to do a great deal of the work by themselves. The mid-term evaluation under the leadership of Prof. Zhao renewed the motivation of the TB supervisors and PHB<sup>xvii</sup>. In depth discussions were held at prefecture level regarding their role and responsibility in quality control.

---

<sup>5</sup> Gangxi means building and maintaining good relationships.



In September 2000 a second MoU was signed by MSF, YINGOS, PHB Fugong/Gongshan/Nujiang to extend the project with 1 year. Added to the 1<sup>st</sup> MoU was the assignment of the prefecture PHB as the main counterpart, to provide strong leadership and visit the project regularly. Fugong and Gongshan PHBs were assigned to provide supervision of the work of the TB supervisors MSF agreed to employ an additional expatriate to the project.

In the first 18 months of the project official and unofficial meetings were regularly taking place with local health and government authorities, which was appreciated by all parties<sup>xviii</sup>.

On the basis of the recommendations of the mid-term-evaluation the TB control guidelines<sup>xix</sup> were revised by MSF. A new coordinating structure was defined in which working groups of all parties (YINGOS, PHB, AES and MSF at all levels and with various representatives) were created. Also provincial meetings in Kunming, monthly meetings at prefecture level and monthly meetings at county level in Gongshan or Fugong were planned. YINGOS and the provincial PHB/TB department were promised to receive quarterly reports and copies of project evaluations. Although regular informal meetings took place at county level, minutes of meetings at prefecture and Kunming level were not found and contacts deteriorated over time<sup>xx</sup>.

In January 2001 MSF<sup>xxi</sup> recognized the lack of focus on effective and targeted political commitment in the project proposal (which is the first and most crucial element of DOTS). The need for more clarity, honesty and mutual understanding in relations between MSF and counterparts in order to address the shortfalls of the program was expressed. The capacity required from the PHB and AES at all levels to properly support the program was not realized yet. The working group only met once in April 2001<sup>xxii</sup>. MSF's supervision expectations regarding Prefecture PHB were discussed.

In August 2001 the MSFH TB advisor reviewed the project. Concerns about the limited prefecture level involvement in supervision and the low cure rates made MSF to decide to stop enrollment of patients. In the quarterly report of September 2001 MSF stated that no formal hand over of project would be done due to the concern that the program was worsening the TB situation in Nujiang and therefore no further lobbying in the working groups would take place.

The unilateral MSF decision to stop the program further deteriorated the relationships with the partners. This situation lasted till December 2001, when slowly the relationships with counterparts improved again. In January 2002 a third MoU was prepared, discussed and signed stipulating the final phase of the program. Knowledge of importance for AES/PHB would be handed over to them. All parties agreed upon donations of goods consisting of laboratory and office materials. An exit strategy, which entailed handing over of knowledge, lessons learned and leaving in good "guangxi", was drawn.

### **Financial Resources Management**

During the field visit of YTBI in June 2000 the low payment of Village Doctors was again recognized as a weak chain in the system. The Gongshan PHB had lobbied the government to pay the VDs without success. This made that the incentive payments were a continuous discussion between MSF and the partners, which resulted into frequent changes.

During the mid term evaluation of August 2000 the evaluation team met with the Gongshan and Fugong (vice) governors and discussed the financial sustainability of the project. Fugong county governor expressed that they could assign 40.000 RMB for the TB control program in their annual budget.

After the mid term evaluation the monetary incentive system was extended<sup>xxiii</sup> in an attempt to better reflect the financial impact and work load of the project on patients, Village and Township Doctors and TB supervisors. It was felt to increase poor work ethics by paying for concrete tasks completed within a stated time frame<sup>xxiv</sup>. Next to the detection (15 RMB) and cure (60 RMB) fees, Village and Township doctors received 5RMB for sputum delivery and would be reimbursed for actual travel expenses. TB supervisors received incentives for field

visits, overnight stays, slide smearing, pharmacy work, seeing patients at the AES and for sputum samples collected from patients who would come to the AES by themselves. Patient or family members who would present sputum samples to the AES would receive 5 or 10 RMB travel allowance. In a meeting between MSF and prefecture PHB in December 2000 the PHB allowance for Village Doctors was discussed. It was noted that 30/60 RMB per months was very low, but the PHB could not afford higher allowances. Additional changes to the incentive system were agreed on. The sputum delivery fee was later called a “show up fee”. Patients and Village Doctors showing up on a field trip with or without sputum sample received 5RMB if coming from less than 10 km walking distance and 10RMB if coming from more than 10 km walking distance. Radiology fees of 60 RMB were also paid for if MSF and AES agreed on the indication. This fee was never officially entered into the incentive system but receipts of these payments were made.

To increase the motivation of the supervisors it was also suggested to provide medical books and subscription to a medical journal for TB or public health.

### **Human Resources Management**

Finding suitable TB staff for the project appeared to be difficult for MSFH. It took until June 1999 before a MD was found for the project. In April 1999 the HA reported that the absence of a TB MD hampered the project, because it was bad for the relationship with the Chinese authorities and it created an overload of work for the PC. End of June the MD came to the field after having visited the MSF Uzbekistan project, because he had little experience in the field of TB. Recurrent periods of understaffing were faced (see annex 3).

The MoH staff also changed more frequently than planned due to reforms at higher levels. In February 2000 two Gongshan TB supervisors were transferred to another location, which led to the employment of two new TB supervisors who were insufficiently trained at their start.<sup>xxv</sup>

Training happened on the spot followed by a training course at a later stage. Additionally, some TB supervisors were given extra responsibilities within the AES although the guidelines stated that DOTS would be their sole task<sup>xxvi</sup>.

Within the MSF team a high turn over of national staff was noted, whose function was “limited” to being a translator.

### **Publicity Campaigns/IEC**

In April 2000 an article about the project was written by the prefecture PHB and published in the local paper Nujiang newspaper<sup>xxvii</sup>. TB posters were distributed in village doctor clinics. The increase in numbers of patients referring themselves to the TB departments suggested that the publicity for the program within the counties was effective<sup>xxviii</sup>.

A major publicity campaign was timed to coincide with World TB day March 24th 2001, whereby MSF, the TB supervisors and the PHB carried out activities in Fugong and Gongshan with the focus on access to TB treatment for all.

In the second quarter of 2001 TB material was translated in Lisu language in Fugong.

## I.2. Conclusions and Recommendations

In order to start and maintain an effective assistance program, in which government commitment is enhanced, it is instrumental to understand the hierarchical culture, the interrelation between health and political authorities, the health (financing) policies, the process of health reforms and the quest for continuous “guangxi”-building in the Chinese culture. This information was missing in the first assessment report. If MSF would have analyzed the existing health financing system during assessment, set-up or implementation phase, the project could have been designed differently. From interviews during this evaluation we learned that Village Doctors were never employed by the county PHB, but were paid out of communal taxes. AES, Township and County hospital Doctors were paid for 100% by the PHB. The VDs were paid an allowance of 30 to 60 RMB per month by the PHB, thus acknowledging them and their legal status to practice<sup>xxx</sup>. Since VD/TD fell under the authority of local (township) government, TB supervisors employed by AES could never supervise them. During the health reform that started in 1999 the system became even more decentralized (see annex 5), the township government is at present financially in charge of the TD and VD. Because MSF gradually lost its close connections with the local political authorities (governors) in the implementation phase of the program, the motor behind close follow up/strict supervision by political authorities was absent. Another reason for the absence of pressure from local health or political authorities was the fact that they did not have any financial input in the program<sup>xxx</sup>.

If this mechanism of the Chinese hierarchical structure was known earlier, adaptations could have been made. Recurrent Chinese language training and practice of MSF staff can only partly overcome the language barrier. National staff could have helped bridging the language and cultural barriers and lack of institutional memory. However, the under-utilisation of the capacities of national staff in the project (and Kunming) led to a high turnover.

### **Recommendations:**

- Next to a Chinese language course, an introduction into Chinese culture is obligatory for all MSF staff, at all stages of the project.
- Employment of national medical staff that stays longer in the project than their expatriate colleagues could improve the projects cultural appropriateness and institutional memory.

Although the assistance character of MSF’s contribution to the project was clearly recognized in the design of the project some choices implicitly pointed in the direction of an MSF substitution<sup>6</sup> program. The lack of assistance indicators in the project proposal, the direct supervision of TB supervisors by MSF medical staff and the lack of a lobbying strategy for inclusion of Nujiang Province in the National TB Program are some examples. The initially set project period (18 months) was unrealistic in the context of Nujiang.

In the set-up phase of the project the difficulties of the PHB’s to fulfill the financial requirements as stated in the MoU were already recognized and discussed. MSF knew financial problems had been one of the reasons for previous TB programs to fail. Still MSF decided to solve the problem itself by developing an incentive system parallel to the existing health financing system.

The TB advisor reviewed the project in August 2001 and found the combination of unacceptably low cure rates throughout the whole project period and the possible negative contribution to MDR TB in the region sufficient reasons to stop enrolment of new TB patients. MSF then unilaterally decided to stop enrolment of new tuberculosis patients as of September 17, 2001 and at the same time to stop the program. Only much later extensive

---

<sup>6</sup> Substitution means replacing the existing structures by MSF models. MSF frequently works in this way in places where the health system is absent or non-functioning.

discussions with partners were held<sup>xxxii</sup>. The decision to altogether stop the program could have better been taken at a later stage and jointly with the MoU partners.

#### **Recommendations**

- In assistance programs MSF should carefully design and maintain its supportive role. A realistic planning horizon should be set, depending on extensive assessment of the program context.
- MSF should be willing to temporarily act as funding agency for existing health systems and to focus on supervision and lobbying.
- At the start of a TB assistance program an exit strategy regarding hand-over to the NTP should be made. Such a strategy would include lobbying at all levels.
- Decisions to stop or change an assistance program involve close discussion with all partners in the program.

In none of the project guidelines mention is made of requirements for MSF staff. Although the TB advisor stated that the project could not start without a TB MD in the field, the MD arrived only in June 1999. Over time only few medical staff (2 out of 11) had previous TB field experience, most of the project staff (9 out of 13) were first time MSF staff and all PCs were new in their role as a manager (see annex 3). The recurrent problems in finding experienced TB staff led to several periods with incomplete field teams.

The inexperienced (>80% first mission) staff did not always capture the assistance approach as written down in the project proposal. After facing difficulties in the project (low cure rate) the project implementation shifted more and more away from an assistance program towards a substitution program. At the time of the evaluation one counterpart literally said “PHB assisted MSF in their TB project”. Contacts with political authorities (e.g. vice-governor for health and education) completely terminated at the end of 2000.

The Country Management Team consisted over time of MSF experienced people, except for the Financial Controller. Most of the Medical Coordinators were new in their function. In the beginning medical field staff was supported in their role of assisting the local counterparts. The tendency of medical staff to “do the work themselves”, which is understandable for first mission medical staff, was neither sufficiently corrected by the CMT nor by the Health Advisor or the Operational Director. The Operational Director should have monitored the program on assistance parameters.

#### **Recommendations:**

- MSF staff without TB field experience that is placed in a TB project has to work for a period of at least two weeks alongside experienced staff in another TB project. Before arriving at the intended project side they should either work with MSFH or another section in the same country or in a neighboring country.
- If assistance programs are undertaken, the line management must be comfortable to have or develop the expertise and engagement for appropriate support.
- In assistance programs a coaching style of management is required.
- Making full use of the potential of our partners and national staff definitely improves staff motivation but also the quality of the project.

<sup>i</sup> Provincial Guidelines. YNTP, 1996.

<sup>ii</sup> The MSF Nujiang TB Assistance project briefing by Project coordinator. August 2000.

- 
- iii Prefecture Public Health Bureau, interview 5 April 2002.
- iv Trip report Nujiang prefecture, Yunnan, MSF/ Yunnan Red Cross, November 1997.
- v Trip report. MSF-H Health Advisor; June 1998.
- vi Documents found in financial filing system.
- vii Final Draft Project Proposal, Tuberculosis intervention assistance program, Fugong and Gongshan counties, Nujiang Prefecture, Yunnan Province P.R China. MSF-Holland; March 1999.
- viii TB control guidelines for the MSF Nujiang TB assistance project, July 1999.
- ix Monthly reports, December 1999 and January 2000.
- x Village and Township Doctors training course, August 10-14, 1999.
- xi PC progress report, September 1999.
- xii CP discussion, March 2000
- xiii Report Medical Advisor to Medical Coordinator, September 2000.
- xiv MSFH China security plan, July 2000  
Visitors security Plan, August 2000
- xv Several E-mail discussions, November/December 1999.
- xvi Field visit YTBI, 18-19 June 2000.
- xvii Quarterly report, September 2000.
- xviii Interviews with PHB's and AES' at county and prefecture level, April 2002.
- xix The MSF Nujiang TB assistance project Tuberculosis Control Guidelines (final version); May 2001.
- xx Interviews with PHBs and AES' at county and prefecture levels, April 2002.
- xxi Quarterly report, January 2001.
- xxii Minutes of Nujiang prefecture TB Working Group, April 2001
- xxiii The MSF Nujiang TB assistance project Tuberculosis Control Guidelines (final version); May 2001
- xxiv End of Mission report, March 2001.
- xxv Interview TB supervisor, April 2002
- xxvi End of Mission report, March 2001
- xxvii Nujiang Newspaper article by Director Lidong, April 2000 (translated into English).
- xxviii Quarterly report, September 2000.
- xxix Interview TB supervisor, April 2002.
- xxx Interview Kunming CDC, April 2002.
- xxxi Meeting Prefecture and County level PHB, 22 March 2002.

## **Pillar II. Case detection through sputum smear microscopy of TB suspects**

### **II.1. Findings**

#### **A. Prior to MSF involvement**

##### **Case finding**

In 1989 the Yunnan TB Institute (YTBI) did a TB survey of Fugong. X-ray and sputum testing was done for 5810 people; 216 TB cases were found. There was little supervision in the project and no follow up on outcomes of patients.

In 1998 the YTBI facilitated a provincial MOH TB project also in Fugong. In this DOTS based program patients collected the drugs and delivered their sputum at AES. The project only treated new cases, so patients who had had TB treatment in the past were not included in this program<sup>i</sup>. Because of the infectivity and increased mortality in smear positive TB cases the identification of sputum smear results was regarded very important in TB control programs<sup>ii</sup>. However, the YTBI supervision manual<sup>iii</sup> stated no regulations for sputum collection moments. Gongshan County never had a TB project and never a laboratory for sputum testing.

##### **Sputum testing for follow-up of patients**

The WHO guidelines for National TB programs of 1997, on which the Chinese National TB program is based, states that patients with smear positive pulmonary TB should be monitored<sup>7</sup> by sputum smear examination. Chest X-ray was said to be unnecessary and wasteful of resources. For patients with sputum smear negative pulmonary TB and extra pulmonary TB, clinical monitoring was recommended. Sputum culture was seen as usually not feasible.

#### **B. Assessment and design phase**

##### **Case finding**

In November 1997 during the first MSF assessment in Nujiang Prefecture the team found radiology equipment available in 30% of the township hospitals. Sputum testing was possible in only two country hospitals (Lamping and Fugong county hospital). In the other counties (Gongshan and Lishui county) the required laboratory personnel and/or equipment were not available at the time of the assessment. The diagnosis of TB was made on X-ray results and on symptoms. If no X-ray was available and the health provider was not sure of the diagnosis a patient was sent to the county hospital for sputum testing. If X-ray was available the diagnosis was based on X-ray and symptoms. In case of doubt a sputum smear examination was added.

Since the basis for confirmation of TB cases was at times questionable, the epidemiological data obtained from the health care facilities on TB were questionable as well. The assessment team recommended a second visit to the area to gather additional information on the TB problem through testing of community members<sup>iv</sup>. Although the need was clearly stated in the first assessment report, the second assessment did not gather this data.

---

<sup>7</sup> For sputum testing moments as defined by WHO in 1997, see Annex 5.

### C. Set-up phase

#### **Case finding**

In the TB control guidelines of July 1999 both passive and active case finding were described, because the detection of as many sputum positive patients as possible was needed. Patients were suspected of TB if they have cough for > 3 weeks +/- sputum and /or spitting blood or blood stained sputum. Other associated secondary symptoms may include fever, sweating, night sweats, weight loss and chest pain.

Passive case finding should be done through the normal health care system:

- \* Suspected patients will be referred to the TB departments.
- \* Patients that have been previously diagnosed or suspected but didn't receive full or any treatment will be followed up and their sputum checked.
- \* Sputum samples of close family contacts of any confirmed sputum positive patient should be checked.

Active case finding would only be used if epidemiological data shows high prevalence in a certain area, which should be followed up. The decision to so would take place after careful analysis of the data by the TB supervisors and MSF. All suspected patients should be notified to the county TB department. Responsibilities of township or village doctors and TB supervisors in sputum collection were formulated. Patient procedures for accurate sample collection and proper transporting and storage systems were also drawn<sup>v</sup>.

#### **Sputum testing for follow-up of patients**

The procedure for follow-up was the same as for case finding or diagnosis. The timing of the follow up sputum for the three categories was as follows<sup>vi</sup>.

Treatment Regime	1 <sup>st</sup> check sputum	Extra check	2 <sup>nd</sup> check sputum	3 <sup>rd</sup> check sputum
<b>Category 1</b>	Month 2	Month 3 (If month 2 is positive)	Month 5	Month 6 (to be taken after completion of chemotherapy)
<b>Category 2</b>	Month 2	Month 3 (If month 2 is positive)	Month 7	Month 8 (to be taken after completion of chemotherapy)
<b>Category 3</b>	Month 2		Month 5	Month 6 (to be taken after completion of chemotherapy)

In Annex 4 of the guidelines flowcharts were added to help in decision-making. However, the timing of follow-up sputum collection for category 2 patients in the flowchart was not coherent with the table. The former recommended a sputum check at month 5 and month 8 while the table mentioned month 7 and month 8. The flow chart was coherent with WHO guidelines, the table not. The decision tree for category 3 patients is coherent with the table, but it is not following the WHO guidelines. These only talked about checking sputum at month one and at the end of month two<sup>vii</sup>.

In the YTBI teaching document of July 1997 TB supervisors and VD/TD were taught to send two samples of sputum separately (morning and night sputum) for follow-up in the 2<sup>nd</sup>, 5<sup>th</sup>, 6<sup>th</sup> months or in the 2<sup>nd</sup>, 7<sup>th</sup> and 8<sup>th</sup> months of treatment.

## **D. Implementation phase** (From January 2000 until July 2002)

### **Case finding**

In the beginning of the TB project a total number of 12 townships was visited, one township per week (7 in Fugong and 5 in Gongshan). Subsequently all the suspected TB patients were asked for their sputum and these sputum smears were tested. On the basis of the test results patients were categorized and the appropriate treatment was started. During one week, every day new TB patients started treatment in one township. One week later a follow-up visit was planned. Then the team would move on to the next township<sup>viii</sup>.

In July 2000, being overwhelmed by the patients, the system of patient recruitment changed. From then on suspected patients themselves or through the assistance of their village and township doctors could deliver their sputum to the AES and have it examined. Newly detected patients would then be enrolled and treated<sup>ix</sup>.

PHB and MSF agreed in the revised guidelines to only do active case finding if the program has sufficient resources to support diagnosis and treatment. An explanation on payment of allowances concerning the delivery of samples to the laboratory and the processing of samples was added<sup>x</sup>.

### **Sputum testing for follow-up of patients**

Low conversion and cure rates were in the first quarter of 2001 addressed by the implementation of revised TB, pharmacy and laboratory guidelines and an increase in meetings with officials at county and prefecture levels to ensure control<sup>xi</sup>.

In the revised guidelines<sup>xii</sup> the sputum check moment were changed. Extra follow-up sputum samples were required for patients receiving an extra months of intensive phase treatment (in month 7 for category 1 patients, month 5 and 9 for category 2 patients).

### **Constraints**

\* In the first project guidelines the sputum follow up moments were not very clear for category 2 patients. Flow chart and tables were not consistent. For category 3 patients the treatment outcome was registered as “cured” when no positive sputum results were found. The only possible outcome for category 3 patients, being sputum smear negative cases, would have been “completed” or ”failed”.

\* The revised MSF guidelines were much more in line with the WHO guidelines, but differed at three points:

- 1) Additional sputum testing moments for category 2 patients of at month 7 and 8, and
- 2) Additional sputum testing moments for category 3 patients at month 5 and 6;
- 3) Two months initial phase treatment for category 2 patients instead of three months.

## **II.2. Conclusions and recommendations.**

Many reference documents were circulating and used by TB supervisors in their daily work. After studying the MSF guidelines the TB supervisors thought there were only minor differences, therefore they preferred using the one's they knew. In interviews during the evaluation (former) TB supervisors expressed the difficulty for them to convince MSF staff of their ideas. Accepting the MSF guidelines was seen as unavoidable, because they were the “receiving party”.

The lack of consistency between the different guidelines in sputum testing moments caused confusion between TB supervisors and MSF staff. The problem was prolonged because some Chinese reference documents were not translated into English and because communication was not always optimal. Verbal communication of sputum outcomes led to inaccuracy in reporting. Although this was known in an early stage no action was taken and this recurrent problem was only recently addressed with the counterparts.



**Recommendation:**

- In assistance programs existing reference materials already in use by the counterparts should be the guidelines of preference. MSF should have strong reasons to deviate from existing theories or documents. If joint decisions are made to change guidelines, good follow up should take place to monitor whether changes are actually implemented.

Prof. Zhao and his team made some recommendations in the mid-term evaluation to ensure the quality and quantity of the sputum samples and to detect as many patients as possible. The suggestion to set up more slides testing centers to facilitate the patients and suspects sputum sample checking was rejected by MSF. It would have only required one laboratory technician who would be responsible for collecting sputum samples.

If strategies would have been developed to test the effectiveness of the suggestions in small pilots, better insight could have been gained in underlying reasons for the problems faced in case detection.

**Recommendations:**

- One basic additional facility for sputum smear preparation (fixing the sputum) closer to the population (e.g. in Gongshan) could prevent sputum samples from drying out. Also the re-collection of samples only containing saliva would be feasible.
- The actual detection rate in a convenience sample of a limited number of villages in the area could have been taken. On the basis of sputum samples (and maybe also X-rays) of all >15 year old an indication of the prevalence in the area could have been made. Comparing these with the sputum positive detection rate found in the project could give a clue on under- or over diagnosing.

For quality control Prof. Zhao recommended to strengthen laboratory work, collect the sputum samples on time, improve the quality of sputum testing and to consolidate laboratory quality control check. Although quality control of the laboratories was the prime responsibility of PHB, MSF as a partner should have monitored (double checked) sputum slide examination. The low cure rates could have been due to wrong diagnosis.

Designing a strategy to rule out or confirm this possibility could have shed light on the issue.

**Recommendation:**

- Rechecking all positive sputum samples and for example comparing the outcomes of one cohort with X-ray results of these patients could have ruled out the possibility of many false positives.

<sup>i</sup> Project briefing. Project Coordinator, August 2000.

<sup>ii</sup> The treatment of tuberculosis, guidelines for national programs by WHO, second edition 1997.

<sup>iii</sup> The supervision manual YTBI. December 1998 (Document only available in Chinese).

<sup>iv</sup> Trip report assessment Nujiang Prefecture Yunnan. MSF and the Yunnan red cross, November 1997.

<sup>v</sup> YTBI teaching document. July 1999 (Document only available in Chinese).

<sup>vi</sup> TB control guidelines for the MSF Nujiang TB assistance project. July 1999.

<sup>vii</sup> The treatment of tuberculosis, guidelines for national programs by WHO, second edition 1997.

<sup>viii</sup> Interviews MSF staff, March 2002.

<sup>ix</sup> Interviews MSF staff, March 2002 and TB supervisor, April 2002.

<sup>x</sup> The MSF Nujiang TB assistance project Tuberculosis Control Guidelines (final version), May 2001.

---

<sup>xi</sup> Quarterly report, May 2001.

<sup>xii</sup> The MSF Nujiang TB assistance project Tuberculosis Control Guidelines (final version), May 2001.

## Pillar III. Standardised DOTS under proper case management conditions

### III.1. Findings

#### A. Prior to MSF involvement

##### Case management

The Provincial TB guidelines used in the YTBI program of 1998 were based on the DOTS strategy. Supervision and implementation regulations were made to which supervisors of all levels had to adhere. Supervision visit reports had to be made consisting of all patient forms and a description of the situation of the patients.

Supervisor	Level supervised and frequency	Tasks
Provincial	To prefecture: once every 1-2 months To counties: during prefecture visit; more frequent if necessary	To check activities/results <sup>8</sup> in counties, expenses, drug supply/use/storage To check TB department, case finding, smears, X-ray, registration, patient management, reports and to see 2-3 families, make report of visit
Prefecture	To county: monthly (1st half year), later two-monthly To township: during county visit to see 3-5 families	To check diagnosis, treatment, management, registration books/cards and quality control smears/X-rays, patient management, make visit reports
County	To township: monthly	To visit as many patients as possible but at least see a patients once during his/her intensive phase, check VD/TD work and registration books, make visit reports
Township	To VD: twice a month To patients: during VD visit	To check quality of VD patient management, drug management and recording Visit each patient after selection during first week visit and each patient 3xfor HE

##### Managed care

All patients should receive observed treatment; those living far away should be visited during the intensive phase, but only managed during the continuation phase. For patients living too far away to be visited an exception could be made, but this should not exceed 10% of the total patients.

#### B. Assessment and design phase (before March 1999).

No information.

<sup>8</sup>Number of patients found, detection rate of suspected patients (200/100.000), rate of new sputum positive patients (20/100.000), smear conversion rate after 2 months, cure rate.

### **C. Set-up phase** (March 1999- January 2000)

#### **Case Management**

In July 1999 TB control guidelines<sup>i</sup> for the MSF Nujiang TB assistance project were developed. The principles of the DOTS strategy were applied. The patients should be treated as outpatient and be able to stay in their own homes.

The TB supervisors' role was defined as:

- 1) To see new patients at start of treatment and give patients (or family members who can read) written and verbal information about his treatment
- 2) To be convinced that VD or TD know treatment protocols, registration procedures and recognize side-effects
- 3) To monthly distribute TB drugs to VD/TD with no "breaks" in supply (record book kept by VD/TD)
- 4) To check the patients once a month and check the standards of the VD/TD work.

Village Doctors/Township Doctors should:

- a) Either give patients a one months supply of drugs (except syringes and needles) and visit them at home to observe each dose of treatment, or store drugs in the clinic and patients come to the clinic to receive each dose of treatment (method of choice in agreement with TB supervisor).
- b) Give missed doses of drugs within 24 hours and record this on the patient treatment card
- c) Observe and check side effects and color of urine (Rifampicine)
- d) Find the patient and assess the problem whether a patient has problems taking treatment regularly or defaults. The TB supervisor should be informed and make extra visits to help solve problems.

County level TB supervisors should make monthly field visits and prefecture level TB supervisor two monthly. MSF medical staff should regularly accompany both during field trips and support and provide training on the spot

#### **Managed Treatment**

In case a VD/TD cannot observe each dose (due to remoteness) a family supervisor would be identified to observe treatment (except for Streptomycin injections these should be given by a health worker). This family supervisor must be given education and the VD/TD should meet the patient at the start of treatment and visit him/her weekly. TB supervisor should visit the patient at least 1x during the intensive phase and at the beginning of the continuation phase. Drugs provision would be done monthly. The patients observed by family supervisors may not exceed 10% of total project patients.

In June 1999 MSF and YTBI organized a two-week training for 14 TB supervisors. In August 1999 142 Village and Township doctors were trained over a 3-week period (5 separate trainings). In September the MSF lab technician gave further lab training to TB supervisors to optimize their daily laboratory work.<sup>ii</sup> Five TB supervisors for Fugong and two for Gongshan were identified.

#### **D. Implementation phase** (from January 2000)

At the 12<sup>th</sup> of January 2000 the first patient was enrolled in the program. The situation in Fugong and Gongshan counties was quite different at the start of the project. See table below.

<b>Fugong 7 townships, (86.000) 2800 km2</b>	<b>Gongshan 5 townships, (34.000) 4500km2</b>
Two inadequate TB projects before MSF arrived.	No former TB programs. TB treated by VD
Functioning TB department (only 1 staff) before, MSF project provided 5 TB supervisors (who can do lab and TB work)	AES had no TB department. MSF created TB “office “ in laboratory. MSF project trained 2 TB supervisors (who can do lab and TB work).
General lab for water testing, hepatitis, malaria, food and TB lab (basic, 1 tech. 1 microscope) existed, upgraded by MSF, 2 TB labs (1 for staining, 1 for microscopy) and a TB office.	General lab for water testing, hepatitis and some bacteriology. No TB lab. MSF equipped a room to become sputum-testing laboratory.
Sterilization room, vaccination storage	Basic vaccination storage.
7 basic township hospitals plus 1 county hospital	4 basic township hospitals plus 1 county hospital

There was a basic TB department in the AES in Liuku (prefecture level). They were supposed to provide supervision and laboratory control to the county levels, but in practice only few visits were made<sup>iii iv</sup>.

#### **Case Management and Managed Care**

DOTS supervision was implemented according to the guidelines developed in the set-up phase. But already in May 2000 (first quarterly report) low conversion rates at 2 months were found. Investigation of possible causes started immediately. One problem in applying DOTS was the poor motivation of some of the Village Doctors and TB supervisors. It was recognized that VD needed to work on their farms to generate sufficient income. Also the level of education of some of the VD was limited to perform their role as health workers.

Meetings were held between MSF medical staff and TB supervisors on a weekly basis. Especially in Gongshan where TB supervisors were not working up to standards this resulted in supervisory tasks being executed only when MSF was physically present. This made that the TB supervisors themselves felt not sufficiently trusted and “watched” by MSF. They wanted more decision-making power for planning lab work and field trips<sup>v</sup>.

In April 2000 another TB supervisor training course was organized followed by training for Township Doctors a month later to ease the workload of the TB supervisors. In July admission of patients was stopped for one week to try to improve the supervision of the existing patient population, but also in August supervision visits were not achieved as planned. Main reasons were set to be the poor motivation of TB supervisors and Village Doctors, and the regular changeover of VD<sup>vi</sup>. Conflicts over planning of work between MSF medical staff and TB supervisors were not yet solved in August 2000<sup>vii</sup>. In July MSF decided in a Medical Meeting<sup>viii</sup> that weekly supervision was an acceptable compromise: the VD would supervise one dose of treatment and two doses would be taken home. Giving the patient a 1- month supply of drugs was considered to be unacceptable. The meeting agreed to involve the family more in daily supervision of patients’ treatment. Family members should be present at the start of treatment, refer patient’s interest to VD or TD and report on problems.

In August 2000 Prof. Zhao and his team visited the project to perform a mid-term evaluation. Regarding supervision they recommended to strengthen DOTS by:

- 1) Improving VD supervision;
- 2) Consolidating county-, township- and village doctors' supervision. County TB supervisor should interview the detected patient and instruct TD/VD and educate the patient on compliance;
- 4) Changing the incentive system (only full payment after patient converts) to motivate and promote conversion rate and cure rate;
- 5) Strengthening lab work;
- 6) Consolidating training.

MSF responded by writing a response document and revising the TB control guidelines.

Amongst others the supervision schedule was revised<sup>ix</sup> and implemented from January 2001 onwards. It was felt that proper supervision of the project was required to ensure proper implementation of the TB guidelines at all levels. Regularly scheduled supervision was designed to identify problems at an early stage, to allow for timely resolution and hence to ensure project standards.

#### Nujiang TB Assistance Project Supervision Responsibilities

Area of Supervision	Responsible Parties	Schedule
MoU Project Proposal	Provincial PHB MSF	Semi- Annual Meetings
TB Guidelines Quarterly Reports	Prefecture PHB MSF	Quarterly Meetings
Laboratory Quality Control	YTBI, Prefecture PHB MSF	Quarterly Supervision and Reporting
Patient Registration	Prefecture and County PHBs and MSF	Monthly
Patient Treatment	Prefecture and County PHBs and MSF	Monthly
Project Finances	TB Supervisors MSF	Monthly
Pharmacy	County PHB MSF	Monthly

All supervisory reports should be checked, stamped and sent to all involved participants.

The new guidelines addressed most concerns of the mid-term evaluation report. Many of the new initiatives for improving supervision were introduced: stricter monitoring, better follow-up and restructured incentive payment for TB supervisors and VDs. Supervising VD/TD was evidently part of the TB supervisors' role but gradually disappeared during the field visits. However, in the revised guidelines there was no supervision checklist created to support the TB supervisors in their monitoring task. The patients were supervised, but the formerly required inquiry about left over medication, urine coloring and treatment card inspection over time reduced<sup>x</sup>.

In October 2000 a refresher course was held for TB supervisors and in November more than 40 Village Doctors attended a refresher training organised by AES. The new guidelines were introduced, which hampered the performance of TB supervisors, because a lot of confusion was introduced as well<sup>xi</sup>. Additionally the guidelines were revised several times by MSF to be finalised *only* in May 2001. Training of new TB supervisors in Fugong (2) and Gongshan (2) began in November 2000 and January 2001. This was clearly an unnecessary delay in training for the two Gongshan TB supervisors<sup>xii</sup>.

In December 2000 the OD asked for a proper assessment of the major reasons for the low cure rates (poor adherence or drug resistance). It was mentioned that if the problem could be identified and you could target new cohorts with a better strategy continuation is justified, otherwise not.

In June 2001 the visiting MSF HA reported that the absent (or failing) supervision or monitoring of the TB supervisors, township and village doctors levels is *the first and most important* factor in the low and unchanged cure rates in the program.<sup>xiii</sup> The medical project staff argued that possible failures in supervision can be found by post-treatment evaluation and questioning of patients, VDs, TDs and TB supervisors. The team also found it too early after implementation of the new guidelines to judge the results. Preliminary indications showed improved cure rates.

In August 2001 the MSF TB advisor confirmed the ideas of the HA concerning the supervision aspects of the project. Although DOTS is the strategy, directly observed treatment is not in place and adherence to treatment in the program is not guaranteed. The health care workers, particularly the village doctors have other personal livelihood priorities than tuberculosis patient follow up. They have not been able to provide the most needed patient supervision and support during treatment<sup>xiv</sup>. He advised to close the enrolment of new patients and to use when possible non-health worker DOTS providers within the community who are respected and accepted by the patient. Such providers could be family members, teachers, community leaders or even shopkeepers.

In September 2001 the second guidelines were revised according to the recommendations made by TB advisor. Enrolment of new patients was stopped at September 17, 2001.

### **III.2 Conclusions and recommendations**

In the design of the assistance program no management objectives and indicators were formulated, only medical objectives and indicators. Field trips by MSF staff and TB supervisor were planned and executed exclusively as a common effort, which can be seen as a design error that caused confusion about ownership right from the start.

#### **Recommendation:**

- Medical indicators should only be used by MSF as indirect checks on how successful its supportive objectives have been and where gaps in knowledge, skills and attitudes still exist. To ensure ownership by PHB/AES (TB supervisors) MSF medical staff should be minimally involved in daily management of the program.

Supervision in a hierarchically organized society is different from the MSF way of working. In China directives and regulations are hierarchically centralized and top-down structured. In order to cooperate in the Chinese context it is necessary to understand the system and the problems our partners are facing.

Giving (constructive) criticism to someone in front of a superior in the line of hierarchy (e.g. a TB supervisor seeing a patient) is perceived differently in Chinese society. It mainly has the effect that it undermines the authority of the one being criticized. First observing and giving feedback in a later stage preferably when alone with the subject of criticism and expressing the criticism in an open but diplomatic way can solve this<sup>xv</sup>.

**Recommendation:**

- Introducing the concept of supervision in a hierarchically organized society, where feedback is not positively valued, listening and negotiation skills are necessary requirements for MSF expatriate staff.

To have better insight in the reasons for low cure rates during this evaluation a “map” (see Annex 4) was made of all 25 patients in Gongshan of the cohorts 1, 2 and 3 of 2001. Although the group was very small the findings are indicating, as shown in the tables below, that “distance” correlates less to treatment outcome than expected.

DISTANCE OUTCOME	CLOSE	MEDIUM	(VERY) FAR	TOTAL
Cured	3 (37,5%)	6 (60%)	3 (60%)	12
Completed	1 (12,5%)	2 (20%)	0	3
Failure	2 (25%)	2 (20%)	1 (20%)	5
Default	1 (12,5%)	0	1 (20%)	2
Register out	1 (12,5%)	0	0	1
TOTAL	8	10	5	23*

\* One patient died and one outcome is unknown yet.

SUPERVISOR OUTCOME	TOWNSHIP DOCTOR	VILLAGE DOCTOR	FAMILY SUPERVISOR	TOTAL
Cured	4 (36%)	6 (75%)	2 (50%)	12
Completed	2 (18%)	0	1 (25%)	3
Failure	3 (27%)	1 (12,5%)	1 (25%)	5
Default	1 (9%)	1 (12,5%)	0	2
Register out	1 (9%)	0	0	1
TOTAL	11	8	4	23

Both the Anti Epidemic Station and MSF were stationed in the capital of Gongshan County, Cikai. Despite the closeness of TB supervisors and MSF medical staff the outcomes of patients of Township Doctors were not better of then the medium and far away living Village Doctors or Family supervisors. The TB patients coming to the Township Clinic to collect their medication were seen by the Doctor in charge. Township Doctors have thus no exclusive responsibility for a specific patient. In the two very far away places were family supervisors were responsible for DOTS both patients were cured. Variance in levels of MDR-TB could be another explanation. However, there is no evidence<sup>9</sup> of differences in availability of over-the-counter TB drugs between villages and townships.

Township Doctors and Village Doctor were both trained in the set-up phase (August 1999). In many reports early in the project mention is made of the poor motivation of Village Doctors due to their lack of income and resources. In May 2000 additional training for TD was organized in Fugong to improve their motivation in DOTS supervision. In both guidelines family supervision was regarded as a valuable option in case Village Doctors were not able to see patients on a regular basis. The designated family member had to be trained (by TB supervisors) and could not provide Streptomycin injections. The family supervised patients were limited to a maximum of 10% of all cases.

<sup>9</sup> During the evaluation TB drugs availability (Rifampicin and Isoniazide) in capitals and townships was huge. Most big villages also have these drugs available. Village Doctors in small villages buy the drugs elsewhere and sell them in their villages.



There was no evidence found of in-depth evaluation of the supervision problems allegedly leading to low cure rates<sup>10</sup>, followed by the formulation of strategies to address the problems.

**Recommendations:**

- Next to the regular quantitative analysis of outcomes, further qualitative analysis of data should be done in order to explain low cure rates. Patient outcomes could be compared with different parameters like distances, supervisors, drug suppliers (>50 kg/<50kg), category 1 → category 2 after 5 months, number of relatives affected by TB, etc. to find reasons for failures.
- After further analysis of problems strategies should be formulated with objectives and indicators. An option would have been to start a systematic family supervision program (with a strong IEC component) in one of the counties in 2 cohorts, at the end compare the results with the other county.

The population was described as stable, although there were several examples of patients taking on jobs in other counties or simply moving to another Country (e.g. Burma). These patients did not inform TB supervisors about their whereabouts, and were therefore not properly registered and handed over to the responsible TB control center. Additionally, there is no evidence of a defaulters tracing strategy neither in one of the TB guidelines nor in practice.

**Recommendation:**

- In a population widely scattered, living in remote and rural mountainous areas, a well-defined defaulter tracing system, with clearly stated responsibilities should be part of the TB control guidelines.

Focus Group discussions were used during the evaluation to learn about the awareness of the Nujiang population regarding TB. Three different groups from Fugong capital (farmers, students and shop keepers) and one group of villagers from a neighboring village independently discussed their ideas. Topics covered were: their knowledge of the disease, health seeking behavior, social support and their notion of cure. Lisu speaking MSF national staff initiated the discussions and took notes of the opinions presented.

All participants had heard about TB and most knew of somebody who had died from TB. The Lisu word for TB is “Liju”, means that someone is sucked dry and then dead. This word has a terrifying connotation and mentioning it to children makes them afraid of the tombs of dead. Because participants saw some families in which the disease affected all family members, the majority of participants thought TB to be either an infectious disease or determined by genetics (congenital). From the two participants who have had TB themselves, one did not know whether he was cured or not. The AES doctor only told him there were no more medicines for him.

The symptoms of TB were thought to be cough, loss of weight, feeling weak, coughing blood and having chest pain and difficult breathing. When they feel sick most farmers and villagers first go to the church to pray, because the cause might be that they have done something wrong to other people. Their second choice (and first for those not believing) is to seek the help of a Traditional Chinese Medicine practitioner. Either this doctor will give them traditional medicine or they will go to the mountains and find the medicine themselves. Everyone knew someone who treated him/herself for TB, but none of these patients had been cured. Among the participants there was not much trust in the local health care staff and the

---

<sup>10</sup> This also counts for Multi Drug Resistance, which will be dealt with in the chapter on Pillar IV.

quality of drugs provided. Some complained about the attitude of the doctors at the hospital and said people only go there if they cannot work (or walk) anymore. Not all people can afford to go to the hospital. Other people will not go there because they are afraid of being discriminated if others know they have TB.

The students knew that taking the full course of TB drugs is important. They thought many patients stop taking their medication as soon as they feel better. These patients do not know they are dangerous to the society because they are infecting others. The students expressed the need for more education about in the villages. Village leaders could broadcast messages from the central government through public loud-speakers several times a months so that all villagers will know what they should know about TB.

**Recommendations:**

- Information, Education and Communication campaigns should not be a one-off activity, but a continuous process in which social groups (village committees, women's groups, traditional and private health workers) are involved. Targeting specific groups (e.g. illiterate villagers) is required to raise awareness and reduce the stigma attached to TB.
- Gaps in performance and knowledge in health staff should be assessed on a regular basis; coaching and training of health staff should be done subsequently.

---

<sup>i</sup> TB control guidelines for the MSF Nujiang TB assistance project, July 1999

<sup>ii</sup> Project briefing PC, August 2000

<sup>iii</sup> Project briefing, PC, August 2000

<sup>iv</sup> Quarterly reports May 2000, September 2000, and January 2001.

<sup>v</sup> Meeting with Gongshan TB supervisors, April 2000.

<sup>vi</sup> Quarterly report, September 2000.

<sup>vii</sup> Monthly activity report, August 2000.

<sup>viii</sup> Medical Meeting, 21<sup>st</sup> July 2000.

<sup>ix</sup> The MSF Nujiang TB assistance project Tuberculosis Control Guidelines (final version); May 2001

<sup>x</sup> Interview TB supervisors, April 2002.

<sup>xi</sup> Monthly report, November 2000.

<sup>xii</sup> Quarterly report, September 2001.

<sup>xiii</sup> Trip report HA, June 2001.

<sup>xiv</sup> Consultancy report, TB advisor, August 2001.

<sup>xv</sup> Interviews national staff, April 2002.

## Pillar IV. Regular uninterrupted supply of all essential anti-TB drugs

### IV.1. Findings

#### **A. Prior to MSF involvement**

Introduction of the economic reform policies in the early 1980s resulted in decentralization and commercialization of the health care system. Rural health services were for a large part dependent on patient revenues. The lack of effective government control measures in combination with very profitable prescription practices have led to widespread marketing of fake drugs as well as over-the-counter drug sale of anti-TB drugs<sup>i</sup>.

#### **B. Assessment and design phase** (before March 1999)

The first assessment in Nujiang prefecture in November 1997 gives no information about the supply of TB drugs. It reports that Township Doctors in their treatment of TB always used Isoniazid and Streptomycin. Para-aminosalicylate, Ethambutol, Pyrazinamide and Gentamycin were sometimes used, but there were many criteria how to use these medicines. Two of the criteria were 1) the severity of the specific case and 2) how much the patient could afford to pay. The longest amount of time for treatment was 2 years and the shortest amount of time was 3 days. In general the report stated that there was a lack of doctors and medicines. In most cases it was reported that villagers treat themselves with Chinese traditional and/or western medication<sup>ii</sup>.

#### **C. Set-up phase** (March 1999- January 2000)

##### **TB Chemotherapy**

The TB control guidelines of July 1999 described the correct TB chemotherapy (drug treatment). The regimen for the project was based on the Chinese National TB Program, which has been successful and has achieved high cure rates.

Patient	Regimen intermittently every other day
Category 1	2HRZE/4HR or 2HRZS/2HR
Category 2	2HRZSE/6HRE or 3HRZE/5HRE
Category 3	2HRZ/4HR

Most of the drugs would be distributed in blister packaging.

##### *Dosage of Drugs for every other day treatment*

Drug	Intermittent every other day dose (mg)	
	< 50 kg	>50 kg
Isoniazid (H)	500	600
Rifampicin (R)	600	600
Pyrazinamide (Z)	2000	2000
Streptomycin (S)	750	750
Ethambutol (E)	1000	1200

The treatment of children would be prescribed individually according to weight. Each child would have an individual clinical assessment before starting treatment.

MSFH decided to use the local supplier of the TB drugs for the National TB program, after samples were tested in cooperation with the MSF Amsterdam HQ for quality control. In May 1999, there was a large stock of TB drugs in store. In October 1999 problems with the Red Flag packaging of the drugs were found, which resulted in a delay in delivery and consequently of postponing the start of patient enrolment. In November 1999 the MSF-H drug control specialist visited China, made an assessment of various factories in China producing TB drugs. In Shanghai an alternative supplier was found and also a laboratory for quality control<sup>iii</sup>.

### **Multi Drug Resistant Tuberculosis (MDRTB)**

Already in September 1999 the issue concerning possible drug resistance was discussed between the MSF medical staff and the TB advisor<sup>iv</sup>. The Medical Doctor had already diagnosed and treated four patients (seen by change) and all had insufficient treatment on more than one occasion. It was known that a lot of antibiotics were available in pharmacies that could be bought without consulting a physician. The TB advisor recommended organizing a survey of resistance to get a picture of the adequacy of standard treatment regimens for the patient population, if evidence of significant resistance to first line drugs would appear.

### **Traditional Chinese Medicine (TCM)**

All medical doctors in China studied either a major course in western medicine and a minor in TCM medicine or vice versa. In their practice most doctors use the two approaches in a complementary fashion. For example flu-like cough, cold and fever will be treated with western antibiotics but also with TCM to rebalance the heat/cold within the body.

In September 1999 the Medical Coordinator recommended to having a qualified practitioner of TCM working as an advisor to the Medical Coordinator. Investigation in the real practices of Chinese medical staff and treatment of TB should be explored in a non-judgmental way<sup>v</sup>.

Sebastian Oliver Davidson was asked to study (TCM) therapy for TB in Yunnan in order to provide advice on the applicability of TCM alongside DOTS treatment for TB. His conclusion was that integrating TCM and western medicine is not without consequences. He recommended MSF to advocate a policy of only using western medical drug therapy as long as this is without serious side effects. In case of serious side effects to western drugs, the use of TCM for symptomatic treatment should be allowed but only when performed by a reliable and competent practitioner of TCM or integrated approach<sup>vi</sup>.

## **D. Implementation phase (from January 2000)**

### **TB Chemotherapy**

During her visit to China the MSF pharmacist was not fully satisfied with the Red Flag factory, although all drugs tested have passed the chemical analysis. It would take a long time before the Shanghai factory could produce. Therefore a final blister pack order from the Red Flag was made to have stocks set up at the start of enrolment.

During the whole project period there was unrestricted over the counter sales of TB drugs in Fugong and Gongshan counties.

### **Drugs for side effects**

Although in both TB control guidelines the side effects, the responsible drug and action to take are described, the corresponding drugs were not provided. Discussions took place on the amounts and dosages of anti-nausea medication<sup>vii</sup>, but only in November 2001 anti-histaminica and anti-emetica were bought on the local market<sup>viii</sup>.

Side effects and action to take were more elaborately and realistically described in the training manual of the YTBI, therefore TB supervisors relied on these when treating patients<sup>ix</sup>.

### **Traditional Chinese Medicine (TCM)**

In September 2000 the TCM advisor reported that at the Yunnan TB Institute (YTBI) two kinds of TCM treatment were used. The first group is TCM anti-TB drugs like: Mao zhua cao capsules, Kang lao capsules, Bujing tablets and Shengke capsules. The State Drug Association and the Department of TCM of the Ministry of Health have approved these drugs. Those drugs could be used for drug resistant or chronic TB. They could be taken simultaneously with the DOTS medication and could reduce the side effects of DOTS medication.

The second type of drugs like: Dong lin cao, Zhen shi fu zheng zhongji and Gan tai le are alternatives for the reduction of side effects, to build up the body and to protect the liver.

Fuzheng Jiehe Wan<sup>11</sup> consisted of 16 various herbs. Patients only need to take 6 courses of treatment (15 days per course), and would have no side effects, toxic effects and drug resistance. Compared with the blister package of western medicine, those are more convenient to take. Additionally it can also be used for pulmonary tuberculosis, bone tuberculosis, renal tuberculosis, tuberculosis of the intestines, lymphoid tuberculosis, tuberculosis meningitis, tuberculosis pleurisy, and tuberculosis cavity.

### **Over The Counter Drugs**

MSF included lobbying for quality and appropriate drugs for TB treatment in China in the Country Policy and the revised project proposal of February 2001. Advocacy for and promotion of prefecture initiatives to control over the counter drug supply and improve partnerships with private practitioners were planned results for 2001<sup>x</sup>.

In a meeting<sup>xi</sup> with the WHO TB expert in China MSF's lobbying efforts were questioned. The expert did not believe in an attempt to restrict the sale of OTC drugs in a market based health system. He said supporting the law of 1996 to enforce uniform referral of patients from the private sector and to promote standard TB regimens is a more useful initiative.

### **Multi Drug Resistant Tuberculosis (MDRTB)**

In July 2000 the YTBI laboratory did a drug sensitivity test (DST). A convenience sample of 26 patients who were positive at 2 months was taken. The results showed MDRTB in both Category I and Category II patients, which meant both primary and acquired resistance. In 9 cases resistance was found to at least 1 drug, in 6 of them to multiple drugs.

In November 2000 Amsterdam made the decision not to start DOTS plus.

## **IV.2. Conclusions and Recommendations**

After initial delays because of Red Flag packaging problems, drug quality has not been questioned because all quality checks proved to be okay. Over the whole program period there has been no problems with ensuring sufficient quantities of drugs in the storage rooms of both counties. The regular supply of drugs from there to the patient's DOTS supervisors has been well executed by TB supervisors.

While the MSF TB guidelines recommended the treatment of the most common side effects with specific drugs, these drugs (anti-histaminic and anti-emetic drugs) were not provided until the second half of 2001. An exception was vitamin B6, which has been available throughout.

The population of Nujiang is a poverty stricken population and in the first assessment paper notion was made of poorly to malnourished people. TB patients were found to be in a poor to very poor nutritional state. In the early implementation phase of the program, the government gave extra food to the TB patients of Fugong and Gongshan counties for approximately half a year. MSF gave additional food (milk powder) to TB patients during a short period of time.

---

<sup>11</sup> Jiehe Wan activates the macrophage to phagocytose and digest mycobacterium tuberculosis, meanwhile activating the intracellular interferon system. It will kill mycobacterium in different parts and acid-base circumstances, shrink cavity, calcificate nidus.

Counterparts felt strongly that many patients dropped out of treatment (defaulted) because they could not handle the side effects of the anti TB drugs due to their weak general condition. No systematic approach was set up to define the nutritional status of patients and subsequent actions to be taken.

**Recommendation:**

- Offering a remedy for easily treatable side effects to TB treatment and improving the patient's nutritional condition is often not done by MSF. Inclusions of these two components from the start of the program until the end could have had a tremendous influence on adherence and hence the success of the program.

In the second WHO report of anti-tuberculosis drug resistance in the world of 2000<sup>xii</sup>, the magnitude of the MDR problem in four provinces of Mainland China has been examined. The data showed worrying prevalence of MDR-TB, especially in those areas in China where DOTS has not been implemented. The data confirmed that prior anti-tuberculosis therapy is a strong predictor of drug resistance. The report recommended surveillance of drug-resistant TB to be a priority in order to timely detect areas of emerging resistance.

After the first Nujiang TB program results became available, extensive discussions within MSF and between MSF, its counterparts and (Chinese) TB specialists took place about the problem of MDR TB. The convenience sample study of sputum sample drug sensitivity testing of July 2000 could not easily indicate or estimate an underlying problem of MDR in the project, because the sample was very small and the quality of the test results was under discussion.

The project had a large proportion of retreated TB cases over-time therefore the problem of MDR was thought to be an explanatory factor for low cure rates. Until it became clear that Amsterdam would not support a study to try to get more information on the magnitude of the problem, no practical recommendations were made towards the category 2 patients. Only in September 2001 the TB specialist recommended to no longer enroll failed category 2 patients another time in the program.

This worrying question remained unanswered. Did the program have low cure rate because of MDR or were there low cure rate because DOTS was not correctly implemented and thus creating MDR?

The other worrying fact remaining is that Nujiang prefecture has insufficient financial resources to effectively fight TB. Drugs, especially second line, are too expensive to afford for the affected population.

**Recommendation:**

- In order to get more insight in the MDR problem in the area MSF could have been testing one cohort of category 2 patients that were not converting after 3 months. These patients could have been treated according to their resistance patterns.
- To continue advocacy actions for better, shorter and easier treatment of TB through the Access to Drugs Campaign.

<sup>i</sup> Source not stated at the document, but information confirmed by interviews.

<sup>ii</sup> Trip Report Nujiang prefecture, Yunnan. MSF and Yunnan Red Cross. November 1997.

<sup>iii</sup> Country Management Team meetings, May-December 1999.

<sup>iv</sup> E-mail HoM/MD to TB advisor/HA. September 14 and 15, 1999.

<sup>v</sup> Policy on TCM for MSF-Holland, September 1999.

<sup>vi</sup> Description of Traditional Chinese Medicine (TCM) therapy for TB in Yunnan by Sebastian Oliver Davidson, 1999.

- 
- vii Letter MD to PC, August 2000.
  - viii Interview LogCo, April 2002.
  - ix Interview TB supervisor, April 2002.
  - x Revised project proposal for Nujiang TB assistance project, February 2001.
  - xi Meeting MSF with WHO, April 2001.
  - xii Anti-tuberculosis drug resistance in the world, report No. 2, prevalence and trends. Communicable diseases WHO, 2000.

## **Pillar V. Monitoring system for program supervision and evaluation**

### **V.1. Findings**

#### **A. Prior to MSF involvement**

##### **Recording and reporting**

The Provincial TB guidelines of 1998 requested monthly reporting from project supervisors to be submitted the first day of every month. In the registration book (1st day - last day of the month) only patients meeting the project criteria had to be registered. The forms (sputum testing etc.) had to have registration date, name of patient, station name, name of person filling in the form and an official stamp on it. Two copies of all reports should be made, one to be kept and one for the TB department.

#### **B. Assessment and design phase** (before March 1999)

##### **Epidemiological data**

A survey in Fugong County in 1989 found a prevalence rate for pulmonary TB of 536/100,000. A small survey in 1994 in Mujiajia village in the same county, revealed 23 active TB cases out of a population of 1,003. Case reporting has been compulsory since 1997 and has resulted in 312 cases for the whole prefecture in 1997 (69/100,000) and 132 cases from January till May in 1998. Although these figures may be inflated to some extent by wrong diagnoses (e.g., old, inactive cases), the actual number is likely to be much higher when considering that patients who cannot afford treatment (which seems to be the majority!) are not registered nor reported. The number of cases reported in Gongshan alone was 5 (15.2/100,000) for 1997 and 5 for January till May 1998. Two deaths (not on treatment) were reported as well. These low figures, against the background of being the most remote and poorest of the counties, are most probably the result of serious under-reporting. According to the national 1990 TB survey the morbidity rate in Yunnan province (total population approximately 40 million) for pulmonary TB was 538/100,000 and for smear positive TB 77.7/100,000 (compared with '79 an increase of 42% and 21% respectively). The case fatality rate was 4%<sup>i</sup>.

Although data on TB in the prefecture was unreliable, the trip report of the Health Advisor (referred to as second assessment) considered sufficient evidence on the rising prevalence of TB in Nujiang, especially in two of its four counties (Fugong and Gongshan), to recommend the start of a TB program<sup>ii</sup>.

##### **Recording and reporting**

Eighteen indicators were formulated in the Project Proposal of March 1999 to monitor achievements over the 18 months of the project duration. Most of them were quantitative medical indicators (see box).

1. >85% cure rate of sputum positive cases by the end of the project;
2. 60/100,000 sputum positive patients on treatment during project (1990 average incidence rate as estimated by WHO for China) by the end of the project;
3. Comprehensive TB control guidelines agreed upon and ready after 2 months;
4. Basic TB Dep. set up at prefecture and two counties level after 4 months;
5. At least 2 trained TB supervisors still working in each TB Dep. after 18 months;
6. >95% of patients diagnosed in general health care system referred to TB Dep.;
7. >90% of new project patients correctly registered and reported;
8. At least 1 supervision visit by Prefecture TB staff to each county per two months during last 12 months;
9. Correct monthly TB reports received by the Prefecture TB Dep. during last 12 months;
10. One functioning sputum laboratory, incl. 1-2 TB staff who are trained in sputum testing, in each TB Dep. after 4 months;
11. Overall accuracy rate of sputum tests >96%;
12. 90% of follow-up sputum tests done in time;



13. No breaks in supply lines of TB drugs during the project;
14. <10% defaulter rate;
15. < 90% regular treatment rate;
16. >85% sputum conversion rates after 2 (new cases) and 3 months (retreatment cases) during the whole program;
17. All 15 townships and 83 administrative villages in the two counties are in the possession of publicity materials after 9 months;
18. Reliable reports and witness accounts about publicity activities from all townships and 70% of the administrative villages after 12 months.

### **C. Set- up phase**

#### **Recording and reporting**

##### *Responsibilities of Counterparts*

The July 1999 guidelines<sup>iii</sup> defined the responsibility of the TB supervisor to ensure accurate and systematic record keeping. This involved: completion of the MSF assistance project initial consultation register, the MSF assistance project laboratory registers and MSF assistance project patient registers. Report writing was required according to Chinese standards for TB control and in line with the MSF Nujiang assistance project standards.

Patient Treatment Cards had to be filled out at the start of treatment by the TB supervisor and were monthly checked. Other records to be kept were: supervisor visits reports, incentive payment accounts and records, patient deposit accounts and records, drug consumption and stock keeping records and records of laboratory equipment and reagent stocks.

Village Doctors or Township Doctors were to record dosages, problems and defaulting on the patient cards, while visiting the patient.

##### *Responsibilities of MSF*

MSF field staff wrote monthly field reports, Project Coordinators either monthly or two monthly progress reports and Head of Missions wrote quarterly<sup>12</sup> reports that had to be sent to the Amsterdam Operational Director.

### **D. Implementation phase**

#### **Epidemiological data**

TB in Nujiang Prefecture attacked 1516 people from the year 1997 to 2000, 493 alone were found in 2000, the morbidity rate is 107.2/100,000. The prefecture AES did a survey among 1350 specific people in the town of Liuku in June of 2000, 47 patients with symptoms were found, the morbidity was 380/100,000, the morbidity of smear positive was 518/100,000. The national morbidity rate of TB is 523/100,000, the morbidity of smear positive is 134/100,000; Yunnan's TB morbidity rate is 538/100,000, the morbidity of smear positive is 77/100,000. The situation in Nujiang is very serious, the morbidity rate of Nujiang is 6.7 times higher than the average country level. There are 200,000 active pulmonary TB patients in Yunnan, 28,000 are very infectious, more than 7000 people die of TB each year. The youth occupied 76% of 6 million TB patients in China<sup>iv</sup>.

<sup>12</sup> Only the reports on field project progress are mentioned. Next to the usual MSF reporting to Amsterdam (financial reports and situational reports), many other reports were required in the country like ToR for field trips, field trip reports, etc.

## Recording and reporting

### *Responsibilities of Counterparts*

There were no forms for the monitoring the supervision of DOTS of the VD/TD by the TB supervisor, like there were for the monitoring of the patient. Keeping the copy of treatment cards by TB supervisors and the original by VD or TD of the patients updated was done conscientiously but gradually slipped towards the end of 2000. Treatment cards were more and more not present on fieldtrips, or even not found and were filled out in such a way that it was hardly possible to draw accurate conclusions.

### *Responsibilities of MSF*

In the quarterly report of April 2000 most indicators were reported to be achieved, except for the sputum conversion at 2 months, which was 42,5 (target >85%). The project was extended until September 2001 to allow adequate time to treat a large number of patients and to widen the scope of the project (advocacy and sustainability). At the end of April 2000, 73/100.000 sputum positive patients were on treatment.<sup>v</sup> At the end of August 2000, these were 106/100.000.

In response to the midterm evaluation (December 2000) MSF was confused about the intended definition of "case detection". At the time there was no information from surveys to allow estimation of the annual risk neither of infection nor of a true detection rate.

After the mid term evaluation new guidelines were drawn. The hope for the Nujiang project to become a pilot project was removed from the original text.

In the September 2000 quarterly report a remark was made that the project proposal was not addressing the higher objectives of advocacy and sustainability yet. The focus had been on the evaluation of the work and strengthening DOTS after finding low sputum conversion rates. The only difference in the reporting of the indicators was that the sputum conversion at 2&3 months was 64%.

MSF expressed in November 2000 the need for writing results of sputum tests in the registers as soon as they are available in stead of transferring them from one piece of paper to the other before properly recording them<sup>vi</sup>, since through the reviewing of the registers incorrect record keeping was revealed. In December 2000 it was felt urgent to have some form of standardized data/information reporting to the Health Advisor in future (e.g. regular report made to authorities, bi-monthly medical report format).

In the MSF year 2000 report the remark was made that the project indicators were based on unreliable epidemiological data. The information given on the indicators was much clearer than in the previous reports.

- 6: >95% of patients diagnosed in general health care system referred to TB department after 18 months → is not assessed, and
- 7: >90% of new project patients correctly registered and reported → is achieved by prefecture standards, but not achieved by DOTS and MSF standards
- 8: Supervision visits not achieved
- 9: TB reporting achieved according to prefecture requirements standards not to MSF requirements
- 12: not achieved
- 14: defaulter rate FG: 6% =OK, GS: 18% = not OK
- 16: not achieved. FG at 2M: 43%, GS at 2M: 32%, FG at 3M: 15%, GS at 3M: 20%.
- 17 & 18 achieved, except for Dulong Valley.

Conversion rates have been lower than the WHO acceptable minimum and alongside the supervision problems cases of multi-drug resistance were found.

In the beginning of 2001 all indicators were reformulated from quantitative to:

- Implementation of DOTS as per system currently in place;

- Using the gained experience, our concerns on TB treatment and drug resistance raised with WHO, Chinese authorities and other relevant actors;
- Advocacy for and promotion of prefecture initiatives to control over-the-counter drug supply and improve partnerships with private practitioners;
- Investigation and lobbying for quality TB drugs throughout China;
- Context monitored and changes analyzed in relation to neighboring Burma.

In September 2001 exactly the same quantitative indicators as used in the beginning of the project were back in the quarterly reporting<sup>13</sup>.

In December 2001 the request to have standardized data reporting was forwarded to the Health Advisor and TB specialist. The medical staff found it difficult to have all project data since January 2000 analyzed consistently and double-checked.

## V.2. Conclusions and Recommendations

The project started with unreliable data, no reported efforts were made to perform either (simple) prevalence studies by MSF in order to come up with more accurate data<sup>vii</sup>. The project was started on the assumption that 75 patients would be treated during the initially planned 18 months of the program.

### **Recommendation:**

- If (baseline) data is too scarce and/or unreliable to roughly estimate the project volume, the project should have started as a small pilot in order to get more insight in the prevalence in the area.

Assistance project objectives were not composed and progress in that respect not monitored. When advocacy objectives came in the proposal no clear indicators were formulated. In the original project proposal the objectives were monitored using medical quantitative indicators. Some of them were not verifiable. If assumptions were made these should be explicitly mentioned.

E.g. IEC coverage was based on the campaigns that were done in the townships under the assumption that the villagers would come to the townships at market days.

### **Recommendation**

- In an assistance program clear management objectives and indicators (based on a strategy) should be formulated.
- In formulating indicators for measuring effectiveness of your project, the sources of verification will determine the reliability and verifiability. Better use proxies and qualitative indicators than immeasurable or unreliable quantitative indicators!

<sup>i</sup> Final Draft Project Proposal, Tuberculosis intervention assistance program, Fugong and Gongshan counties, Nujiang Prefecture, Yunnan Province P.R.China. MSF-Holland; March 1999.

<sup>ii</sup> Trip report, MSF-H Health Advisor; 14-30 June, 1998.

<sup>iii</sup> TB control guidelines for the MSF Nujiang TB assistance project, July 1999.

<sup>iv</sup> The Current TB Situation of Nujiang Prefecture TB Department of Nujiang Prefecture AES. February 2001.

<sup>13</sup> The Head of Mission changed.

- 
- v Quarterly report May 2000.
  - vi MedCo field visit report, November 2000.
  - vii Interviews MSF staff, March 2002.

## **ANNEX 1 Terms of Reference**

### **TERMS OF REFERENCE, MARCH 2002 EVALUATION OF NUJIANG TB ASSISTANCE PROGRAMME IN CHINA**

Annette Peters

#### **1. Responsibility and lines of communication**

The evaluation is asked for by Kenny Gluck, Operational Director at HQ responsible for China and Annette Peters the Head of Mission for MSF-H in China.

#### **2. Context and history**

MSF Holland visited Nujiang prefecture for the first time in 1997. Following an assessment and discussions during 1998, a Memorandum of Understanding (MoU) was signed by MSF-H and its counterparts; the Nujiang Prefecture Public Health Bureau located in Liuku and the Public Health Bureau's in Fugong and Gongshan Counties, in March 1999. The Nujiang TB assistance program was initiated for initially a project period of 18-month. There after three additional MoU's were signed between MSF-H and its counterparts whereby the last MoU reveals the end of project date: July 2002.

During the implementation of the Nujiang TB assistance program repeated low cure rates (<60%) were registered. Professor Zhao, a Chinese member of the Expert Advisory Panel on TB in Beijing, was approached to conduct a mid-term evaluation of the program in August 2000. As a result the project guidelines were revised and fully implemented by February 2001. Unfortunately, these changes had little impact on the treatment outcomes and the project indicators to improve the cure rates to meet the WHO recommended minimum level of 85 %. Therefore, the MSF-H TB Advisor was invited to carry out a second evaluation/assessment in August 2001.

The conclusion of the evaluation/assessment revealed that despite the efforts made by MSF-H and its counterparts, cure rates had failed to improve substantially even though new guidelines and working methods had been implemented. Additionally a major concern was raised to whether MSF-H contributed to Multi Drug Resistant (MDR) TB in Nujiang Prefecture.

A combination of unacceptably low cure rates through out the whole project period and the possible negative contribution to MDR TB in the region made MSF-H to decide to stop the enrolment of new tuberculosis patients as of September 17, 2001. This decision was taken unilaterally by MSF-H without involvement of the counterparts at any stage of the process.

#### **3. Purpose of the evaluation**

The purpose of the evaluation of the Nujiang TB program is to analyze the causes of program failure and the possible *harm done to the population*, in order to generate debate within MSF-H and national/international counterparts on the lessons to be learned.

#### **4. Scope**

- The evaluation will document, review and analyze the history of the Nujiang TB assistance program
- The evaluation will analyze the program choice, its design and implementation
- The evaluation will analyze the role of the counterparts during the program period
- The evaluation will analyze decision-making strategies taken by CMT members, medical advisors/medical department in Amsterdam and Operational Directors responsible for the China mission

- The evaluation will identify and advise on lessons learned and initiate debate on changes towards the implementation of TB programmers within MSF-H
- The evaluation will identify key strength and weaknesses in the Nujiang TB program to help initiate debate with our counterparts on possible choices for an accountable TB control strategy in Nujiang Prefecture
- The evaluation will identify key strength and weaknesses in the MSF-H supported Nujiang TB program to assist in the planned evaluation of the MSF-Holland strategic review of China

## 5. Key questions

### Appropriateness:

- Was the outpatient DOTS program strategy appropriate according to the perception of the target population and the location?
- Was the assistance program set-up an appropriate approach for MSF-Holland?
- Which MSF policies applied and to which extend did they determine the design and implementation of the project? Was the MSF policy appropriate?
- Were cultural perceptions and relevant customs of beneficiaries assessed and taken into account?

### Connectedness:

- Was the project organized in a way that ensures optimal participation/ responsibility of Nujiang counterparts and the local/target population?
- What local resources were identified? How did the project connect with them?
- In how far were local resources and coping mechanisms strengthened to take responsibility for the health of the beneficiaries after MSF leaves?

### Effectiveness/impact:

- Was the project purpose, in terms of medical and/or advocacy achieved? Were the activities carried out as originally planned?
- Were there any unforeseen/foreseen negative or positive side effects?
- Did we make the right and timely adaptations in response to the changes in the project environment? Did we follow them through?
- Did our presence have any unforeseen harmful impact?
- How do the achieved result compare against quality standards, as defined in internal guidelines (WHO)?
- Was there an appropriate response to the low cure rates from CMT, Medical Advisor and Operational Directors? Has the demand driven model hindered appropriate response?

### Coherence:

- Which were MSF's partners while implementing this program and what were their roles? (see organigram trip report Yared August 2001)
- Which other humanitarian actors were involved directly or indirectly? How were respective activities/roles co-ordinated? Where there any gaps, overlap in services?

Coverage:

- To which extent did the project activities reach the specific target population?
- To which extent did beneficiaries have access to project services?
- Was anyone excluded from our services?

Efficiency:

- Were management guidelines followed? In how far did they facilitate the achievement of the objectives?
- Could the activities or results have been achieved at lower costs? Were inputs and resources used to their maximum potential?
- Were human resources managed well (timely filling of vacancies, good balance between qualified and volunteer staff etc)
- Was the support required, offered and received from HQ adequate?

## **6. Methodology**

This evaluation requires both a quantitative and qualitative methodology, whereby the quantitative part forms the basis of the evaluation, supported by a qualitative component. The quantitative component will analyze the 355 patients enrolled in the program and the strategic changes made during the program implementation and the affects of these changes. The qualitative part will analyze program choice, design and implementation as well as the decision-making strategies taken by the various departments, by means of key-informant interviews – internally and externally. The focus of this evaluation will be on the management aspects of the program.

- Review of program related internal and external documents (see reading materials)
- Review the cohort data of Nujiang TB program
- Review of health policy documents
- Interviews with key informant MSF staff in China
- Interviews with key informant MSF staff who have previous been part in the decision-making process (CMT members, Medical Department and Operational Directors)
- Interviews with representatives of local authorities at Kunming, Nujiang prefecture and Fugong and Gongshan county level
- Interviews with representatives of target population, focus group
- Interviews with representatives of other (international) NGOs and WHO, Beijing
- Direct observation of the project activities/site

## **7. Profile of the evaluator**

For this evaluation we are looking for an internal MSF consultant with an affinity in TB program, possibly with a medical background.

### **Requirements:**

- Research background
- Affinity and expertise in development
- Good communicator
- Analytical skills
- Able to provide constructive criticism
- Able to balance strong and weak points
- Good writing skills
- Excellent English language skills, Mandarin is an asset

## **8. Planning**

The evaluation is planned to take place between March and May 2002. The reason being that the Team Leader needs the month of March to categories all data available in the program and the first week of May is a national holiday.

- Preparation phase: 8 days (second half of March 2002)

The evaluator will start with the literature review and interviews of key informants in the Amsterdam office. When applicable the TOR will be fine-tuned. A draft outline of the report will be made and discussed.

- Field phase: 3-4 weeks (April 2002)

The evaluator will visit China. It is expected that approximately 3-4 weeks will be required to collect the information since the traveling time within the country are long.

- Integration/reporting phase: 10 days (first half of May 2002)

Upon return in Amsterdam, all collected data will be integrated and analyzed. When required, more interviews will be carried out with key informants.

- Feed-back phase: 5 days (second half of May 2002)

The draft report will be circulated among all key staff involved in the China program. Their feedback will be asked to correct factual errors in the report. The evaluator will make the final report.

- Presentation: 2 days (second half of May 2002)

The evaluator will be asked to present the findings to the MT and those involved.

## **9. Report**

The final report should be 20 pages, excluding annexes. It should contain an executive summary of 3 pages. A draft outline of the report will be prepared by the evaluator during the preparation. The final report is expected to be ready by mid June 2002.

## **10. Recommended reading materials**

- Memorandum of Understanding, **March 1999 and September 2000**
- Annex to the Memorandum of Understanding, **January 2001**
- Memorandum of Understanding, **January 2002**
- Tuberculosis intervention assistance program, Fugong and Gong Shan Counties, Nujiang Prefecture, Yunnan Province, P.R. China, **March 1999**
- Revised project proposal for Nujiang TB assistance project, **February 2001**
- MSF Nujiang TB assistance project, Tuberculosis control guidelines, **January 2001**
- Proposal to evaluate the feasibility of MDR TB treatment within the MSF Nujiang TB project, **October 2000**
- Mid-term evaluation report, **August 2000**
- Response to mid-term evaluation, **December 2000**
- MSF-Holland PHD consultancy report, Yared Kebede, **August 2000**

*Additional reading material will be provided*



## ANNEX 2 Itinerary and persons met during the evaluation

1 April	Arrival (afternoon) of Gunilla in Kunming.
2 April	Meet with Gunilla and discuss the expectations and the methods of the evaluation. Adjusting the itinerary.
3 April	Meetings and preparation of meetings.
4 April	Discussion on TB data, reporting and analysis. Office discussions, reading files. Meetings. Evening flight to Baoshan. Spend the night in Baoshan.
5 April	Travel by car to Liuku. Meetings.
<b>6 April</b>	Travel by car to Fugong. Spend the coming two weeks in Nujiang Prefecture (Fugong city and Gongshan city). Study files, preparations and discussions.
<b>7 April</b>	Day off.
8 April	Study files, TB data and TB data reporting, prepare discussions with Fugong and Gongshan counterparts. Spend night in Fugong apartment.
9 April	Fieldtrip in Fugong County. Spend night in Fugong apartment.
10 April	Travel by car to Gongshan. Fieldtrip to Puladi and Lazao. Spend night in Gongshan “Green mountain hotel”.
11 April	Fieldtrip to Dala. Spend night in Gongshan “Green mountain hotel”.
12 April	Fieldtrip to Puladi. Travel back to Fugong. Study files, prepare discussions. Spend night in Fugong apartment.
<b>13 April</b>	Study files, prepare discussions. Spend night in Fugong apartment.
<b>14 April</b>	Study files, prepare discussions. Spend night in Fugong apartment.
15 April	Study files, TB data and TB data reporting. Spend night in Fugong apartment. Have focus group discussions with mountain people and inhabitants of Fugong city.
16 April	Study files, TB data and TB data reporting. Spend night in Fugong apartment. Have focus group discussions.
17 April	Meeting with Fugong and Gongshan Public Health Bureau directors as well as Prefecture PHB director. Spend night in Fugong apartment.
18 April	Meeting with Fugong and Gongshan Anti Epidemic Station Director and senior TB supervisor. Spend night in Fugong apartment.
19 April	Wrap up in Fugong. Afternoon travel to Liuku. Meetings. Banquet with Mr. Lidong, Sheng, general secretary Nujiang Red Cross Mr. Gao and two doctors trained in Chinese Medicine and western medicine and being colleagues of Mr. Sheng. Spend night in Liuku “Nujiangmingzheng hotel”.
<b>20 April</b>	Attend a fair with the theme “science in Yunnan”. Afternoon travel to Dali. Spend night in Dali, old town.
<b>21 April</b>	Day off. Afternoon bus to Kunming. Spend night Kunming apartment.
22 April	Feedback meeting, and discussions in Kunming Office. Spend night in Kunming apartment.
23 April	Preliminary findings and inforamatory meeting. Prepare and arrange meetings Beijing. Spend night in Kunming apartment.
24 April	Morning flying to Beijing. Afternoon meeting.
25 April	Day off.
26 April	Morning meeting. Noon arrival of Annette in Beijing. Afternoon meeting. Spend night in Beijing hotel.
<b>27 April</b>	Gunilla travels from Beijing to Hong Kong.
<b>28 April</b>	Day off.
29 April	Afternoon meeting.

Date	Name	Title	Working unit
------	------	-------	--------------

March 22 <sup>nd</sup>	Diane Rutter <sup>14</sup>	former Medical coordinator & former Head of Mission	MSF Holland
March 21 <sup>st</sup> & March 25 <sup>th</sup>	Michiel Lekkerkerker	Health Advisor	MSF Holland
March 24 <sup>th</sup>	Fiona Lindsay <sup>15</sup>	former Project Coordinator	MSF Holland
March 27 <sup>th</sup>	Maarten Groot <sup>16</sup>	former Medical Coordinator	MSF Holland
March 26 <sup>th</sup>	Yared Kebede	TB advisor	MSF Holland
March 26 <sup>th</sup>	Wilna van Aartsen	former Operational Director	MSF Holland
April 2 <sup>nd</sup>	Annette Peters Nina Cheng Hong	Head of Mission Assistant HoM	MSF Holland
April 3 <sup>rd</sup>	Mr. Xia Guanghui	Director	YN CDC
April 4 <sup>th</sup>	Mae Zhou	Manager	Futures Group (former MSF med-co assistant)
April 4 <sup>th</sup>	Mr. Sheng Xinming	Director	TCM institute (Former YTBI director)
April 4 <sup>th</sup>	Lieuwe Montsma	LogCo	MSF Holland
April 5 <sup>th</sup>	Mr. Li Dong	Vice director	Nujiang PHB
April 7 <sup>th</sup> & 8 <sup>th</sup>	Pieter de Hoop	Logistician	MSF Holland
April 9 <sup>th</sup>	Mr. Heng Mingjiang	TB supervisor	Fugong county AES
April 9 <sup>th</sup>	Qia De Ye	Patient	Lishadi township
April 10 <sup>th</sup>	Yu Maorong	Patient	Lazao village, Puladi township
April 10 <sup>th</sup>	Yang Wenzhong	Township doc	Puladi township hospital
April 10 <sup>th</sup>	Xiao Weng Gua	Patient	Puladi township school
April 10 <sup>th</sup>	Yu Zhi Qing	Patient	Puladi township school
April 10 <sup>th</sup>	Sister Yu Zhi Qing	Patient	Puladi township school
April 11 <sup>th</sup>	Peng Jixuan	Patient	Dala, Bingzhongluo township
April 11 <sup>th</sup>	Li Chunliang	Township doc	Bangda township hospital
April 12 <sup>th</sup>	He Zhirong (Xiaodulong)	TB supervisor	Gongshan AES
April 12 <sup>th</sup>	Miss Wang Wenyue	TB supervisor	Gongshan AES
April 12 <sup>th</sup>	Mr. Wang	Headmaster	Puladi township middle school GS
April 12 <sup>th</sup>	Mr. He	English teacher	Puladi township middle school GS
April 15 <sup>th</sup>		Mountain people and inhabitants of Fugong city	
April 16 <sup>th</sup>		Teacher, Students and Villagers	Fugong Middle School Yu Gui Sheng's village
April 17 <sup>th</sup>	Mr. Huang Zheng	Office director	Gongshan county PHB
April 18 <sup>th</sup>	Mr. He Jinquan	Director	Gongshan AES
April 18 <sup>th</sup>	Guang Shouxian	TB supervisor	Fugong county AES
April 19 <sup>th</sup>	Mr. Ou Zhiming Mr. Lidong	Governor Vice director	Nujiang prefecture government Nujiang PHB
April 19 <sup>th</sup>	Mr. Sheng Xinming	Director	TCM institute (former YTBI director)
April 22 <sup>nd</sup>	Annette Peters Carolien Sorel Lieuwe Montsma	HoM FinCo LogCo	MSF Holland
April 23 <sup>rd</sup>	Ms. Ren	Vice director	Yunnan Centre for Disease Control (YCDC)
April 23 <sup>rd</sup>	Ms. Xu Yan	Vice Director (technical)	Cooperation project office Yunnan CDC

<sup>14</sup> Telephone interview

<sup>15</sup> E-mail message

<sup>16</sup> Telephone interview

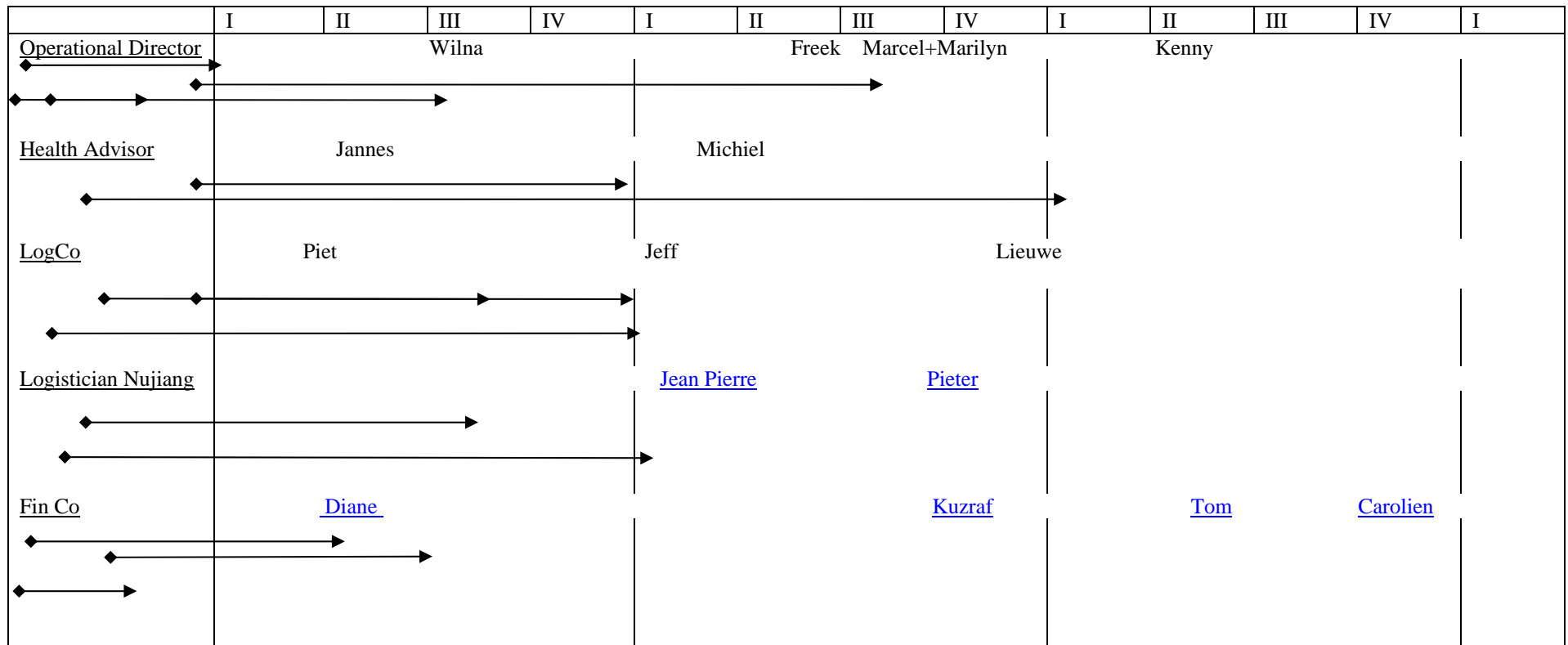
April 23 <sup>rd</sup>	Ms. Sun	Staff member	YINGOS
April 24 <sup>th</sup>	Mr. Duanmu Hongjin	Executive Director	National TB institute
April 26 <sup>th</sup>	Prof. Zhao Fengzeng	Director	Division of TB control Chinese national CDC
April 26 <sup>th</sup>	Mr. Wang Shiyong	Health advisor	World Bank Beijing office
April 29 <sup>th</sup>	Daniel Chin	Country advisor on TB	WHO Beijing office
April 29 <sup>th</sup>	Dick van der Tak	former Head of Mission	MSF Holland
May 3 <sup>rd</sup>	Lieuwe Montsma	former Logistical Coordinator	MSF Holland
May 22 <sup>nd</sup>	Martin Rieder	former Medical Coordinator	MSF Holland

### ANNEX 3 Expatriate staff overview

	1999				2000				2001				2002
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I
<u>Head of Mission</u>	Dick				Jane		Diane		James		Annette		
<u>MedCo</u>	Maarten		Diane		Martin				Marina	Robert			
<u>Project Co Nujiang</u>									Lisa				
<u>Gongshan MD</u>	Johannes				John		Ute		Lisa	Judith			
<u>Fugong nurse</u>					Denise		Kelly		Ruth				

name = person in function, ◀—▶ = period in function, ●—● = period without some-one in the function  
name = person 1<sup>st</sup> time working for MSF, name = person 1<sup>st</sup> time in this position

	1999	2000	2001	2002
--	------	------	------	------



name = person in function, ◆→ = period in function, ●—● = period without some-one in the function  
name = person 1<sup>st</sup> time working for MSF, name = person 1<sup>st</sup> time in this position

#### ANNEX 4 Distance to supervisor (Gongshan 2001 map)

ID	Address	DOTS	Sex	Age	Cat.	Outcome	Distance Patient-DOTS sup. in minutes (walk)	Distance Patient-VD if Fam. sup. in min. (walk)	Distance VD/Fam. sup. to TD in minutes (walk)	Distance VD/TD to AES in minutes (walk or bus)	Distance for alternate day supervis.	Distance monthly superv. (sputum and drugs)	Total distance of supervisory process
1006	QuiNatong	Family	M	40	1	Cured	3	300		<u>90</u>	far	far	<b>very far</b>
1007	Wuli	Family	F	20	2	Cured	3	240		<u>90</u>	far	far	<b>very far</b>
1015	Binzhongluo	TD	M	57	1	Died	?	?		<u>90</u>	?	far	?
1021	Dala	Family	M	16	1	Failure	1	80		<u>90</u>	far	far	<b>very far</b>
1003	Pengda	VD	M	38	2	Default	3		45	45	medium	medium	<b>far</b>
1019	Pengda	TD	F	30	2	Completed	30			45	close	medium	<b>medium</b>
1012	Dimaluo	VD	F	30	2	Cured	10			<u>90</u>	close	far	<b>medium</b>
1010	Cikai	TD	M	24	2	Failure	10			30	close	close	<b>close</b>
1011	Cikai	TD	M	25	2	Default	10			30	close	close	<b>close</b>
1013	Cikai	TD	M	22	1	Cured	20			20	close	close	<b>close</b>
1016	Cikai	TD	M	27	1	Cured	10			5	close	close	<b>close</b>
1017	Cikai	TD	M	7	1	Completed	10			5	close	close	<b>close</b>
1018	Cikai	TD	F	18	2	Register out	3			20	close	close	<b>close</b>
1020	Cikai	TD	M	28	1	Failure	1			identical	close	close	<b>close</b>
1024	Cikai	TD	M	37	1	Cured	20			25	close	close	<b>close</b>
1004	Quida	VD	M	20	1	Failure	1			90	close	far	<b>medium</b>
1009	Quida	Family	M	23	1	Completed	1			120	close	far	<b>medium</b>
1023	Cikai/Puladi	TD	M	13	1	Failutre	10			<u>20</u>	close	medium	<b>medium</b>
1014	Puladi	TD	F	29	2	Cured	1			<u>20</u>	close	medium	<b>medium</b>
1025	Puladi	TD	M	30	2	?	10 (60 when home)			<u>20</u>	close	medium	<b>medium</b>

1001	Lazao	VD	M	25	1	Cured	30			<u>40</u>	close	medium	<b>medium</b>
1002	Lazao	VD	M	26	1	Cured	10			<u>40</u>	close	medium	<b>medium</b>
1005	Lazao	VD	M	8	1	Cured	240			<u>40</u>	far	medium	<b>far</b>
1008	Lazao	VD	M	17	1	Cured	5			<u>40</u>	close	medium	<b>medium</b>
1022	Lazoa	VD	M	18	1	Cured	15			<u>40</u>	close	medium	<b>medium</b>

**far** = more than 60 minutes walk or more than 40 minutes drive  
**medium** = 45-60 minutes walk 20-40 minutes drive  
**close** = less than 45 minutes walk or less than 20 minutes drive

close + close = **close**  
close + medium = **medium**  
medium + medium = **far**  
close + far = **medium**  
far + far = **very far**

## ANNEX 5 Yunnan health care system and TB program structure

