An extract From:

BHOPAL: THE IMAGINATION OF A DISASTER

Shiv Visvanathan
with
Rajini Kothari

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Between the muteness of the victim and the propogadistic erasure of the State stands the voluntary organization.

Voluntarism attempts to create an ethical space, an ecological niche where the victim as survivor marked by the stigma of the disaster can grieve, mourn, remember and recover. But the voluntarist is more than a mourner. He realizes that the victim becomes in the aftermath of a catastrophe, the focus of a grid, the huge apparatus of health and social welfare seeking to diagnose, survey and map him out. He seeks humanize and even alter the structure of such an expertise. One example of such an attempt is the effort to alter the relation between doctor and victim in Bhopal. The voluntarist realizes that much of the formal language of medical expertise is caught in the mechanics of cause and effect. He seeks to transform the idea of a clinical gaze, where the patients is spread out like a table of symptoms, into speech with its more encompassing concern for signs, symbols and symptoms. Through this he hopes to articulate the victim's conception of his own pain. One strategy adopted in Bhopal was to move the site of the analysis from a formal organization like a h hospital into the bastee itself. In the hospital, the patient is an isolated unit. Now he is a part of the community. Rather than being based ona formal reading of symptoms, cure and relief now become part of the socio-drama of a community. The doctor listens while the patient enacts out his pain amidst a chorus of familiar actors, Typical of sucha strategy is the work of the Medico Friends Circle. (MFC). Its report completed in May 1985 is probably the most sane, compassionate piece of scholarship on the problems of relief in Bhopal.

The MFC describes itself as a circle of health interested professionals united by the belief that the medical system is skewed in preference for the rich. It seeks to demystify medical expertise, decommercialize medicine, emphasizing community orientation of health care. Its basic survey was undertaken between 19-25 March, 1985.Its aim was three fold. It sought to uphold the idea of an expert as trustee, of science as publicly available knowledge. It articulated the pain of the victim and his/her idea of relief into a more integrated plan for medical rehabilitation. Thirdly, with true anthropological reflectiveness, it shows how conceptions of the patient, ideas of cause and effect, diagnoses and cure form an integrated consciousness, a gestalt as it were.

The survey began by studying the impact of the gas and in pursuing this they faced two sets of problems. Firstly, little was known about the properties of MIC and secondly, what little was known, was kept secret, It obtained with difficulty, Carbide's manuals which showed MIC to be a toxic gas undergoing runaway reactions when contaiminated. The voluntary groups publicized data available in such manuals. The MFC also launched a survey of the literature available. The doctors realized that the information available in them was incomplete and flawed. They referred to lung fibrosis and corneal damage as the only two long range problems of survivors. The voluntary groups also realized that government research, despite the

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fanfare, was sketchy and unsystematic. The ICMR's research appeared as "twenty or so vertical programmes, without integration into a wider conception of epidimeological community based endeavour" What was missing was a systematic rationale for detoxification by Sodium Thiosulphate.

It was in this context that MFC with the aid of other groups planned a community survey. It included a people's perception of medical services. The doctors also decided that a summary of findings and technical recommendations would be handed over to each person in the sample. The surveys of the MFC and those of the Delhi Science Forum and the Morcha showed the enormity of the crisis as a social situation. The studies of Jai Prakash Nagar showed that income levels had fallen drastically, that rates of interest were high. They proved that compensation was inadequate, even though at the high point of the crisis, it was the only source of income for many disabled people. The report argued that doles were not enough. The mechanical hydraulics of the dole could not return the community to it original condition. What was required was an imaginative scheme of occupational rehabilitation. Such a scheme could not be based on the wage that was earned before the exposure as indcator. It had to take into account long range physical disability, the mental traumas, the persisting sense of insecurity.

The MFC and othergroups were thus challenging the restrictive notion of health articulated by the government. The latter seemed to read the disaster in mere physical terms. What it refused to see was the psycho-social dimension of the disaster. "Thousand s of people have experienced mass death, mass morbidity, mass migrations, disruption of family and social life, escalations into an acute socio-economic financial crisis and literally a loss of moorings in society. Such an experience is bound to manifest itself in psychological, somatic and psychosocial morbidity whose long term management will probably be more crucial than treatmeat of physical ill health and disability".

The doctors of the MFC were true listeners, sensitive to the word and the sheer detail with which patients outlined these problems. The importance of this is brought out in the report "The words and examples used by the patients while describing their sysmptoms clearly showed the gravity of the symptom as well as its effect on the person's day-today work. The different manner in which the symptom was described also showed that the person was informing us of a problem based on his/her own experience and not just vague hearsay expressions. This is particularly important since in the absence of signs in the same proportion as symptoms, doctors attending on these people in busy government hospitals were often passing of these symptoms reported as 'compensation malignering' or not of clinical significance. We have every reason to believe that those symptoms were real expressions of physical and mental ill health and many should be accorded the same significance as the use of patterns of cough with or without expectoration on the diagnoses of Chronic brouchities or the use of Anginal history in the diagnosis of Ischaemic Heart Disease".

The conception of disease as a problem of the community, of the patient as diagnostician in his own right, contrasts with the conventional notion of the doctor as the sole interpeter of signs and symptoms, to which must be added the attitude of many doctors who perceived the behaviour of patients as malignering or compensation neurosis. These doctors prescribed "whole plates full of colorful capsules in a routine manner". The MFC survey eventurally shows how such contrasting perceptions quietly link up to two separate views of diagnoses and cure.

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The two basic theories were the Pulmonary theory and the Cyanogen pool theory. The Pulmonary theory is based on the current literature availabe on MIC, which indicated that fibroses of the lungs and corneal damage are the only long term effects to be expected. The impact on an any other system is, it holds, due to secondary effects. The Cyanogen pool theory contends that the impact is not one of Pulmonary fibrosis alone but a deeper cellular one, not merely confined to lungs. What is important for the analysis is the style of research underlying the two theories. The first operates in terms of the direct mechanics of cause and effect, the second in terms of deeper relations. The mechanistic theory of pulmonary impact is advocated by the establishment and government hospitals. The cyanogen pool theory finds its advocates among voluntary health specialists and dissident doctors.

But what is most fascinating is the manner in which text and context are related. Voluntary health specialists have repeatedly advocated that the focus of study should be suffering in the community, rather than the patient as an isolate in the hospital. The first they argue, leads to a holistic view of disease while the latter propagates a reductionist view of illness and an atomistic view of the patient. The latter view which underwrote the pulmonary model, is based on numerous vertical studies rather than an integrated search for interconnections. In a telling paragraph the MFC report suggests, "The approach of examining say 200 eyes or 200lungs and so on independent of one another lacks this integration. Strange it may sound, but it seems toderive the rationale-unconsciously-from the pulmonary model, wherin toxic gas directly hits the target organ (lungs, eyes, etc.) to produce damage without any intrinsic connections-which is at the heart of the'Cyanogen Pool' model".

It is this anthropology of gestalts that is fascinating about the report. What it offered were two clusters which deserve further exploration.

1. Patient as an analytical grid	Patient as Person
2. Clinical gaze of the doctors	Victim's speech aids diagnosis
3. Focus of diagnosis is the hospital	Focus of diagnosis is the Community
4. Diagnoses as mechanics of cause and effect	Diagnosis as an analysis of inter-relations
5. Pulmonary Model	Cyanogen Pool Model
6. Anti Thiosulphate	Use of Sodium Thiosulphate as a critical tool

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The experiences of the MFC, the Morcha and other groups demand that this has to be located within a wider political context. The problem of voluntarism has acquired a dramatic focus within a span of two months. The November riots and the December gas leak created a new objective situation which has to be understood within the theory of the State. The 'riots' in Delhi saw the formal emergence of the State as terrorist. The Bhopal gas leak revealed the complicity of the State in an act of industrial genocide. In both cities, the traditional corporate groups-the trade unions, the political parties, the

the universities-failed to act as a cushioning medium between state and the people. In Delhi, it was the civil rights groups, along with a network of feminists, journalists, university teachers and Jesuit priests which brought analytical clarity to the violence of the State and even provided relief to the victims. The situation in Bhopal was similar.

Caught in the grid of modernity, which sees industrialism as good and inevitable, the traditional corporate groups saw the victim as an embrassment. We must add however that political parties like the CPI did ginerly conduct a few demonstrations. Some student wings of leftist groups responded by conducting surveys and providing some medical relief. But one felt a whiff of self-congratulation here, as if a few dozen injections had transformed them to the status of a Kotnis. Most pathetic were the trade unions. So startling was the disaster, and yet so usd were they to negotiations with the management, that they refused to see that the normalcy of collective bargaining was inadequate to this situation. Eventually Carbide declared closure of the factory, offering the workers a nominal compensation. To add to this the railway unions had failed to claim even workmen's Dcompensation for the railwaymen who died on duty on December 3. The Railways passed the buck to the factory and vice versa. But the Workmen's Compensation Act is clear on this : the victims are entitled to relief irrespective of the source of damage. Such lethargy was typical of almost all the corporate groups as organisations, even if some of the individual members discarded these routine scripts.

The voluntary organizations had to substitute for these groups though one must add that few were self consciously equipped for such a task. Voluntarism in this contxt required a double responsiblity. It had toredeem not only the traditional idiom of power but also the repressive nature of modern knowledge. This point is crucial. As mediators between State and the people they are not only refractors of power but proponents of an alternative ecology of knowledge. It is not only the victims as politically defeated people that they had to protect but also their voice, their memory, their right to their own vernacular, pain and distress.

One fact needs highlighting. There is a distinctive quality about voluntarism in these new contexts. The voluntarism of the old Sarvodaya-social service kind no longer occupies a central place. In Bhopal, certain church groups , the Rama-Krishna Mission and the SEWA did perform important service but stuck grimly to traditional styles. They accepted the official procedures of medication, basically symptomatic treatment, including use of steroids and antibiotics and looked to the leadership of the government in all these activities. The Health Secretary's question "why can't the Morcha be like the SEWA ?" sums up this traditional and dedicated style. These organizations work as extensions of government relief and avoided confrontationist stances. The litmus test for such an attitude in Bhopal was the Sodium Thiosulphate controversy. All the above mentioned groups refused to administer these injections. The point we wish to make is that the new voluntarists were not content with relief. What they also sought seek was j justice for the victims. In this, the importance of socially c conscious professionals became obvious. In the Delhi riots, university social scientists, researchers and journalists provided an enormous data base which the State has found difficult to refute. In Bhopal too, the role of the professional as 'counter expert' has been crucial. These include health groups environmentalists, lawyers' collectives and peoples science movements.

REPRINTED FROM LOKAYAN BULLETIN, Vol. 3, No.4/5

13 Alipur Road Exchange Building, Delhi-110054

A report From Bhopal

Learning from the Relief Work

abhay bang*

An article in mfc bulletin on the Bhopal disaster is expected, by tradition, to focus on the political and economic reasons behind the tragedy. For such analysis the readers are recommended to read two excellent papers by Barry Castleman**. I shall also not attempt to investigate and describe the chronology of events. Newspapers have published a lot of information on that and I am no wiser than the journalists. As the title suggests I shall restrict myself to the relief aspect, that too mostly in relation to public health, for there were ample things to learn from that alone.

When the Gas Struck

When the gas struck at about 1.00 a.m. on 3rd December, people woke up with a severe sense of suffocation, cough and irritation in the eyes. Most of the deaths were instant due to suffocation or pulmonary edema. The worst hit were children, many of whom died in bed. The result of this cruel preference of the gas was that very few children remained orphan, because usually children died before their parents.

It is almost a universal law that the poorest live in dangerous areas. When a flood strikes, the people who live on low land and are the most affected are always the poor. Bhopal was no exception. People living in the immediate vicinity of this chemical volcano, were mostly slum dwellers. But besides this fact, two other disturbing pieces of information explain the very striking class distribution of the victims.

The residents of Jayaprakash Nagar slum which is the closest and the worst affected area, categorically state that at about 12 O'Clock midnight, all the workers in the union Carbide plant fled away in the factory buses but no siren was blown. It means factory staff came to know about the impending danger at 12 and safely escaped without warning people or the police. This may explain the strange fact that only one worker of the factory was injured by the gas when hundreds were working in the night shift.

Similarly, it is alleged that on coming to know of the danger, most of the police and other government officers and the ministers escaped out of Bhopal by the government vehicles at their disposal, instead of trying to warn or help the people. Rich also fled in their private vehicles. Those who did not have any vehicles, obviously the poor, had to face the gas.

The immediate effect of the gas on the survivors was irritation of the mucus membranes of eyes and the respiratory tract, leading to severe and widespread conjunctivitis, sometimes keratitis, and a large number of people with respiratory symptoms. Many also had vomiting. The medical personnel were in the dark about the harmful effects of methyl iso cyanate (MIC). They were not even certain whether it was MIC or phosgene gas: so the fear of the coming unknown effects was looming on everybody. 19 cases of CNS involvement were reported in the Hamidiya Hospital. This gives credit to the rumour that on autospy, cerebral oedema and haemorrhage were often found.

The Ongoing Relief and its Criticism

When we reached Bhopal on the morning of 5th December, the administration had overcome the initial shock and relief operations had begun. Hospital staff, interns, and medical students; various social and religious organisations had responded quickly. Food and blankets were being distributed freely. Dead bodies were being removed.

The first instinct of the medical profession naturally was to offer symptomatic relief to the sufferers. As the hospital was full with the dead or very serious, most of the relief work was done from temporary tents. About 100 such medical relief clinics were opened in the premises of the hospital or on the roads near the affected areas. Doctors were treating long queues of patients. The method was typically uniform everywhere, with some obvious shortcomings.

No case papers were made. Hence the identity of the patients, physical signs and the treatment given — nothing was being recorded. The reason offered was that the doctors were too busy treating people and records were not the priority in such a situation. The result of course was that medicines were distributed like toffees. One of us saw a child taking an injection and then running to his friends to boast that it was his sixth shot that day.

People were the first to recognise this deficiency and started losing faith in such totally adhoc and symptomatic treatment.

Interns and doctors running these clinics were not given any guidelines for treatment by the senior doctors. Hence they were using medicines in the most bizarre way.

No attempt was made to train or involve non-medical volunteers or family members. Thus for conjunctivitis, even eye drops were put in the eyes by the doctors alone. This resulted in an unending burden on the doctors; and the patients were able to

* Gopuri post, wardha dist Maharashtra-442112

** International Journal of Health Services Vol. 9, No 4 (1979) and Vol. 13, No 1 (1983)

get eye drops in their eyes once a day whenever they could reach the doctor through the long queue.

No certificates of death or disease were being issued. There did not even exist a reliable method of recording and counting deaths, which resulted in widely varying estimates of death from 2000 to 6000. This neglect may become a tremendous handicap to the poor to get compensation whenever that comes.

Besides the sheer magnitude of the problem, another reason for such erratic medical relief was that it was put in the hands of clinicians. When 200,000 people were affected, it was absurd to control the medical relief operation from the hospital by the medical superintendent. Though a very decent man, he thought that respirators were the most important need of the hour. The whole operation was carried out from the clinician's point of view. This resulted in such decisions as offering treatment in clinics expecting victims to come there. Clinicians can only see those who come to them and never know about those who don't come. This deprives them of the total view of the situation. We found that a large number of victims were not going to the clinics due to reasons like despondency, inability to walk because of severe eye problem or loss of faith in the quality of the relief offered.

This also meant that the real number of the people affected would never be known. The estimates of the number of patients treated varied from 65000 to 1,50,000 and each estimate may have counted the same patient many times and totally missed those who did not attend the clinics.

A quick and crude survey of the remaining residents of JP colony showed us that about 50% had eye problems and about 25% had respiratory symptoms. Surprisingly a large number of people, even those with minimum respiratory symptoms, had rhonchi and coarse crepitations in the chest. It seems that the irritation by the gas had produced chemical bronchitis and bronchopneumonia on a large scale. As many of such 'mild cases' were not being examined, clinicians in the OPD could fail to appreciate the widespread nature of the respiratory involvement. Unfortunately all these facts were not documented and hence, it seems, the real epidemiology of morbidity may never be known.

Alternative Plan

We planned a relief program to be run by SEWA, a local Women's organisation for a small but defined population. The main features were:

(A) Female social workers from SEWA visiting all the houses in a slum of 1000 families for

1. population enumeration
2. identifying dead, lost or moved out persons for compensation and economic rehabilitation of the family
3. screening of all persons for the presence of symptoms which started with the gas exposure and recording these
4. uncomplicated conjunctivitis and gastritis to be treated by the social workers, involving and training the family members in eye care and handing over a tube of eye ointment to them
5. identifying patients with suspected keratitis and patients with respiratory symptoms to be examined by doctor

(B) Doctor visiting all the houses, examining those with respiratory symptoms and suspected keratitis (identified by social worker), recording physical signs and treatment given. We thought that all the persons with rhonchi and/or crepitations should be given an antibiotic cover (preferably inj. benzathene penicillin) as they carried a great risk of catching secondary infection, similar to one after an attack of measles or influenza.

We thought that the treatment should be provided at home so that all the population will be identified, examined and treated, which can not happen in an OPD set up. This was specially important for the documentation of morbidity as many victims did not go to OPD.

(C) All the population to be followed up for coming few weeks to provide continuous care and recording complete impact of the tragedy.

Two doctors, three interns, four nurses and about ten female social workers could be mobilized and were explained the deficiencies of the ongoing relief operations; and the concepts and methods involved in the one planned by us. Forms for population enumeration and case records, and guidelines for survey and treatment were prepared and explained. Unfortunately I could not stay longer but felt that the plan was well explained and agreed upon by the team.

The experience

The experience of the next 10 days work, as reported by the social worker in charge of the operation was as follows:

- On the first day when the team went to the slum and started home visiting, doctors protested that it was not their job and they set up an OPD. At least half of the doctors could be pursued to continue home visiting
- Doctors could not accept the idea of social workers treating conjunctivitis and kept all the clinical work to themselves
- The doctors in OPD refused to write physical signs and diagnosis in the case papers on the ground that it would take time and the fact that the diagnosis could be guessed from their treatment
- The typical treatment given was:

: eye drops put once in a day by doctor or nurse;
: cap tetracycline one TDS for one day;
: tab B Complex;
: tab multivitamin;
: corticosteroid injection

— All the time saving devices in the plan like training and delegating easy tasks to social workers; using eye ointment which has longer duration of action than eye drops; using benzathene penicillin to ensure week long antibiotic cover, were stubbornly refused by the doctors. It was not possible for the social worker to over rule the medical supremacy.

The physical signs recorded by the doctors by home visiting were usually of poor quality. Some examples are:

— chest clear, crepts present

— mild crepts found (there is nothing like 'mild crepts')

— slight coarse crepts + ve

Each doctor used his pet expression and the recorded signs were monotonously the same in all the patients examined by the same doctor. Obviously the doctors did not examine sincerely or they were not at all sure of their findings of physical examination.

In spite of these short comings, this relief approach gained instant popularity mainly because it was the only place in Bhopal where case papers were being prepared and records maintained. People quickly realized its importance and even asked for records to be given to them. The relief authorities in the city brought foreigners to proudly show this operation.

Surprisingly and fortunately the tide of secondary infection did not occur anywhere and hence the death toll did not continue to rise after the first 3-4 days. The reasons for this reluctance on the part of micro organisms to invade damaged respiratory tracts are not understood. Antibiotic cover was either not given or was very inadequate for most of the affected persons; and hence, cannot explain the phenomenon.

After 10 days of working when the operation neutralization of the stored MIC started most of the relief work was wound up as the people fled away. At that time, eye problems had considerably reduced but the respiratory ones had continued, though at a reduced level.

I recently learnt that the ICMR has declared a decision to develop a plan of long term surveillance to find out the effects of gas exposure. That would be a stupendous but very valuable task, specially because industrial toxicologists in the West are predicting that 5 to 10 percent of the affected will have chronic respiratory diseases.

The compensation for death and disease may not be fully available to all due to lack of records or evidence.

Lessons

1. Organising mass medical relief in a disaster situation should be done not with a clinical approach but a population/community approach;
2. Persons in responsible positions should be trained for disaster management in anticipation;
3. There should be continuity in the planning and implementation of any program, the lack of which was responsible for improper implementation of our plan;
4. Record keeping and documentation is vital in all such operations;
5. Besides their well known bias against delegation, even the clinical performance of the doctors was a sad commentary on the outcome of medical education and the standard of the profession. One tends to question the right of objection by the medical profession to the use of auxiliaries or village health workers on the ground of the lack of professional training to them.
6. The Bhopal tragedy acts as a warning signal to all socially conscious persons that industrial hazards and pollution are no longer a remote problem restricted to the developed countries. As Barry Castleman points out in his earlier mentioned papers, developed countries are rapidly exporting their technology, production processes and products to the third world without proper safety measures or information and education to the people.
7. The Bhopal tragedy can be a powerful tool in the hands of environmentalists and consumer and citizens rights groups. A careful documentation of the ill effects — medical, social, economic and ecological — will go a long way to support the efforts of such groups.

Bangalore Meetings

1 mfc annual meet — 1985
Venue: Indian Social Institute
24 Benson Road, Benson Town
Bangalore 560046
Date: 27-28 January 1985
Theme: Tuberculosis and Society
(All are invited)
29-1-85: mfc annual general body meeting
(only members)
For registration, background papers, return reservations and other information, write to mfc Bangalore office, *immediately.*

2 AIDAN Meeting
The next meeting of the All India Drug Action Network will be held in Bangalore (same venue as mfc meet) on 30 & 31 Jan 1985. For further details, agenda and information, write to Mira Shiva, C-14 Community Centre, SDA., New Delhi 110016. For local arrangements and return reservations, write to mfc Bangalore office.

The Health and Safety Movement in the U.S.

— Loy Rego*

There is not much literature on the health and safety movement in the U.S., and access to what there is, is limited, but, so little is known here, that spreading this information itself will serve a useful purpose of seeing the thrust and direction certain specific movements developed. The article focuses on some incidents, experiences and organisations that formed part of the Health and Safety (H & S) movement. The sketches provided are short, and limited, but will give readers some idea of the kind of activities that went and are going on! Analysis as to why these happened at the time they did and linkages with the broader socio-economic conditions are avoided — primarily because of the lack of information available.

O S H A What it is

The black lung movement and its successful advocacy of compensation was one of the most overt actions during the sixties which placed occupational H & S on the agenda of Society. Various other unions were active on this front and had a number of activities and struggles geared to better working conditions. The environmental movement, the general social upheaval in society and a number of governmental processes** were other influences during this period. Pressure for reform in the law governing H & S was growing, and when such legislative proposals were under discussion, Unions in the chemical, steel and automobile industries, AFL-CIO and Ralph Nader's Consumerists pressed for a strong law — while employers associations, Chambers of Commerce as well as representatives of the H & S 'professionals' were together in calling for much weaker laws.

The Occupational Safety and Health Act (OSH Act) was passed on December 29, 1970. The Act requires employers to provide a workplace free from violations of federal safety and health standards and also free from those recognised hazards that are causing or are likely to cause death or serious harm even when there is no specific standard. To ensure compliance, the OSH Administration (OSHA) has the power to inspect workplaces, make citations for violations and propose penalties, where there is "imminent danger" and power to apply to a court to shut down the offending operation.

A welcome feature of the law is the explicit provisions designed to involve the workers in hazard identification, and protect them against victimisation. This includes the right to file complaints, point out hazards to the inspector and remain anonymous. The law provides that workers can call in the inspector without advance notice to their employer*** designate a union representative, and where no union exists, an employee nominee — to "walk around" with the inspector pointing out hazards. At the end of his visit, workers have a right to meet the inspector and discuss citations, penalties etc., and finally to receive a statement as to why a citation is not issued. Each citation of a violation along with the hazard abatement period must be prominently displayed at or near the place of the violation for atleast three days and subsequently till the hazards are removed. The period of hazard abatement can be contested by the union. The Act provides that employees should not be discharged or discriminated for filing complaints or otherwise exercising their rights. Those who experience discrimination can file a complaint with local OSHA office.

Standards are set by OSHA, on the advice of National Institute of Occupational Safety and Health (NIOSH). Workers have a right to request NIOSH for an evaluation of hazards in their workplace (eg exposure to toxic chemicals) and a standard form (called as a Request for Health Hazard Evaluation) exists. And finally under the Freedom of Information Act, workers are entitled to receive most of OSHA inspection reports pertaining to their workplace.

While the above features project a very rosy picture OSHA has not been able to secure improvements in working conditions commensurate with its powers. "Only a small proportion of workplaces are inspected every year, and inspections are fairly common only in workplaces of over 500 workers. Penalties have not been much. During the 4 years 1971-1975, OSHA made a total of 206, 163 inspections resulting in 140, 467 citations alleging 724, 582 violations with proposed penalties of $ 18, 186, 627, an average of $ 25 per violation". While this number is considered low by radical commentators, it indicates an agency more active than in India.

Appeals by companies against citations and penalties is common. Original standards set by NIOSH were mainly based on private standards adopted by industry sponsored organisations, and of those freshly promulgated, stringent standards have been passed for only a few substances, and on the whole, only 400 of the thousands of chemicals existing are covered by any standards at all.

The years of the Reagan presidency, have meant further cutback on welfare expenditure, which obviously includes OSHA. The Reagan years have seen the number of inspectors cut by 29% and a fall in citations of 27%.

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* 27 Amar Society, 44/2 Erandwane, Gulmohar Park, Pune-4.

** In 1964, a President's Conference on Occupational Safety was held In 1965, Dept of Health Education and Welfare published a report on new chemical hazards while in 1968, there were extensive senate hearings on a proposed H & S legislation.

*** OSHA'S ability to inspect without warning was reversed by a Supreme Court decision in 1978. Now all inspectors must have a court issued warrant authorising a search

While the limitations of the law as well as its enforcement are clear, the overall impact on H & S has to be taken into account while assessing it. In comparison with Indian laws, the clear incorporation of specific worker rights stands out in sharp contrast.

OSHA was resisted by employers since its inception and many subsequent attempts to strengthen it (stricter standards, tighter enforcement) have been thwarted by business. For example, in the reversal of OSHA's surprise inspection right, legal expenses were raised by a group called STOP OSHA — spurned by the American Conservative Union, which raised $ 200,000 by mail subscription from businesses which had been inspected by OSHA. The desire to roll back the law — provides evidence of the fact that laws like OSHA act as irritants to companies, at least, interfering in the way they want to run their business.

On the positive side, there is the definite impact of OSHA, in ways both direct and indirect of placing the problems of work environment on the agenda for workers, unions and the public. As Daniel Berman (Death on the Job) says "It is possible to point to specific advances for working people, the establishment of their rights under OSHA, the general acceptance of higher and more realistic estimates of the size of the problem, questioning the traditional role of company doctors, the new interest in occupational disease*, the increased number of collective bargaining and research initiative in H & S, and the gains of compensation, particularly in the coal fields". And in an era and over an issue where knowledge is a source of power, and suppression of information to workers actively sought by companies, the increased information generation and access through the law, have been one of the ways of strengthening workers action on H & S.

C O S H Groups—How effective?

What have been the organisational developments within the union movement around H & S? Industry based unions have opened or strengthened their H & S departments. Professionals in occupational hygiene and medicine, safety, etc., are employed by Unions to organise the H & S activities of the Unions. This consists of providing information on hazards, drafting contract language on H & S, facilities for monitoring and measuring toxins in the workplace, and conducting intensive medical examinations. Another activity is coordinating training of workers. Besides this there are area based COSH (Committee on Occupational Safety & Health) groups which are groups of union representatives, workers and sympathetic professionals coming together from a particular city or State. They do many similar functions as the above. And at the factory level there are Health and Safety Committees — sometimes joint worker-management committees, sometimes consisting purely of Union local members. At this level many innovative initiatives take place. As for campaign organisations, the example of BLA has been dealt with at length.

Among professionals, there are those who take active part in COSH groups, as well as associations of such people who have less of a pro-management bias. For example. Dr. Irving Selikoff, famous for his path breaking work on asbestosis, founded the Society for Occupational and Environmental Health — concerned with promoting research and training in Occupational Health "without fear or favour".

Of the "new activists" as he calls them, Daniel Berman says "They have well developed technical skills, with a set of operating assumptions almost diacetrically opposed to establishment views. They blame injuries and diseases primarily on the unwillingness of the corporation to spend money to design a safe and healthy workplace and on the constant drive to speed up production. They believe workers should participate in the design and control of production equipment; that progress can be won only by educating workers and unions to take strong and informed positions on H & S, and that workers should have the right to walk off unsafe jobs until conditions are corrected".

A recent listing of COSH groups lists 29 of them spread all over the US. Speaking of CACOSH (Chicago Area COSH) Berman writes, "CACOSH a coalition of workers, unions and activists have led the fight for better working conditions in Chicago area. It was formed in 1972, at a conference of a number of unions, the Medical Committee for Human Rights and the Illincis School of Medicine. CACOSH's first head was Carl Carlson, a blacksmith and safety chairperson at United Auto Workers local, who had earlier investigated noise and other hazards at the International Harvester plant since 1959. CACOSH holds an annual conference wtth a different theme every year. It has given dozens of classes to unions on H & S, led campaigns against Illinois OSHA law and for a law for compensation of partial hearing loss. It has also testified for stronger federal noise and power press standards.

Mike Gaffney, from UAW Local 6 and chairperson of CACOSH in 1979 says, "It takes work at the local level every day of the year, to accomplish anything in safety and health. The working people do it, with a trained safety committee to find out the problems and keep after them. COSH gives us this training and backs us up when we run into technical things".

What do COSH groups do? Training in hazard recognition and control, law, compensation and H & S bargaining. Researching hazards and control measures. Helping to file and follow up complaints, assisting in drafting H & S clauses in contracts. Referring medical and compensation cases to non-company doctors and pro-labour lawyers. Publicising through the media about H & S problems to unorganised workers and the general public. Coordinating action for struggle for new laws, stricter standards and less tortuous worker compensation codes.

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* One government source estimates the number of cases of work related diseases at 100,000.

A few examples of how COSH groups helped local union initiatives are given below. Local 619 of the International Chemical Workers send workers to training programmes conducted by PHILA COSH (Philadelphia COSH). Ernie Herbscht, H & S Committee member at the plant reports "We were specific in our complaint to OSHA so they sent us an inspector familiar with our type of work. With what our COSH had taught us, we just took charge of the inspection and made sure everything was getting seen. At the end, OSHA had nailed the company with 82 violations. And in some cases they get more serious citations because our records showed that the company already knew about the hazards and did not do anything to clear up".

United Electrical Workers Local sent their members to training sessions organised by MASS COSH (Massachussetts COSH). Based on the information they received, they demanded and got their exposure to benzene and cutting oils reduced.

Shop stewards of the International Ladies Garment Workers Union reported complaints of back pains, stress, noise and lighting to NYCOSH (New York COSH) who arranged for industrial health specialists to work along with stewards to develop evidence of hazards and develop solutions.

COSH groups have brought unions at the local level together even though on a limited programme to work collectively on common problems. The local H & S Committes plus the greater number of pro-worker specialists have all helped in the struggle for better working conditions.

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(Continued from page 2)

PEOPLE UNITE NOW: NO MORE BHOPALS
Movement for a Safe Environment

1. Lok Vidnyan Sanghatana; 2. Medico friend circle; 3. Committee for Protection of Democratic Rights; 4. Khad Kamgari Union; 5. Inquilab Communist Sanghatana; 6. Shramik Mukti Morcha: 7. Kashtakare Sanghatana; 8. ITU; 9. Navjivan Bharat Sabha; 10. MARD (KEM); 11. Doctors for Peace and Life; 12. Forum for Science, Technology and Society; 13. Mazdoor Mukti Morcha (West Bengal); and 14. Yuva Kranti Dal.

(Contact Address: Padma Prakash, 19 June Blossom Society 60A, Pali Road, Bandra East, Bombay-50).

CITIZENS RESPONSE*

Bhopal: A joint front under the banner of the Zahreeli Gas Kand Sangarsh Samiti has been formed. The morcha has set up cells to study, analyse and disseminate information on the technical, legal and medical aspects of the event. It is also undertaking an intensive door to door survey and is attempting to organise the affected people to fight for their rights (Contact address: Anil Sadgopal c/o above morcha Chhola Naka, Bhopal or 9/14 South TT Nagar, Bhopal).

Bangalore: PARISARA (Movement for environmental Protection) is a forum of professionals, political action groups, voluntary agencies, civil liberties groups and other individuals (mfc is also a part of it) formed in response to the Bhopal incident and plans to fight the threat to ecological life and people's health due to location/use of harmful technology, chemicals and so on. It will do this through media, theatre, discussions, seminars, marches and other means. A memorandum of demands has been sent to the Union Government and Goverments of Madhya Pradesh and Karnataka after a protest march and a torch light rally.

Madras: Several groups have formed the "Movement for Environmental Protection". They had a protest march on 14th Dec. 84 and submitted memorandam to the Government of India, Government of Madhya Pradesh, Union Carbide and US Government. (Contact address: 54 Johnny John Khan Road, Royapettah, Madras-600014 or PVS Giridhar, Students for Protection and Care of Environment, Y-54, Anna Nagar, Madras-600040.

* We request mfc members/bulletin subscribers to keep us informed of other initiatives.

Views and opinions expressed in the bulletin are those of the authors and not necessarily of the organisation.

Annual subscription — Inland Rs. 15-00

Foreign ; Sea Mail — US $ 4 for all countries
Air Mail : Asia — US $ 6; Africa & Europe — US $ 9; Canada & USA — US $ 11

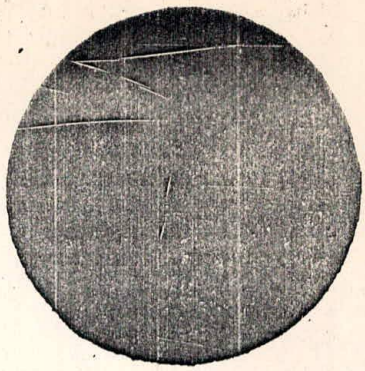
Edited by Ravi Narayan, 326, Vth Main, Ist Block, Koramangala, Bangalore-560 034

Printed by Thelma Narayan at Pauline Printing Press, 44, Ulsoor Road, Bangalore-560 042

Published by Thelma Narayan for medico friend circle, 326, Vth Main, Ist Block, Koramangala, Bangalore-560 034

112 medico friend circle bulletin

APRIL 1985



Medical Research in Bhopal

—Are we forgetting the people?

Concern for man himself and his safety must always form the chief interest of all technical endeavours. Never forget this in the midst of your diagrams and equations.

—Albert Einstein

Preamble

In a tribute to the medical relief workers involved in service to the Bhopal disaster victims the ICMR has noted (1) that a disaster of such magnitude, of such suddenness and caused by the release of a highly toxic chemical methyl isocyanate (MIC) into a densely populated habitat is unparallelled in human history. The doctors, medical students, civil servants, governmental, public sector and voluntary bodies and the people themselves rose to the occasion in a human gesture equally unparallelled'. . .

In the absence of authoritative information on the released gas; the unwillingness of the company to part with authentic information; the unpreparedness of the local bodies and the government health authorities to understand the consequences of the disaster; and the absence of technical or toxicological expertise on MIC among our scientific community, it was imperative that a national body like the Indian Council of Medical Research through its own initiative would have to harness the scientific medical expertise in the country including the local medical college community to meet this challenge. Considering that the affected population was over 2 lakhs and that the dead were over 6000 (though official estimates are 2000!) this research initiative had to be equally unparallelled in meeting the phenomenal challenges of the world's worst recorded ecological disaster. Do the records of events in the past four months since the disaster bear this out?

The Plan

A report on the first nine days of the Bhopal disaster identified (1) three objectives for the ICMR's research programme:

1. To establish a clinical and patho-physiological profile of the hazard which would also provide clues for improved patient management and clinical outcome
2. To study the long term sequelae of toxin exposure to lung, tissues, foetus, genes and cancer induction
3. To obtain a basic understanding of the biological alterations associated with MIC exposure.

Strangely enough there is no mention in this report of a strategy by which conclusive research data as and when available would be transmitted to the relief and rehabilitation effort in Bhopal, ie., to the treating doctors and through a health education effort to the affected public.

A report of projectization of ICMR supported research effort (2) lists out 17 study projects which covers acute and long term health effects, lung functions, follow up of children aged 5-15 years, ocular changes, pulmonary and neurological changes, growth and development of new borns, clinical and forensic toxicological studies, pathological and microbiological investigations, radiological studies, biochemical and immunological studies, carcinogenicity, mutagenicity, teratogenicity and chromosomal changes, data management information system, hospital based cancer register, cytofluorometric

INSIDE

studies and blood gas analysis. The studies ranging from a time span of 6 months to 5 years would incur a total financial outlay of 1.07 crore rupees.

Some surprising omissions in the list were the assessment of psychological stress and its manifestations in the affected families, studies on health of women (not obstetrical outcome but gynaecological effects) and the assessment of medico social effects like reduced earning capacity and functional disability which would affect rehabilitation efforts. Though there were references to an epidemiological and community based outlook the research endeavour atleast as on paper did not seem to be a coordinated holistic effort in understanding the total problem but basically a series of vertical research programmes initiated and funded according to the interests of the professors involved in the exercise.

Results

It is four months since the tragedy and about three months since many of the research programmes got underway.

As far as a communication strategy goes three press releases and two lectures by the director generals and a minutes of the meeting on the thiosulphate controversy are the only freely available literature on the research (3-8) efforts. From these all that any member of the scientific community or the general public can gather are:–

i. that there is no evidence of irreversible eye damage or blindness

ii. that the autopsy findings are indicative of severe respiratory damage caused by pulmonary odema and asphyxia

iii. that studies of exposed persons with lung symptoms/signs have shown obstructive and or restrictive abnormalities

iv that a double blind clinical study undertaken using sodium thiosulphate and a placebo has established that sodium thiosulphate administration results in symptomatic improvement and in increased excretion of thiocyanates in the urine. On the basis of clear cut results, the State government has been advised to administer sodium thiosulphate to the exposed population and detailed guidelines have been drawn up and circulated.

v. that two visiting psychiatrists have found that 10—12% of the affected individuals attending the medical clinics in Bhopal are presenting with psychiatric manifestations — symptoms of anxiety and depression are foremost.

Why this secrecy? or is it administrative over caution?

A more updated report prepared in mid March collating all data as of that date has again become a casualty in the commitment to secrecy (caution!) and no press release has followed.

Issues of concern

An mfc fact finding team which visited Bhopal in mid February at the request of various non governmental agencies and action groups published a report on the realities of medical research and relief which has been widely circulated and is now well known(9). In mid March an mfc team of 16 members camped in Bhopal and undertook an epidemiological survey which included detailed history taking, physical examination, lung function tests, haemoglobin estimation of a 10 percent sample of a severely affected area and a control area(10).

The team also met decision makers, relief and service providers, medical teams of voluntary agencies and others, apart from undertaking a survey of the people's perceptions of relief services and an overview of the services itself. The findings of the team are being analysed and will be reported shortly (a press release is published in this issue) but the experience of the third week of March in Bhopal strengthened the findings of the earlier fact finding team and identified a whole series of issues of concern in the ways in which research efforts were becoming exploitation of peoples' suffering rather than expressions of support to programmes of human welfare.

1. Lack of dissemination of technical guidelines

The medical relief services continue to be starved of authentic and authoritative scientific medical information to support clinical judgment and patient management. In the absence of clear cut guidelines from the seniors in the profession treatment continues to be adhoc, symptomatic and unstandardised. Findings of autopsies, lab investigations and x-rays and other tests are not available to the treating doctors. Doctors have not been alerted to the fact that a wide range of symptomatology like fatigability, weakness, memory problems are all part of the MIC syndrome. In the absence of such information peoples' sufferings have often been passed off as malingering or compensation neurosis.

2. Pill distribution

The treatment basically consists of a whole series of pills which are efficiently and actively prescribed to the people in a sort of conditioned reflex. In the absence of proper record linkages each patient is collecting large amounts of pills and no feeling the better for it, apart from the dangers of over drugging. Other forms of care, counselling and non-drug therapies have not been thought of.

3. The Thiosulphate controversy:

Even after the ICMR studies establishing the validity of thiosulphate administration and the preparation of clear cut guidelines for its administration (6,8) this specific antidote is not being used as effectively as it should be. It has become a casualty in a medical controversy between cyanogen and carbon monoxide lobbies and the victims rather than being informed and helped are being confused and neglected.

4. Women's health

The mfc fact finding team had highlighted the problems of women who have suffered abortions, still births, diminished foetal movements, suppression of lactation, abnormal vaginal discharges and menstrual disturbances. The studies undertaken by two doctors of mfc reported in this bulletin (11) establish the magnitude and severity of the problem. It, however, continues to be neglected by the concerned authorities.

5. Absence of Health Education efforts

Whatever the other validity of the research efforts, in the ultimate analysis it should get translated into a strategy of health education and awareness building of the affected people. As of date there are no official guidelines or efforts in this direction. The range of areas is phenomenal—advice to mothers of the risk to the foetus and preparation for consequences including options for MTP, advice to couples on contraception till detoxification is over, breathing exercises and antismoking advice to those with fibrosis of lungs, avoidance of overdrugging of pregnant mothers, advice to mothers regarding feeding of infants/children as lactation suppression has taken place, availability of thiosulphate and other medical relief measures. None of this has even been recognised as being necessary.

6. Poor epidemiological and medico social orientation of problem assessment

The general impression is that research and relief efforts are suffering from an acute clinical and institution based orientation rather than a community based epidemiological orientation.

Only if all data is field based and is related to known available morbidity patterns (or comparison with controls) can early problems and special trends be identified and urgently acted upon. The danger of getting into the pursuit of a very neat and fool proof epidemiological planning exercise can be equally counter productive.

7. Lack of informed consent

The people are not being informed about the tests being done. Nor is consent being taken for being included in the studies or for procedures to which many of them are being subjected to. This is a minimum medical ethic.

8. Lack of coordination

This is a universal problem and the ultimate sufferer's are the disaster victims themselves. This incoordination is occuring between goverment services and research efforts in the medical college, between the different research workers themselves, between government and non-government relief efforts, between voluntary agencies involved in action, relief, rehabilitation and of all these groups with the disaster victims themselves.

While a more detailed report is awaited, we in the mfc appeal to government decision makers in Bhopal, medical college professors, ICMR scientists, IMA, voluntary agencies, action groups that there are urgent needs to be actively met :

* **Need** to evolve a bold, imaginative and open communication strategy to all the doctors and health workers (treating the disaster victims) who are presently starved of authentic technical/medical information hampering clinical judgment.

* **Need** to evolve a creative, relevant health education and awareness building public education strategy to meet the expectations of the disaster victims and to help and reassure them through the crisis and prepare them for the eventualities.

* **Need** to ensure that research efforts are geared to supporting relief and rehabilitation efforts and not become esoteric exercises for institutional development and career advancement.

* **Need** to make the commitment to patient care and human welfare primary and to ensure that it does not get bogged down by professional rivalries, inter departmental incoordination, procedural constraints and administrative protocols.

* **Need** for closer coordination between voluntary agencies, action groups, citizen committees, medical and health workers and the people oriented and socially sensitive sections of the medical profession and government authorities to ensure that the peoples' suffering are not exploited and made pawns in the games played by politicians, multinational companies, and misinformed professionals—all symptomatic of an exploitative social system.

An authoritative Lancet editorial (12) had mentioned that 'In a year's time we will have learned a lot more about methylisocyanate at an appalling price'. With the prevalent medical anarchy in Bhopal in relief and research, this price may be immeasurable.

—mfc team, Bangalore

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The K.E.M. Study

Results of a limited but thorough study of 113 MIC affected people carried out at K E M Hospital (the only available comprehensive source of hard medical evidence of the degree of destruction caused by MIC).

Sample

Relatively mildly affected middle class people living in pucca houses at a distance of 2 kms from Union Carbide Plant who voluntarily presented to K E M Hospital, Bombay —8 to 53 days after exposure to MIC.

Salient findings

* Breathlessness on exertion 95%
* Persistent dry cough 97%
* Throat irritation 66%
* Chest Pain 68%
* Vomiting 42%
* Muscular Weakness 22%
* Altered conciousness 28%
* Low vital capacity of lungs 27% (less than 60% of normal)
* Impaired oxygen uptake 55%
* Central airway obstruction 43%
* Respiratory alkalosis 59%
* Abnormal low oxygen pressure in blood 23%
* Neurological conditions such assensory motor loss, depression, tremors, loss of concentraton, irritability in a significant number of cases.
* X-ray—97% had abnormal findings
* Carboxyhaemoglobin—96% high
* Methaemoglobin—79% high
* Percentage showing no improvement at all despite medication and carefully administered treatment 30%.

—'Bhopal's unending tragedy'
Praful Bidwai
Times of India, March 25--27, 1985.

Note:

A much more thorough project consisting of a medical survey and treatment of the gas affected people has been organized by the Nagrik Rahat Aur Punarwas Committee, a local relief and re habilitation group and the Voluntary Health Association of India. This study includes many important investigations and was undertaken by a group of over 20 doctors and paramedical personnel drawn from K E M Hospital of Bombay and VHAI. The results are eagerly awaited!

Bhopal needs You

Your support, donations and involvement are urgently needed for mfc's interventions in Bhopal.

Please don't let us down.

(Cheques in favour of mfc Bhopal fund)

Women's Health

——an epidemic of gynaecological diseases

Sample study

218 women in field clinics established by a gynaecologist in Bhopal (114 gas affected group and 104 controls).

Salient features (C= Controls)

* Leucorrhoea 90% (C=27%)
* Pelvic inflammatory disease 79% (C=27%)
* Cervical erosion and endocervicitis 75% (C =44%)
* Excessive menstrual bleeding 31% (C=1.2%)
* Suppression of lactation 59% (C=12%)
* All above are statistically significant when compared with incidence in controls.
* Spontaneous abortions (7); still births (4); incomplete abortion (1); and threatened abortion in affected group, Nil in controls
* Severe pallor in control group 36% and in affected group 3%

Conclusions

The exposure to the gas has produced excessive gynaecological disease in women apart from suppression of lactation and pregnancy wastage.

These aspects are presently unstudied and uncared for. Immediate relief and research need to be initiated for the silent suffering women.

Suggestions

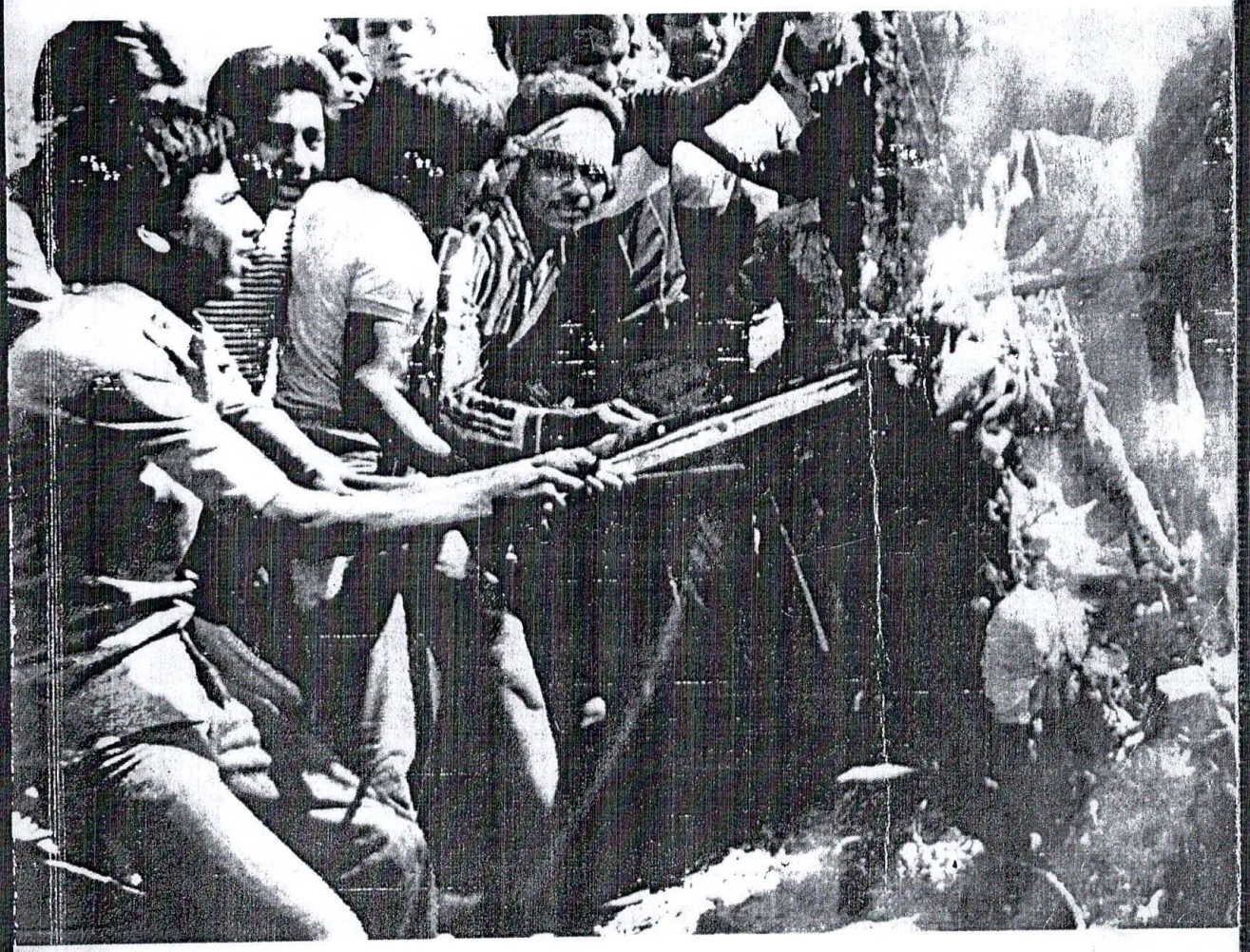
1. Need to study gynaecological diseases
2. Need for field clinics and involvement of female paramedics
3. Need to health educate women on their gynaecological problems.
4. Advise on supplementation/weaning foods for mothers who have suffered lactation suppression
5. Information to women regarding risk to the foetus
6. Need for voluntary agencies and women's organisations to help slum women build pressure on authorities to implement care services

—rani bang (wardha)
—mira sadgopal (hoshangabad)

(copies of detailed study reports I & II are available from Rani Bang, Gopuri PO, Dist Wardha 442114)

THE BHOPAL TRAGEDY

— *ONE YEAR AFTER*



An APPEN Report

APPENDIX 5.3

Jana Swasthya Kendra Documents Sodium Thiosulphate Therapy: Report On Symptom Improvement In The Pilot Series (June 3rd To June 10th, 1985)

Jana Swasthya Kendra, Bhopal.

Background

The recommendation of Sodium Thiosulphate as a specific drug in the treatment of gas victims at Bhopal was made thrice during the earliest days of the disaster. Firstly, on December 3rd itself, the Professor of Forensic Medicine at Bhopal's Gandhi Medical College, after diagnosing a "cyanide-like" poisoning from postmortem examinations, suggested immediate use of Sodium Thiosulphate, the known non-toxic antidote to cyanide. Secondly, a telexed message sent on December 4th by the Chief Medical Officer of U.C.C. in West Virginia advised the administration of Sodium Thiosulphate preceded by Amyl Nitrite "if cyanide poisoning is suspected", although he later repudiated this as a mistake. Thirdly, a well-known German toxicologist and expert on M.I.C. poisoning, who reached Bhopal on December 8th carrying several hundred doses of the antidote, stated that his suspicions about "cyanide" and the need for the drug had been confirmed immediately on seeing the autopsies.

For reasons which are still ill-understood, this treatment was not instituted for ordinary gas victims, although it was administered unofficially to a few hundred medical personnel and to privileged citizens most of whom were only mildly exposed to the gas. The treatment was and remains today the subject of unresolved controversy. In the early days, the senior W.H.O. Regional Advisor stood beside the Professor of Medicine of the Medical College in agreeing with the experts sent by the Union Carbide Corporation that Sodium Thiosulphate was uncalled for in the treatment of gas victims.

Scientists of the Central Government-sponsored Indian Council of Medical Research (ICMR), which had been observing the drama from the first week of December, attempted to resolve the controversy in the interests of the gas victims conducting a double-blind clinical trial in January at a special 30-bedded Hospital set up in the heavily gas-affected area. Although the trial showed Sodium Thiosulphate to be effective even as a delayed treatment, the local medical community and State Government Health Services authorities failed to accept the results or to give any significance to the guidelines for administration of Sodium Thiosulphate issued in mid-February and reissued on the 4th of April by ICMR,

Strangely, the controversy itself was suppressed and open scientific debate could not take place. It was only in March that organisations working among the gas victims for relief and rehabilitation realised the possible importance of Sodium Thiosulphate in the light of the ICMR trial and began to demand wide administration of the drug through Government hospitals and dispensaries. However, the controversy somehow thrived unabated, and thus the mobilisation of the State Government health services for this purpose was effectively blocked. Because of ICMR's recommendation, the public sector pharmaceutical firm IDPL manufactured special stocks of the drug. A small amount was deployed at Government polyclinics, but was given to very few gas victims on a "selective" basis left to the discretion of the treating doctor. (Gas victims who observed this say that one of the apparent criteria for a person's selection for Sodium Thiosulphate treatment was whether he was wearing a white shirt and wrist-watch.) Due to mounting public demand, the State Government quietly opened the stocks of Sodium Thiosulphate for indent to non-Government dispensaries towards the end of May. Most non-Government relief agencies were understandably hesistant to start using the drug so late amidst the history of unresolved controversy. Even more, they could not get the local doctors working with them interested in giving the drug. In an attempt to break this stagnation, our group prepared and circulated in early June a scientific

review paper laying out the available evidence and rationale in support of using Sodium Thiosulphate and encourgaging Government and non-Government agencies to take up wider administration of the drug.(1)

The Pilot Detoxification Trial at Jana Swasthya Kendra

Administration of intravenous Sodium Thiosulphate injections to ambulatory gas victims was begun at our centre, the Jana Swasthya Kendra, on June 3rd, 1985, six months after exposure to toxic gas. Close interviewing of the first one hundred patients was attempted in order to help understand the effect of the drug in relieving the presenting symptoms. Clinical examinations and collection of urine samples for urine thiocyanate level estimation were also carried out. This is a report of the effect on symptoms as reported by the patients.

Before proceding further, it is to be noted that there was a high drop-out rate. Out of the first one hundred patients, post-thiosulphate interview data is available for only 54, and of these only 26 sat for interview after completing the full course of six daily injections. Because of a lapse in planning as well as operational problems, it was not possible to follow up each patient to ascertain the cause for dropping out. Among the possible reasons could be either achievement of relief, no benefit at all, or aggravation of symptoms. Also, in those for whom relief was obtained, we have no data recording relapse of symptoms which we had been warned to expect to a varying degree. Therefore, it is recognised that this data has severe limitations and is being offered only as an indicator of the trend in incidence of particular symptoms and relative relief after the administration of three and six injections of Sodium Thiosulphate among those who were interviewed. Speculation about those persons who dropped out serve no purpose.

The plan called for three interviews - prior to the first injection and twenty-four hours after the third and sixth injections. (Urine samples were also collected thrice, twelve hours before and six hours after the first injection and overnight for twelve hours after the sixth injection.) People who had been exposed to the gas were taken on a first-come-first-serve basis. Most of them were residents of the colonies in the immediate vicinity of the factory which were most heavily exposed. No children under fourteen were taken in this series.

An exhaustive list of symptoms had been compiled in advance by doctors familiar with the typical complaints of gas victims which were said to have begun or to have become worse since the toxic gas exposure. The questionnaire of symptoms was arranged roughly systemwise, i.e. mental, eye, respiratory, digestive, muscu-loskeletal, etc. Each person was asked whether she or he suffered from the symptom or not, and, if so, was it mild, moderate or severe in intensity; the answer was recorded by number code '0' meaning 'nil', '1' meaning 'mild', '2' meaning 'moderate' and '3' meaning 'severe'. The interviewers consisted of a group of volunteers from the bastis and from outside; under the circumstances, with high volunteer turnover and little opportunity to properly explain the procedure, there was less than optimal uniformity in the recording of symptoms and their intensity. In addition, the very nature of symptom reporting is highly subjective on the part of the sufferer, and subject to variability due to many factors.

The common symptoms have been graded according to percentage of incidence in the persons who came for treatment, in other words, the percentage of persons who complained of the particular symptom. The data examined here was of 54 persons. Muscle fatiguability and muscle pain, headache and anxiety were the most frequent symptoms (96-98%) followed closely by dizziness, tingling and numbness of limbs, chest pain, breathlessness, burning of eyes, loss of appetite, palpitations and dimness of vision in (90-95%). Sore throat was surprisingly common (87%). Poor memory, pain in abdomen, burning passing urine, abdominal distension, loss of sleep, watering of eyes and nausea were complained of by many (all around 70%). Itching, cough with or without expectoration and runny nose were complained of by about half of those who came, and diarrhoea or constipation, and soreness of the mouth by about one quarter to one third of persons.

Improvement was reported in every symptom. This was seen most obviously in the drop in the number of persons with severe symptoms, a shift from severe to moderate or mild, and an increase in the number of persons without symptoms.

By calculating a composite score for each symptom according to the number of symptomatic patients and the intensity of the symptom, it is possible to compare the response. The simple formula used was as follows:

$$(N^1 \times 1) + (N^2 \times 2) + (N^3 \times 3) = \text{Symptom Score}$$

where N^1 is the number of persons with the symptom in mild intensity, N^2 is the number with moderate intensity and N^3 is the number with severe intensity. The mean symptom improvement was calculated by dividing the difference in pre-and post-treatment Symptom

Scores by the number of patients who had the symptom before receiving Sodium Thiosulphate. This was compared with the initial mean Symptom Score to assess percentage of benefit.

There was an average overall improvement of 48% after three injections (46 patients) and 70% improvement after six injections (26 patients, of whom 8 had missed the interview after three injections). Among the most frequent symptoms, there was a total improvement after six injections of roughly 60% in muscle weakness (fatiguability) and calf muscle pain, 70% in headache and 80% in anxiety. Among the next group in frequency, there was a 60% improvement in breathlessness, tingling and numbness, burning of eyes, dimness of vision and poor memory; 70% in chest pain, palpitation, pain in abdomen and loss of sleep; 80% in dizziness, loss of appetite, sore throat, burning on passing urine and watering of eyes; and 90% in abdominal distension and nausea. Among the less frequent symptoms, there was more uneven improvement reported, for example, over 90% improvement in runny nose, dry cough and constipation, about 60% improvement in itching, feeling of feverishness and cough with expectoration, and only around 50% in soreness of mouth and diarrhoea.

In order to better visualise the comparative improvement between first, second and third interviews, the data of the 18 persons who sat for all three interviews is presented herewith in graph form (see figure 1 to 11). We have shown the graphs for some of the more important symptoms only.

Thus according to change in symptoms reported by those who received treatment at our centre, there appears to have been rather dramatic improvement in long standing complaints even after six months of the toxic gas exposure. There does seem to be definite advantage in giving more than three injections at a stretch, as seen by the substantial enhancement of response after six injections.

On the basis of these findings, we recommend the continuation of administration of Sodium Thiosulphate to exposed symptomatic persons who desire to obtain the treatment. There is no reason to withhold the treatment from children if adequate care is maintained. Improvement in the monitoring is mandatory to ascertain whether the reported improvement is a consistent effect and to determine the degree and rate of relapse, if any.

The role of ascertain urine Thiocyanate levels is unclear at this point, and is left for a separate discussion, as are other physical and physiological measurements which have not been available to us.

Crucial Unresolved Questions

It is to be emphasised that the question of Sodium Thiosulphate administration is far from resolved. Medical volunteers administering this drug have worked according to the guidelines laid out by the ICMR following its double-blind clinical trial carried out in January 1985 (2,3,4) and with the encouragement and consultation of doctors working at the special ICMR-sponsored 30-bedded Government Hospital for Gas Victims who consistently reported to us that patients have continued to respond positively to treatment. Ironically, the policy in the special MIC Ward of Hamidia Hospital is not to adminster Sodium Thiosulphate to any patient, as it is believed to be of no use following the trial conducted separately there in February by the Department of Medicine of Gandhi Medical College.

Aside from whether the drug is effective or not, another crux of the matter is that the present mechanism of action of the drug is unclear. Could it still be acting as an antidote to cyanide remaining trapped in the body since the possible massive inhalation of cyanide gas in addition to MIC on the night of 2nd/3rd December) If this is so, then why has amyl nitrite not been recommended by the ICMR to precede Sodium Thiosulphate? Any why hasn't the body's natural detoxification mechanism completed its work by now? What is the evidence that a single-point exposure to cyanide gas could result in such long-term toxic effects?

Or, as ICMR scientists have hinted, is Sodium Thiosulphate helping to "shear off" isocyanate/cyanate radicals resulting from carbarylation of Haemoglobin and other protein molecules by MIC, contributing indeed to a slow process of detoxification? (5) If it is true, then presumably we are doing an important service for the gas victims and should speed up our efforts once and for all.

Or is it acting as a placebo to the gas victims and to ourselves as medical workers? If this is true, then we have no right to go on with this unfortunate exercise, wasting time, money and energies better spent in other tasks of health care at Bhopal.

The urgency of solving this controversy, therefore, cannot be understated. We fail to understand why the competent Government scientific agencies have not been more active in collecting and consolidating the answers. They must realise that it is not merely a matter of scientific prestige, but also that field workers attempting to render medical relief to gas victims are being kept in the dark, the public is bewildered, and a crucial aspect in the treatment of gas victims remains uncertain.

Submitted by Mira Sadgopal*, MBBS, on behalf of the Jana Swasthya Kendra, Bhopal.
10th August, 1985

Note:

The work reported here is the result of the joint effort and co-operation of many persons and several organisations. The Jana Swasthya Kendra was established on June 3rd by the initiative and hard work of four locally based organisations which joined to form the Jana Swasthya Samiti - the Nagrik Rahat aur Purnavas Samiti, the Union Carbide Karmachari Sangh, the Trade Unions Relief Fund and the Zahreeli Gas Kand Sangharsh Morcha. They received additional technical support and volunteers from the Medico Friend Circle (Bangalore), the West Bengal Drug Action Forum (Calcutta), the B.H.U. Junior Doctors Association (Varanasi), and the Voluntary Health Association of India (New Delhi). Further help in compiling and analysing the data was given by individual members of Eklavya (Bhopal), the Centre for Cellular and Molecule Biology (RRL, Hyderabad) and others. The stock of Sodium Thiosulphate along with disposable syringes and needles was received from the Health Department of the Government of M.P. Thiocyanate level estimation of urine samples was done at the Medico-Level Institute, Gandhi Medical College. Member of the ICMR team at Bhopal and Delhi were helpful in welcoming our queries and discussing their research findings since the gas leak disaster.

Although the work was stopped abruptly on June 25th after only three weeks of operation due to the unfortunate police action aimed primarily against one of the participating organisations, the Jana Swasthya Kendra plans to continue and expand it activities in the interest of the health of the gas victims.

* *Address for correspondence:*
Dr. Mira Sadgopal (Member, MFC)
Kishore Bharati Group
P.O. Bankheri
Dist. Hoshangabad
M.P. 461 990

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Reductions In Severity of Symptoms In Gas-Exposed Persons After Intravenous Sodium Thiosulphate Therapy

Jana Swasthya Kendra, Bhopal
Data of 18 persons from the Pilot Series,
June 3rd to 10th, 1985.

Key To Figures

1 — 1st Interview (before injection)
2 — 2nd Interview (after 3 injections)
3 — 3rd Interview (after 6 injections)

Severe
Moderate
Mild
No Symptom

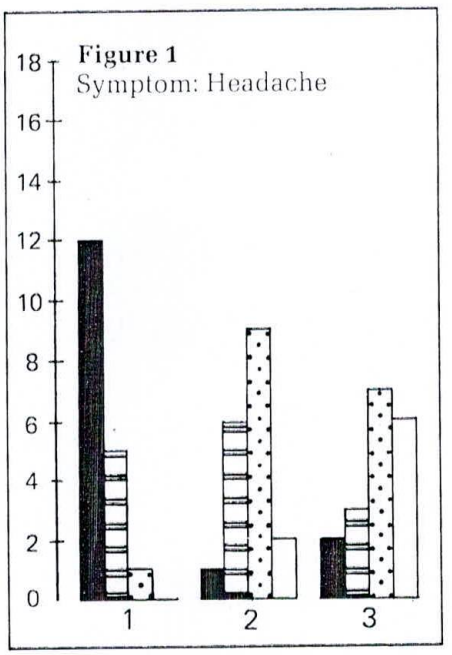

Figure 1
Symptom: Headache

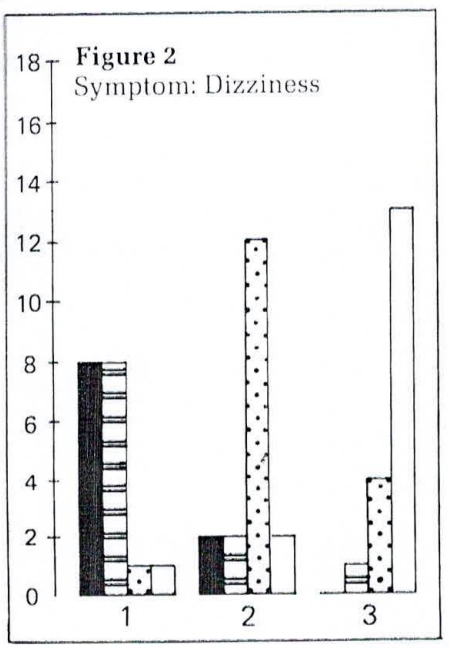

Figure 2
Symptom: Dizziness

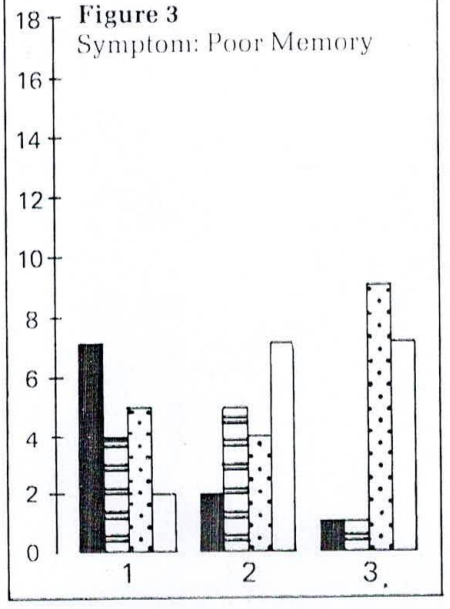

Figure 3
Symptom: Poor Memory

(Continued,)

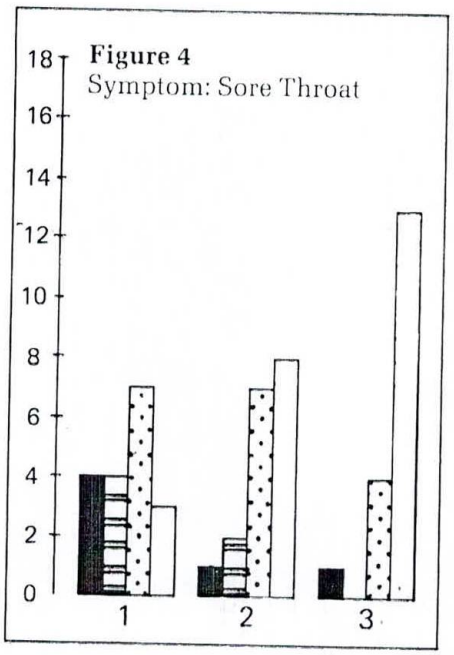

Figure 4
Symptom: Sore Throat

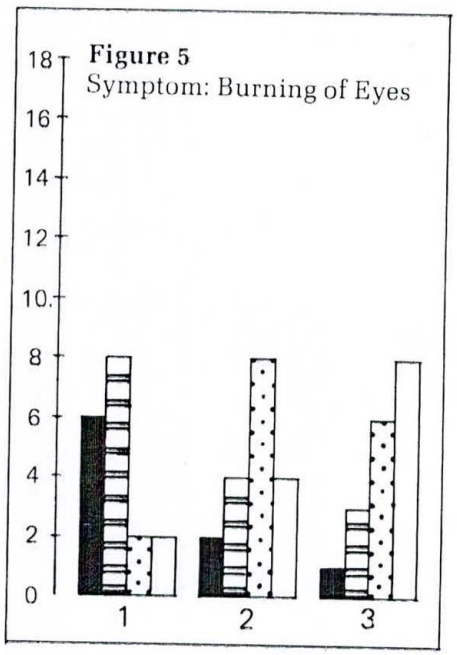

Figure 5
Symptom: Burning of Eyes

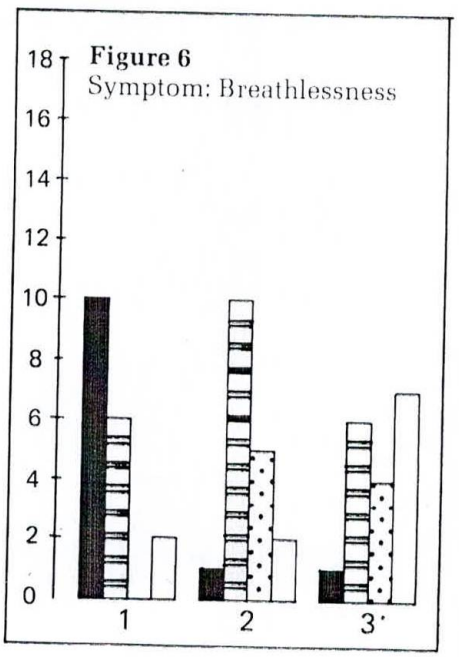

Figure 6
Symptom: Breathlessness

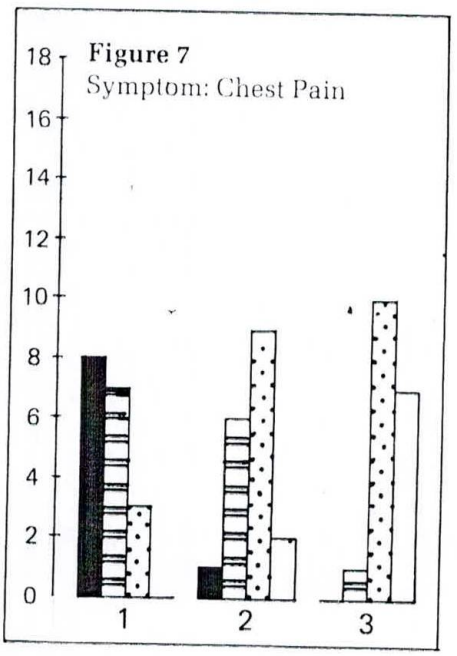

Figure 7
Symptom: Chest Pain

(Continued.)

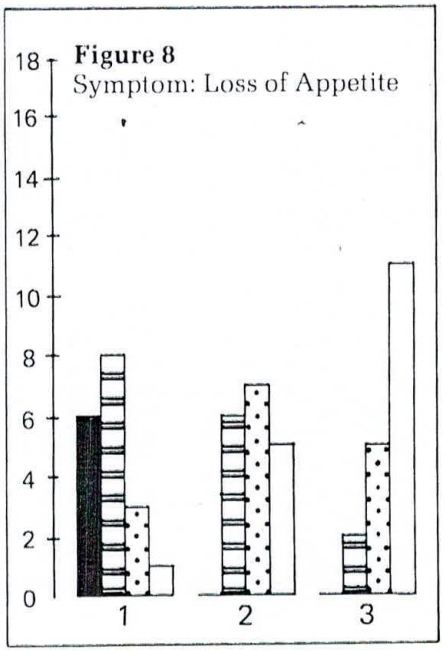

Figure 8
Symptom: Loss of Appetite

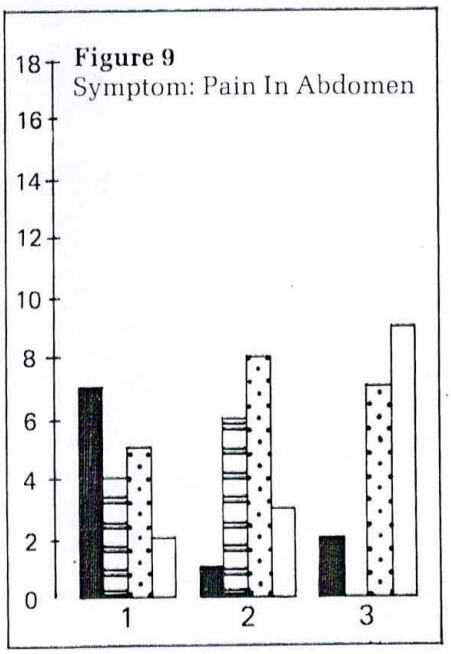

Figure 9
Symptom: Pain In Abdomen

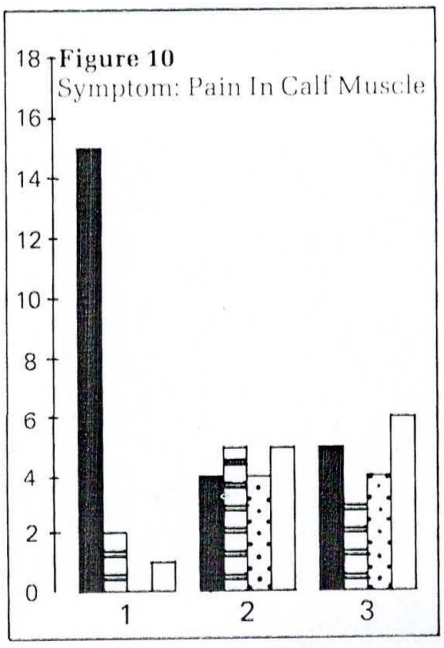

Figure 10
Symptom: Pain In Calf Muscle

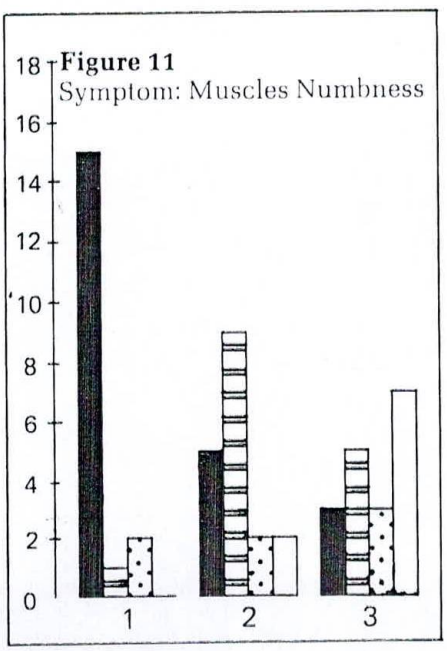

Figure 11
Symptom: Muscles Numbness

In Disgust

Yogesh Jain
I/30, Gents Hostel
AIIMS
Ansari Nagar
New Delhi: 110 029

4.45 p.m.
June 26th 1985

In utter disgust, I, Yogesh Jain an M.B.B.S. student of All India Institute of Medical Sciences, am leaving Bhopal where I had come to offer my services in the medical relief work here. This disgust has its basis in the humiliating and thoroughly illegal way in which I was treated by the police. With the apprehension of being harassed further (none know the ways of irrational men) by the police, I decide to leave the city at the earliest.

I had come to Bhopal to help the JANA SWASTHYA KENDRA in its endeavour to administer Sodium Thiosulphate to the gas affected people and also to launch a peoples health movement. All seemed well until, when last night I was taken away from my now residence in Bhopal (10/C, civil lines, Professors colony). I was manhandled and badly bruised my left little toe. I was kept in the police lock up in inhuman conditions with my other medico friends. It should be noted that no written summons was produced even when demanded (violating of - section 160 of Cr. P.C.). With blatantly false allegations of having disturbed peace I was sent to the Central Jail and kept there till 9.30 p.m.

I recall this harrowing experience with a shudder. I appeal to your good senses to restore law in your state so that doctors and other professional people can offer their services to the needy in times of need. If you don't, you shall be fuelling the already rampant fatalism in our people.

Drug Action Forum, West Bengal

S/3/5, Sector III, Salt Lake
Calcutta — 700 064.

Press hand-out at the Press Conference held on 11th July, 1985, at the Health Service Association Office.

At the dead of night (1 a.m.) of 24-25th June 1985, the Police of the Govt. of Madhya Pradesh raided the residence of the Doctors and health workers of the 'Janasasthya Samiti' of Bhopal, without any warrant, dragged them out, manhandled the Doctors and health workers including the ladies, and incarcerated them for 20 hours in the thana lock-up and Central Jail of Bhopal. Among the victims were two Doctors of Drug Action Forum, West Bengal.

While our Doctors were released without producing them before a judicial authority, the others were falsely implicated with various offences including the attempt to murder. In a simultaneous move, the M.P. Police raided the Medical Clinic of the 'Janasasthya Samiti', confiscated all drugs, equipments and treatment records of the patients, and closed the clinic. Doctors of West Bengal were forcibly turned out of Bhopal.

The motive of such terroist and anti-national act has become clear to us. The Union Carbide and its ally, the Govt. of Madhya Pradesh have been trying for the last six months to suppress the fact that, alongwith MIC, Hydrogen Cyanide also leaked out on the black night of the Bhopal Disaster and as a result, about one lakh Gas victims of Bhopal have since been suffering from CYANIDE POISONING. The Scientific evidence of Cyanide Poisoning has been detected, confirmed by the findings of Indian Council of Medical Research and Central Pollution Control Board of the Govt. of India. The Govt. of M.P. failed in its attempt to reject such evidence and ultimately had to officially declare the acceptance of Sodium Thiosulphate (NTS) therapy to treat the patients suffering from Cyanide Poisoning. Drug action forum has been assisting the Janasasthya Samiti in this NTS therapy programme in which the drugs and equipments have ironically been supplied by the Govt. of M.P.

The NTS therapy has not only dramatically cured almost all the treated Gas victims but also confirmed the earlier scientific evidence of Cyanide poisoning and the news of this beneficial effect of the NTS therapy has quickly spread all over India. The suppression of evidence of Cyanide Poisoning exposed the cruel character of the Union Carbide management who, as we guess, panicked and pressurized the M.P. Govt. to move and destroy the Janasasthya clinic. Needless to say, the evidence of Cyanide Poisoning adds the new Dimension to the litigation of compensation to the gas victims.

Drug action forum believes in the inalienable right of the Medical profession or for that matter, of the citizens of India, to provide Medical relief to the ailing patients and has decided to resume NTS therapy to the thousands of victims of Cyanide Poisoning of Bhopal. The forum can not abandon its obligation to the expectant patients of Bhopal and will soon resume its Medical relief programme defying all brutality that the M.P. Govt. may decide to employ.

Drug Action Forum appeals to the Govt. of West Bengal and all the democratic Citizens of our beloved State to please come forward and help in this endeavour. The forum appeals to the Political parties, Medical profession, Mass organisation, the mass media the students and the Trade Unions to protest against this terrorism of the M.P. Police and to help us with finance and volunteers so that we can at once undertake the task of saving gas victims of Bhopal with delay.

(Dr. Sujit K. Das)
Convenor, Drug Action Forum.
West Bengal.

Calcutta,
11th July, 1985.

Jana Swasthya Samiti, Bhopal

Address for correspondence:
c/o Prashant Pathak,
D-100, Sant Kanwar Ram Nagar
Colony Off. Berasia Road,
Bhopal Pin — 462018

Dear Friends,

Thanks to the solidarity extended by social action groups and support offered by our concerned sympathisers, Jana Swasthya Kendra continues to function. The police repression on 25th June, the seizure of medical records, putting the doctors and the health-workers behind the bars and subsequent stoppage of government supply of sodium thiosulphate on irrational grounds, all these have not been able to suppress our efforts. Our efforts towards re-establishing the Kendra and pressurising the Govt. to resume sodium thiosulphate supply included campaign in the local and national press, rallying support from concerned citizens in the form of delegations to the Chief Minister and then filing writ petition in the Supreme Court. The consequence of filing the writ petition is of considerable significance and needs elaboration as this would demonstrate the callous attitude of the Government and the machinations to justify it.

After the suppression of the J.S.K. on 25th June, many attempts were made to get Inj. Sodium Thiosulphate from the Govt. by shifting to a permanent structure. But the M.P. Govt. persistently and adamantly refused to resume the supply of Sodium Thiosulphate.

The writ petition in the Supreme Court

Dr. Nishit Vohra (who was working in the Jana Swasthya Kendra) and two gas victims had to launch a writ petition in the Supreme Court on behalf of the Kendra against the state of Madhya Pradesh for not supplying Sodium Thiosulphate to J.S.K. and to the large number of gas victims. The M.P. Govt. filed a counter-affidavit, in which it was stated that J.S.K. does not have equipment for blood and urine examination. Whereas, the I.C.M.R. guidelines (dated 4th April) for administration of Inj. Sodium Thiosulphate, which are accepted by the M.P. Govt. do not mention anything about these facilities.

This counter-affidavit put unreasonable conditions like stipulating that the representative of the clinic run by voluntary organisations shall satisfy himself regarding the quality of the stock being issued and received by the clinic. How can any doctor do that? No time-bound scheme of administering Inj. Sod. Thiosulphate to all the needy gas-victims was presented by the M.P. Govt. Its scheme only lays down 'how and to which institutions/organisations (Govt. hospitals, voluntary groups etc.)' the stock of Injections would be given.

Dr. Nishit Vohra filed a response to this affidavit, in which it was pointed out that the I.C.M.R. guidelines of 4th April do not require any blood or urine examination, that the counter affidavit only mentions about 'adequate supplies' of Sod. Thiosulphate without specifying that 600,000 doses of 1 gm. each would be available; that the health card prepared by the M.P. Govt. does not specify the symptoms (of cyanide-poisoning) required to be record; etc.

A time bound, concrete scheme of administering Inj. Sod. Thiosulphate to about 100,000 gas-victims within six weeks, as enclosed. Based on the experience of the Jana Swasthya Kendra, it was argued that one center can detoxify at the most 150 patients in a week (6 injections per patients) and it would require about 100 such centres to detoxify all 100,000 gas-victims in a period of about 6 weeks.

It seems that the Honourable Judges were convinced by the petitioner's statement, and on 28th August, gave an interim order that the J.S.K. be supplied Inj. Sod. Thiosulphate subject to the condition that a registered medical practitioner would be in charge of this treatment. It also directed the M.P. State Govt. to submit by 11th September, a time-bound scheme of giving Inj. Sod. Thiosulphate for all gas-victims.

Activities of the Kendra during last one month

1. **Running a General Clinic**

After the arrival of Dr. P.V. Goon and Dr. D. Chakraborty from Drug Action Forum, West Bengal, it was decided to run a general clinic till Thiosulphate was available. Accordingly, a general clinic was run from 25th August to 7th September. This offered some relief, proper consultation to gas-victims and gave us an idea about the extent and range of suffering even nine months after the disaster - breathlessness on accustomed exertion, poor appetite, fullness of stomach after meals, tenderness of upper abdomen, weakness, fatigue, infections, disturbed sleep etc. Patients complained of long queues in the Govt. clinics, nepotism, insufficiency of free medicines, lack of proper concern and proper examination.

2. **Administration of Sodium Thiosulphate Injections**

Thanks to the Supreme Court Order, this activity was resumed from 9th September. As per the order, a registered medical practitioner is required. Dr. Anant Phadke (Medico Friend Circle) has been in charge of this activity till his stay in Bhopal (26th September). Some other arrangement is being made after 26th September till Dr. P.V. Goon gets his permanent regn. no. Dr. Goon will stay here till mid-November. Dr. D. Majhi and Dr. R. Mandal from D.A.F. have joined on 16th Sept. for a period of two weeks.

This time thiosulphate-treatment has been organised much more systematically. A batch of about 50 patients is selected, interviewed, examined and given a daily course of injections from Monday to Saturday. An interview after the 3rd injection, an interview and examination after the 6th injection are done. Dr. Mira Sadgopal with the help of other friends had prepared a method of grading the symptoms and to calculate the amount of improvement in symptoms in her report on the first 100 patients treated at the J.S.K. in June, '85. The same method is being followed. (The drop-out rate this time is very low since we are now able to conduct the activity in a more systematic manner.) Initial calculations give an impression that thiosulphate is still effective. Tenderness of upper abdomen, an objective sign also shows improvements in many patients. However a rigourous double blind clinical trial alongwith estimation of urinary thiocyanate level alone can tell us definitely about it. Preparatory discussions are going towards launching such a rigourous authentic trial independently. Results of the second trial conducted by I.C.M.R. in the 1st week of Sept. are eagerly awaited.

The aim of this activity is to evolve a method of conducting mass detoxification. We have chosen three bastis, go house to house, try to interview each person on the basis of I.C.M.R.'s guidelines and provisionally select persons in this interview. The idea is to demonstrate a method how to reach every house in a systematic way. Local Health-workers are conducting this and other works - Sayeed and Sudama (N.R.P.C.), Santosh and Suresh Kumar (T.U.R.F.), Krishna Bai and Kanhaiya Lal (Z.G.K.S.M.). A pamphlet has been written by Dr. Anant

Phadke, explaining 'whys and hows' of Sodium Thiosulphate. It is being published by the Samiti.

The pamphlet would be tape-recorded. Health education would be conducted with this and a pictorial exhibition for those who can not read. Preparations are under-way towards this end.

We would demand from the Govt., that when it does mass-detoxification according to I.C.M.R. guidelines, it should adopt the method evolved by the J.S.K.

3. **Medical care for children**

It was decided in the meetings of the Samiti in July that when resources are available, J.S.K. would extend its activities to other important aspects of medical care. In a recent meeting it was decided to conduct child-care activities when thiosulphate work is not going on, on certain afternoons. Accordingly the clinic for children is being run.

A random sample survey would be done in the bastis to find out the amount and type of illness now present in children in the affected survey. Some definite demand can be made to the Govt. A pictorial health exhibition is being prepared on child-care to be shown in the bastis in systematic manner. Attempts are being made to get measles-vaccine since this is not available in the Govt. set up, though it should be priority number one.

Appeal

All these activities require a lot of support from you. We are extremely hard-pressed for funds. Apart from drugs, at least four thousands rupees are required per month towards the general expenses (rent, printing, expenses of doctors and health-workers). We appeal to you to mobilise funds for us.

Our drugs are almost totally exhausted and we have been buying medicines for children in bits and pieces. This can not go on for longer than a couple of weeks. We urgently solicit your help in this regard.

The Kendra can fulfill its plans for extension of the range of activities only if sufficient number of health personnel are available. Also due to the Govt. Regulations that Sodium Thiosulphate administration can only be carried out by a registered doctor, though we have young doctors who are doing their internship, we still face crisis when a registered doctor is not there. Arrangements have been made to take care of the train fares and lodging of the doctors who wish to work in the Kendra, also partial contribution to their daily expenditure are made. We appeal to non-medical persons to work for health educational programmes of Jana Swasthya Kendra. We appeal to you to make arrangements for sending health personnel who can work in the Kendra at least for a period of 15 days.

Expecting your response,

(Dr. Punya Vrata Goon)
on behalf of
Jana Swasthya Kendra.

Bhopal
26.9.85.

Jana Swasthya Kendra Bhopal Press Statement

The doctors of the Jana Swasthya Kendra (Peoples Health Clinic) have stated in a press release issued to-day that some of the senior state Government officials are continuously and deliberately obstructing the Kendra's programme of detoxifying the gas-victims of cyanide-like poisoning and are also spreading confusion amongst the people regarding the efficiency of sodium thiosulphate therapy.

The doctors of the Jana Swasthya Kendra have stated that the state Government was forced to resume the supply of sodium thiosulphate injections on September on receiving orders from the Supreme Court.

However on September 14, the officials of the Health Dept. cleverly managed to give one hundred ampoules Batch No. ST I 985 as part of the total supply of 300 injections on that date. This specific batch is the same batch regarding which serious doubts were expressed by the Kendra's Doctors in the month of June following the reactions caused by the ampoules of this batch in certain Gas-victims. The doctors had at that time recommended to the Government that a ban be placed on the further distribution of Batch No. ST I 985. The matter was raised even in Vidhan Sabha and doubts expressed regarding the presence of pyrogen toxins in this particular batch. Despite all this public uproar the State Government did not confiscate this batch and the health Dept. supplied it once again to the Kendra without any warning whatsoever.

According to the Kendra, the Supreme Court had ordered the State Govt. six week ago to submit a detailed time bound scheme for detoxification of 2.5. lakh gas-victims. Since then the concerned Government officials have been trying to find all kinds of lame excuses in order to avoid committing themselves to such a scheme. At the Supreme Court hearing held on 25th Sept., the Govt., for the third time did not submit the detoxification scheme and has thus deprived the gas victims from receiving the treatment recommended by ICMR scientists.

The press release issued by the Kendra states that following the use of the ampoules of Batch No. ST I 985 on 24th and 25th of Sept., reports were received from 9 out of 32 patients of fever, chill, shivering and headache. These symptoms typical of pyrogen reaction were also noticed in certain gas victims when this batch was used earlier on June 15th. Dr. Anant Phadke, medical officer in-charge of the Kendra has sent a strongly worded letter of complaint to the Dept. of Health and has also announced that samples of this batch have been sent for independent and reliable analysis. More than 300 injections of sodium thiosulphate were administered between 9th and 14th Sept. without anyone complaining of such symptoms. Similarly, more than 2000 injections were administered in the 3 weeks of June by the Kendra with no complaints of this kind except on June 15 when Batch No. ST I 985 was used. The supply of this suspected batch by the Health Dept. to the Kendra for the second time amounts to a criminal act against the gas victims. The concerned senior Govt. officials are apparently doing this to spread confusion regarding thiosulphate therapy so that medical and chemical evidence of cyanide-like poisoning may not accumulate against Union Carbide.

The doctors of the Jana Swasthya Kendra have deplored this callous behaviour of the Govt. officials and have further stated that the act of supplying batch No. ST I 985 cannot be explained away as on oversight, but were a conspiracy to malign the Kendra and Jeopardise the detoxification programme. The Kendra has demanded that the Batch No. 985 be immediately withdraw from further distribution and be sent for scientific investigation. The Kendra appeals to the Chief Minister Sri Vora that the guilty officials be severely punished for their criminal act which is adding to the suffering of gas victims and also protecting Union Carbide.

(Dr. Punyavrata Goon)
Jana Swasthya Kendra
Kainchi Chhola Bhopal.

Dated Sept 28, 1985

Press Release

In a press release, issued here today by the Jana Swasthya Kendra (Bhopal), it has been stated that the Kendra has started functioning since last Monday, 21.10.1985 at Kainchi Chhola, which is one of the severely affected bastis. At present the Kendra is being supported by Zahreeli Gas Kand Sangharsh Morcha, Bhopal, and some concerned citizens of Bhopal. The activities of the Kendra currently include administration of Sodium Thiosulphate injections, paediatric care and dissemination of health information.

In the Thiosulphate clinic of the Jana Swasthay Kendra (Bhopal), 29 gas victims have been treated with injections of Sodium Thiosulphate this week for cyanide-like poisoning. The Doctor-in-charge of the clinic has stated that his week's experience shows that injection Sodium Thiosulphate is still effective even after 11 months of the gas exposure in alleviating some of the sufferings of the gas-victims. The doctor-in-charge, Dr. Punya Brata Gun, has observed that Sodium Thiosulphate therapy definitely brings about considerable relief to the gas victims in the symptoms of breathlessness, heartburn, abdominal pain, fullness of stomach after taking meals, loss of appetite, fatiguability and generalised muscle ache.

The paediatric clinic run in the afternoons on four days a week has attended a number of children who have been suffering from a variety of infections in addition to those problems that can be directly related to cyanide-like poisoning. To protect the large number of gas affected children from infectious diseases it is essential that a systematic time bound immunisation drive is undertaken by the Government without any delay.

It has been further stated that in the Kendra, emphasis is being put on health educational activities as well particularly in view of the total lack of information dissemination among gas victims regarding the damage to their bodies, the prevention and cure if any, the long term effects etc. by the Government. Two sets of poster exhibitions on child care and on eye care have been shown to the gas affected people. A pamphlet in simple hindi on cyanide like poisoning and the role of sodium thiosulphate therapy will be published shortly for distribution among the gas affected people.

It has been mentioned in the press release that the supply of sodium thiosulphate injections to this clinic has been made by the M.P. Government after the issuance of an order by the Supreme Court on 18.10.85 to this effect. This order among other orders have been issued in the process initiated by the filing of a writ petition in the Supreme Court with regard to the inadequacies and failures of the Governmental health care system.

The Jana Swasthya Kendra (Bhopal) has appealed to all concerned groups and individuals in Bhopal as well as from other parts of the country to extend support for the functioning of the Kendra with contributions in terms of medicines and funds, as well as with volunteers who can work in the Kendra. The address for communication would be D-137, Firdous Nagar, Off. Berasia Road, Bhopal — 462 018.

Bhopal
26.10.85

(Dr. Punya Brata Gun)
Doctor-in-charge,
Jana Swasthya Kendra (Bhopal)

Jana Swasthya Kendra (Bhopal)

. . . . . that the Bhopal Gas victims get correct information and proper health care. 14.11.85.

Overcoming the initial problems that it faced, the Jana Swasthya Kendra (Bhopal) started functioning since 21st October and is gathering increasing support from the gas victims. Operating from a modest accomodation in one of the worst gas-affected bastis — Kainchi Chhola, it is fast emerging as a centre where the gas-affected people know what all has gone wrong with their bodies, what is being done about them, what should be done and voices of concern, voices of dissent take shape slowly.

In the first three weeks of its functioning, the Kendra has been run with the technical support provided by the doctors of Medico Friend Circle and Drug Action Forum, W.B. and the organisational support provided by Zahreeli Gas Kand Sangharsh Morcha.

Killer Carbide still haunts the people of Bhopal people continue to suffer and death still stalks over the shanties. Carbide continues to suppress vital information such as the nature of the toxic gases that leaked and their possible effects, thus criminally obstructing proper health care of the gas victims. The Government on one hand colludes with the Carbide information suppression and on the other responds to such a situation of mass suffering through grossly inadequate health care system.

In a situation such as this, the Jana Swasthya Kendra (Bhopal) endeavours to bring out important issues in health care of the gas victims, put forward what needs to be done in terms of the total relief-rehabilitation in general and medical intervention in particular. The information generated towards this end and the involvement of gas-affected people in the process help and support any movement that builds up and takes these issues as rallying points. The effort of Jana Swasthya Kendra (Bhopal) is directed towards the evolution and demonstration of an alternative approach to health care of the gas victims. Involvement of gas victims in health care, dissemination of health information, rational therapy, training of health workers, community based health activity etc. are the constituents of this alternative approach.

In the first three weeks, Kendra's efforts towards these objectives included administration of sodium thiosulphate injections to the gas victims, care of children, care of adults with acute illnesses, dissemination of health information, monitoring of the existing health care delivery system in Bhopal. A brief report of the above activities follows.

Sodium Thiosulphate Clinic

The issue of cyanide like poisoning and administration of sodium thiosulphate for detoxification of the gas victims has been an issue fraught with Carbide-Government criminal conspiracy, people's resistance and demand and successful intervention of the voluntary bodies.

It is understood that sodium thiosulphate therapy is not the cure-all for all the problems the gas victims suffer from. It is one of the things that should be carried out and there are sufficient scientific substantiation on this count. The need for obtaining information, generating information regarding other possibilities is of significant importance and we are directing our endeavours in that direction as well.

In the sodium thiosulphate clinic of the Kendra, it has been shown that even eleven months after the gas episode, injection sodium thiosulphate is still effective in alleviating some of the symptoms of the gas victims namely breathlessness, loss of appetite, pain in the abdomen, fullness of stomach after taking meals heart burn, fatiguability and muscle ache.

In the three weeks the total number of patients detoxified in the clinic is 185-30,61 and 94 in the 1st, 2nd and 3rd weeks respectively. The age-sex distribution of these 185 patients with number of injections received follows.

No. of patients.. No of injections:	Male adults	Female adults	Male children	Female children	Total
6	6	4	4	1	15
5	1	4	0	0	5
4	2	0	0	0	2
3	46	41	15	12	114
2	10	2	1	1	14
1	15	15	5	0	35
Total	80	66	25	14	185

The youngest child detoxified during this period was a baby who was exposed to the killer gases when she was 11 days old.

To assess the improvement after thiosulphate therapy the symptoms were graded (as severe, moderate, mild) before and after the therapy (i.e. before 1st injection and after 3rd injection). In 88 patients who were thus interviewed and examined the percentages of improvement in symptoms were as follows.

Symptoms monitored	Improvement in%
Breathlessness	42.8%
Loss of appetite	48.4%
Abdominal pain	56.7%
Fullness of stomach after meals	65.9%
Heartburn	51.4%
Fatiguability	40.3%
Muscle ache	49.2%

Paediatric Care

In the paediatric clinic, 27 children have been treated so far. The exposure of this vulnerable age group to toxic gases is understood to have damaged their body defence mechanism and children thus have become prone to a variety of infections. Children coming to the clinic suffer from a variety of communicable infectious diseases, lung infection, gastro-intestinal diseases and skin diseases. A pilot survey carried out recently has indicate a large percentage of children who have not been immunised. This becomes a matter of serious concern and demands immediate attention from the concerned authorities.

Treatment of Adult Patients with Acute Illnesses

In this clinic, 41 patients have been treated so far mainly for respiratory problems, viral fevers and malaria.

Monitoring and Guidance Centre

In the monitoring centre, monitoring of the existing governmental as well as non-governmental health care delivery facilities is being attempted by talking to the patients who have undergone treatment in government clinics or under private physicians, by looking at the prescriptions and recording them whenever necessary and thus trying to arrive at some understanding of the prevalent health care delivery system. It is understood that a critique needs to be developed regarding the best manner in which the existing system can respond to the health requirements of the only 88 patients turned up for post-treatment interview.

The % improvement in each symptoms has been calculated by comparing the mean symptom improvement with initial mean symptom score. These figures may not be confused with percentage of patients who found relief gas affected population. This can positively contribute in demanding a rational therapy for the gas victims.

Dissemination of Health Information

Two poster exhibitions on paediatric and eye care are being shown in the clinic. A simple pamphlet in Hindi on thiosulphate therapy was written by Dr. Anant Phadke of Medico Friend Circle (MFC) for the Bhopal gas victims. It will be published by the Kendra this week. Dr. Narendra Gupta of MFC has spent a week for training the health workers, he will be here again in the last week of November.

In the above mentioned activities, the major share of the responsibility has been borned by the health workers who are gas victims themselves - Ashoke Rana, Suresh Kumar, Santosh Singh, Narmada Prasad and Sheelu Malhotra. During this period, Dr. Punya Brata Gun (Drug Action Forum, W.B.) has been the doctor in charge, Dr. Saibal Jana of Shaheed Hospital Group (Dalli Rajhara) will take over the charge from him on 14th November. Two doctors, Dr. Bijnan Bera and Dr. Bhabani Shankar Das from Medical Service Centre, Calcutta have joined the Kendra on 8th November for a period of 7 days. Junior doctors from Maharastra Association of Resident Doctors and Drug Action Forum, W.B. are expected to reach here shortly.

The Writ Petition and After

The Madhya Pradesh Government had stopped the supply of sodium thiosulphate to the Jana Swasthya Kendra since 25th June in its attempt to scuttle any efforts leading to the establishment of the facts related to cyanide like poisoning of the gas victims. In response a writ petition was filed in the Supreme Court by two gas victims and Dr. Nishith Vohra who was working in the Kendra. Organisational support for this was given by the Trade Union Relief Fund, Bombay and the Zahreeli Gas Kand Sangharsh Morcha, Bhopal. The petitioners were represented in the court by Ms. Indira Jaisingh of Lawyers' Collective, Bombay and Ms. Kamini Jaiswal, Delhi. This writ petition has to some extent exposed the gross inadequacy and ad-hocism in the government's health care delivery system and the machinations to cover these up.

On 28th August the Supreme Court gave an interim order directing the state government to resume the supply of sodium thiosulphate to Jana Swathay Kendra. The Court also ordered the state government to submit a time bound scheme for large scale administration of sodium thiosulphate to the gas victims according to the I.C.M.R. guidelines. The government did not submit such a scheme on several hearings and has not done it yet. Recently on 4th November, the Supreme Court has appointed an independent committee for 'quick relief (medical) and compensation of the gas victims'. The committee comprise of 2 representatives each from the state government and I.C.M.R., Dr. Heeresh Chandra, Head of the Department of Forensic Medicine, Gandhi Medical College, Bhopal, Dr. Anil Sadgopal of Zahreeli Gas Kand Sangharsh Morcha, Bhopal and one more representative from another voluntary organisation. This committee is empowered to obtain information already collected regarding the condition of the gas victims as well as to conduct necessary epidemiological or socio-economic surveys for ensuring proper medical facilities and determining the compensation payable to the gas victims. The decision of the committee the Court has said would 'final and binding'. It is expected that the proceedings of the committee once it starts functioning would be of considerable interest for all concerned.

Future plans

We strongly feel that the Kendra should continue its function to contribute towards the struggle of the gas victims for correct information and proper health care. A proposal has been made regarding the activities for the next four months. The highlights of this proposal are:-

1. **Work Hazards and Work Capacity Assessments** which will include:-

a) Identification of jobs requiring hard manual work (both in domestic and industrial conditions)

b) Identification of hazardous working environments (both domestic and industrial)

c) Assessment of the impact of the gas exposure on their capacities to do work and effect of the work on the health of the gas affected workers.

d) Suggestion of alternative employment on basis of a), b), c) as well as on taking into consideration factors such as existing skills, facilities and willingness of the workers.

2. **Double Blind Clinical Trial** to scientifically test efficacy of sodium thiosulphate

therapy in relieving the symptoms of chronic cyanide like poisoning after more than 11 months of the gas exposure.

* *This proposal is available on request from the contact address. Though respiratory and gynaecological care need immediate attention, they are not included in the proposal as we do not have the resources.*

3. **Monitoring and Guidance Centre**
   It would be a mean for cutting pressure on the existing health system and thus of ensuring proper health care to the gas victims.
4. **Child Care**
   Besides paediatric clinic, the plans are to conduct:-
   a) Survey of immunisation states of gas affected kids
   b) Survey of their morbidity status.
   The date generated from these surveys and information dissemination about child health and care will help the people to demand proper health care for their children.

Appeal

Jana Swasthya Kendra (Bhopal) requires funds, volunteers and constructive criticisms from all concerned groups and individuals.

The thiosulphate clinic needs at least 2 doctors at a time (one registered medical practitioner, the other may be an intern) who can work here at least for 15 days in turn).

The personnel required for other programmes are as follows:-

Work hazards and work capacity assessment-

2 doctors preferably with experience in occupational health. 4 persons with engineering and marketing background, 9 other persons of whom 2 should have experience in assessment of work hazards.

Double blind clinical trial-

One co-ordinator doctor, 4 other doctors, 6 health workers.

Monitoring and guidance centre-

2 doctors well versed in practices of rational therapy. Paediatric care-

One paediatrician for running the clinic. 2 doctors and 4 health workers for conducting the surveys.

All the persons interested to work in the Kendra may write to Mr. Satinath Sarangi at the contact address.

Till more formal arrangements are made, monetary help should be sent by M.O. in the name of Mr. Satinath Sarangi.

Stand by the side of the gas victims . . . . . to fight for the right of proper health care . . . . . to fight for the right of correct information.

Issued by Dr. Punya Brata Gun, Mr. Satinath Sarangi and Ms. Sadhara Karnik on behalf of Jana Swasthya Kendra (Bhopal).

Contact address:
D 137, Firdous Nagar
Off Berasia Road, Bhopal.

Kendra:
Makan No. 66, Gali No. 3
Kainchi Chhola, Bhopal.

An Unfortunate Setback to Voluntory Health Workers in Bhopal

Gas Victims Health Work Goes On

After the 25th June police repression upon the people's Health Clinic, the People's health programme has once again suffered an unfortunate setback.

As you are aware, four organisations working among the gas victims namely Nagarik Rahat Aur Punarvas Committee (NRPC), Trade Union Relief Fund (TURF) Bombay, Union Carbide Karmachari Sangh and Zahreeli Gas Kand Sangharsh Morcha (Z.G.K.S.M), Bhopal Joined hands on 1st June to form Jana Swasthya Samiti (People's Health Committee). Though they had differences over a number of issues they came to some common understanding in the matter of health care. On 3rd June a People's Health Clinic (Jana Swasthya Kendra) was opened on a portion of the Carbide Plant Premises which was declared liberated area by the struggling gas victims. This Kendra was to be run by the Jana Swathya Samiti.

From 3rd June to 24th June, detoxification of the gas victims off cyanide like poisoning was being carried out by administration of Inj. Sodium Thiosulphate. Then came the police repression closure of the clinic-refusal of health officials to supply JSK with NATS Public pressure on the govt.-writ Petition in Supreme Court against the Govt. of M.P. with the Prayer that NATS be supplied by the Govt. to JSK and ask that the Govt. submit a timebound scheme for mass detoxification-Supreme Court order directing the Govt. to resume supply of NATS TO JSK-JSK started again.

From 23/8/85 to 8/9/85 it was run as a general clinic since NATS had not been obtained and from 9/9/85 onwards thiosulphate therapy was taken up. Along with NATS administration Paediatric clinic was being run and health educational materials were being prepared. All this work was going on at the NRPC Premises which they (NRPC) had offered for the running of the Kendra after the police had made it difficult to run the clinic inside UCIL Premises. It is our opinion, and other does who have previously work in JSK share it, that NATS clinic requires a Pucca accomodation with at least 4 rooms (registration, examination, injection drug dispensaries). In this respect the premises offered by NRPC was quite adequate.

Though a lot of encouraging work was going on trouble started creepeing up.

1. One of the constituents NRPC called a meeting on 5th August and circulated paper which essentially made 3 points that can be said to be objectionable.
   a) That NATS therapy is not required by raising doubts regarding the efficacy of NATS. This becomes a matter for concern as NATS therapy coupled with cyanide like poisoning is an issues of much significance with the carbide Govt. collusion trying to scuttle efforts towards establishing the presence of cyanide like toxin in the gas affected population by raising doubts on NATS efficacy. The experience in the JSK of administering NATS to more than 1000 gas victims has clearly demonstrated that NATS workers and yet NRPC maintained in the paper that NATS is not effective.
   b) The paper said that NRPC believed in a comprehensive health care implying as if the other constituent organisations of JSK did not believe in it wheres the record of the deliberations of JSK would show that all the constituents believed in a compreshensive approach and it was only the lack of doctors and resources which made it imperative to set periorities and mobilise resource accordingly.
   c) NRPC also stated that there was a need for the formation of another health Committee that would work with a comprehensive understanding of health care. This was rather disturbing considering that the People's Health Committee of which NRPC was a number was already working and it was necessary that each constituent organisations contribute to their fullest extant to the working of such a committee.
2. When the Govt. has stopped the supply of NATS it was proposed that a writ petition be filled in the Supreme Court to force the Govt. to supply NATS for the JSK Such a writ petition was prepared in the presence of one NRPC member among others by Ms. Indira Jaisingin of Lawyers' Collective Bombay and commonly approved. An understanding was reached that JBS will file the writ, two weeks later but when the petition was about to be filed Tapan Bose of NRPC said that NRPC does not agree with the writ Petition and withdraw.

3. NRPC had affected its four roomed Pucca Premises for the JSK. Once the premises were inspected by senior Govt. Health officials (as per Supreme Court order) N.R.P.C. started asking for two rooms for their own purposes after representatives of TURF and ZGKSM as well as doctors working in JSK had reasoned with them, NRPC finally agreed to Shift their office from the premises and make all four rooms fully available for JSK by the 10th of September. This was not done. On 16th September. 2 of the important executive Committee members of the NRPC came to Bhopal and oversuled the Local agreement. They informed other constituence through a letter that NRPC will not be able to spare the premises for JSK and on alternative arrangement must be sought. However, they offerred the use of the NRPC premises till such an arrangement was available. They assured that NRPC would not use the premises for their office purposes during this period and thus let JSK run smoothly.

4. Contrary to the agreement NRPC continued to operated their office in the same premises. The NRPC Members would carry out loud and vicious campaign against the other JSS Constituent organisation in the clinic premises among the people visiting the clinic. They always would give the impression to the people that the clinic was being run only on behalf of NRPC. Other doctor working in JSK also witnessed this state of affairs.

5. On the 3rd of October the doctors on reaching the Kendra found two of the rooms locked. Some how NATS clinic was run in the remaining two rooms. However, all four rooms were necessarily required from Monday (7th October) as Monday was the first day for the next batch of gas victims to come for NATS administratiopn and the days work involved registration examination, administration of NATS and supply of drugs. In view of this an informal meeting was arranged by us on 5/10/85 in which representatives of both NRPC and ZGKSM were asked to attend. Then NRPC members assured us that all the rooms will be made available for the JSK work from Monday-7th Oct. 85.

On 7th we found the two rooms locked again and an NRPC member informed us that in a NRPC meeting on 6th October it was decided (mainly by the intervention of Liyagat and Jai Prakash) that the said rooms were not to be made available for JSK purposes. It was not possible to run the clinic in just two rooms, and we were left with not other choice but to close the clinic. We consulted the health workers and shifted the materials lying in the unlocked rooms to TURF clinic premises to fasilitate NRPC's running their office since there was not much sense in keeping the place occupied without the clinic running.

6. Then the most unfortunate things started happening NRPC Lodged a complaint with the police against the two of us and Mr. Satinath Sarangi, a ZGKSM activist (who happened to be present at the time of shifting but was involved neither in the decision making nor in the actual shifting). They threatened on behalf of JSS without consulting other constituent organisation which reported the incident of shifting as one of robbery Perpetrated by Mr. Satinath Sarangi and associates.

Things have now come to a dead and where we the doctors are not in a mood on position to work together with NRPC.

To start with we have decided to work in a new center with the support of ZGKSM and several concerned utizons of Bhopal who have agreed to raise the resources for initiating the health work.

To take the health activities forward, to continue the struggle for proper treatment and scientific information we need your help. We appeal to all concerned groups and individuals to send us support in terms of fund and personnel (Medico, Paramedics and non-medicos). Funds can be sent in the name of Dr. P.B. Gun through M.O. or cheques till more formal arrangement are made.

Issued by Dr. Sanjeev Kulkarni and Dr. Punya Brata Gun on 15th 10.85 at Bhopal.

Address for correspondence:
Dr. Punya Brata Gun
c/o Mr. Khan
D-137, Firdous Nagar
Off. Berasia Road
Bhopal.

10.5.2 Our Personnel Manager is a member of the Executive Committee of the Bhopal District Red Cross and has been in the PF Regional Committee, State Labour Advisory Board, Regional Council for Workers Education and the Convenor of the Labour Sub Committee of the Federation of M.P. Chamber of Commerce and Industries and has been nominated by them to represent the Chambers in Seminars and Committee meetings of the All India Organisation of Employees and as delegate to the FICCI.

10.5.3 UCIL actively participates in the activities of the M.P. Rashtra Bhasha Prachar Samiti an organisation established for the propogation of Hindi.

10.5.4 We represent ISI in the Pesticide Sub Committee.

10.6 Sports Activities

10.6.1 We have been taking part in various sports activities organised by the Bhojpur club where UCIL have been giving adhoc donations in the past. In 1982, book shelves were also donated for the club library.

10.6.2 We have made donations for the Tennis tournaments organised by the Arera Club annually.

10.6.3 UCIL takes active interest in the Army Golf course and has instituted a cup for which a tournament is held annually. Four managers including the works manager are members of the Army Golf Club where they take active part in the game.

APPENDIX 5.4

10.0 Contribution of UCIL — APD Towards Community Weifare

Extract from Submission to the Bhopal Poisonous Gas Leakage (1984) Enquiry Commission made by C.P. Lal of Union Carbide

10.1 Medical Care

Donation of the following equipments were made to the Intensive Care Unit of the local Hamidia Hospital in the year 1981:-

a) Respiratory Care Unit
b) Blood Gas Analyser
c) Cardiac Monitor/defibrillator
d) Nebullizer

10.1.2 A private ward block consisting of two suites was constructed and handed over to the Hamidia Hospital authorities in February, 1984.

10.1.3 Rare drugs were supplied from time to time at the request of the Hospital authorities.

10.1.4 Blood donations have been made from time to time each year by our employees for the Hamidia Hospital Blood Bank, the last camp was held on 12.2.85.

10.1.5 Donations have been given to Indian Red Cross Society whenever they have made any campaign etc.

10.1.6 The Company participated in the Family Planning Camp organised jointly by Hamidia Hospital and India Red Cross Society by donating incentive prizes to the volunteers who underwent Vasectomy operations.

10.1.7 Prior to 1979, suitable donations were made to Asha Niketan Nursing Home for the care of handicapped children.

10.1.8 Chairs have been donated for the Gandhi Medical College Library.

10.3.2 Donation have been made to Vanita Samaj, a social welfare organisation run by the ladies.

10.3.3 We have made donations to the M.P. film society in their annual function.

10.3.4 We have made donations to Bhopal Jaycees, a social organisation.

10.4 Cultural Activities

10.4.1 Donations given and hospitality extended to Indira Sangeet.
Kala University, Khairagarh whenever they have organised any function at Bhopal.

10.4.2 Various Music Clubs like Sangeet Kala Sangam in the City have been patronised by UCIL and suitable donations have been given during their annual function.

10.4.3 'MANJUSHA' a club promoted by wives of UCIL-APD staff has been quite active in organising 'FETES' and collections were donated to Hospitals, Flood relief fund etc.

10.4.4 Some of our employees have given programmes in All India Radio.

10.4.5 The UCIL Recreation Clubs have been organising cultural programmes where prominent citizens of Bhopal are also invited.

10.5 Membership of Institutions

10.5.1 Our Works Manager is a member of the Executive Committee of the State Red Cross Society and actively participates in its deliberations.

He is also a member of the Executive Committee of the Federation of M.P. Chambers of Commerce and Industries and has been nominated by the Chamber to represent it at the FICCI in its Technical Sub Committee.

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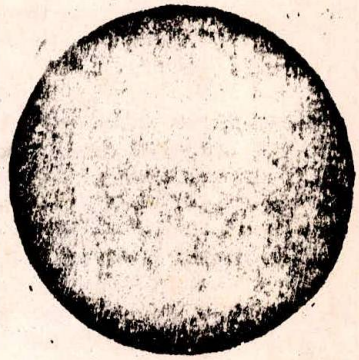
medico friend circle bulletin

FEBRUARY 1985



Reporting from Bangalore

Annual Meet 1985

About one hundred and ten friends consisting of doctors, nurses, social science professionals, social workers, journalists, developmental and political activists, university students and others from the States of Maharashtra, Gujarat, Rajasthan, Punjab, Delhi, Bihar, U.P, West Bengal, Andhra, Karnataka, Tamilnadu, Kerala and Nepal met at the Indian Social Institute, Bangalore, from the 26 to29 January 1985 in a series of informal meetings which formed part of the packed annual meet of the medico friend circle.

On the 26th, there were two impromptu planning sessions by the mfc early arrivals to finalise the tentative programme drawn up for the two day discussions on 'TB AND SOCIETY'.

On the 27th morning, after a short introduction of the mfc (Abhay Bang), the venue—Indian Social Institute (Stan Lourduswamy) and the annual meet (Ravi Narayan), all the friends were involved in a short self introduction which brought out the rich diversity of the assembled group. Then we divided into six groups to pull together the expectations of the friends on the meet, the issues in TB that they were concerned about and the focus and scope of the discussions.

After lunch the expectations and issues to be discussed were reviewed and suitable changes were made in the programme to ensure that many, if not most, of these areas of interest expressed and identified were included. We then divided into six groups to make a critical review of the National Tuberculosis Programme based on field observations and field experiences. Questions and issues to be put to a panel were also identified. A panel consisting of three of our senior resource persons from the National Tuberculosis Institute, Bangalore; (Dr. Gothi, Dr. Chandrashekar and Mr. Nair) two visiting TB Specialists from Sweden, (Dr. Hernborg and Dr. Sjogren) and Dr. Vasant Talwalkar of Bombay, then began to respond to the questions of the various groups. This session soon advanced into an intense, emotion-packed, dialogue and discussion deftly handled by our NTI colleagues. For many old mfcites, it was reminiscent of the earlier 'intense' reunions. A lot of heat, some light and much committed intervention made it a memorable evening which went on till 7.30 p.m.

After dinner those who still had stamina reassembled to listen to many of our new members and young friends share their general field experiences, perspectives and their individual quests. These included short reports from SEWA rural (Gujarat), Mitraniketan (Kerala) INGRID (Karnataka), CMC (Vellore), Calicut Medical College team, Chetna (Ahmedabad) and others.

On the 28th morning, we began with a sharing of seven case studies in Tuberculosis Control. They were—TB in the Tibetan refugee Camps in Coorg (Kelkar), Nagpada Neighbourhood House TB Programme, Bombay (Mona Daswani); TB work among the Santhals of Bihar (Roser Montagut); TB programme for children organised by Save the Children Fund of UK, in Nepal (Susannah Graham Jones); Shanti TB Centre in Urban Calcutta (Joseph Vazhakala), West Bengal TB Association Programme (Ganguly); Sewa Rural Health Programme in Jhagadia, Gujarat (Rajesh Mehta).

All of them shared their rich experiences and described the little innovations they had made to make their programmes more sensitive and

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responsive to the patients needs. Later during the morning we divided ourselves into seven groups to discuss the following specific areas relevant to the TB pro ramme in India: (1) Case Finding and Case Holding; (2) TB rational chemotherapy and rational drug policy; (3) Childhood Tuberculosis, BCG immunization and extra pulmonary TB (4) TB in medical education; (5) TB in the training of Community Health Workers; and paramedical workers and in public education; (6) TB—socio-economic and political factors. The sixth group further subdivided into two sub-groups—one group considering the occupational/environmental and legal aspects and the second the overall socio-political and economic setting of the health programme.

Reports of all these groups were presented at a plenary meeting after which all the participants once again divided into two main groups to spend the remaining time (continuing well after supper on the 28th) to discuss follow up action. Taking into account the nature of the participants work involvement and also Anant Phadke's suggestions in his article on 'Why Discuss TB' in the December 1984 issue of mfc bulletin, it was decided that the discussion on follow up action would be undertaken in two groups. The first consisting of all the friends who were involved in field programmes and community health projects would identify all the alternative approaches and innovative ideas that had been shared or identified during the meet for members to try out or introduce into their projects when they return. The second group consisting of all those who were not directly involved with community health programmes or TB control programmes would identify areas of intervention and action at all the non-project but equally significant levels-be they medical education, feed back to government, further study, raising public awareness, involvement of mass media and so on. On the 29th morning, there was a short plenary session at which both these groups presented their final reports and the TB meet was concluded.

A detailed report of the plenary and group discussions on 'TB AND SOCIETY' and final follow up plan will appear in the March 1985 issue of the bulletin.

(All rapporteurs of small group discussions and plenary sessions as well as participants who took notes are requested to send in their reports latest by 25th Feb' 85, if they have not already done so. —Ed)

XI Annual General Body Meeting

The 'Bhopal Disaster' was the first matter taken up at the annual general body meeting on the 29th morning. Many requests from the Zahreeli Gas Kand Sangarsh Morcha and other organisations for mfc's involvement in a long term study and other plans were considered. Reports by Abhay Bang and Narendra Gupta who had visited Bhopal in response to these requests were presented and the mfc made important decisions for responding to this national calamity (see decisions).

The whole of 29th was spent discussing various matters on the circulated agenda of the annual general meeting. These included the annual report, the statement of accounts, the annual budget, the bulletin, the anthologies, the rational drug policy cell, mfc's involvement in the All India Drug Action Network, the NETEN campaign, mfc's stand on capitation fees, issues raised by junior doctors strikes and other issues. The meeting concluded at 12 midnight. The key decisions for information of members, subscribers and readers of the bulletin are given below. A more detailed note on the GBM will be circulated to the members separately. On the 30th and 31st, many members stayed back to participate in the All India Drug Action Network Meetings that followed. The report of this meeting will be featured in the March issue.

decisions

(1) The Bhopal Disaster

a. A team of mfc members consisting of Amar Jesani, Mira Shiva, Daxa Patel, Anant Phadke, Narendra Gupta, Padma Prakash, Girish Godbole, Dhruv Mankad, Karuna Pattanayak Marie D'Souza, Manisha Gupte, Ravi Duggal, Ashvin Patel and Abhay Bang was formed to explore the possibility of responding to the invitations by various groups to undertake medical/health related studies — both short and long term to support the struggle of the victims of Bhopal.

Tentatively this group will put together relevent information by the 20th of February and start the study in early March.

(For further details, information, participation, contact Ashvin Patel, 21, Nirman Society, Alkapuri, Vadodara 390005 and/or Ravi Duggal, D-3, Refinery View, 62-63, Mahul Road, Chembur, Bombay-400074

b. The mfc GBM fully endorsed support to the team—financially and otherwise to undertake this work and initiated the Bhopal Fund. All members/subscribers/readers of the bulletin may send donations by cheque in the name of 'medico friend circle—Bhopal Fund' to the mfc office in Bangalore.

Urgently needed

All members/subscribers who have (a) access to any important medical/health information regarding MIC/phosgene, any relevant toxicological information; (b) any details about possible/probable study methodology; (c) any information, papers, reports that may be of use to the team; may please send copies of it immediately to Ashvin Patel and Ravi Duggal at the Baroda and Bombay addresses given earlier.

c. The mfc GBM also endorsed full support to the team to make public their findings and to disseminate it to all concerned.

d. As a symbolic gesture of unity and protest the GBM also endorsed the call of the Kerala Sastra Sahitya Parishad and Madras Citizens Groups to boycott EVEREADY BATTERY a product of the killer Union Carbide.

2. Anthologies

The first edition of mfc's third anthology—HEALTH AND MEDICINE-UNDER THE LENS (Rs. 15.00) and the second reprints of the first anthology—IN SEARCH OF DIAGNOSIS (Rs. 12.00) and the second anthology—HEALTH CARE WHICH WAY TO GO? (Rs. 15.00) will be available for sale in March 1985. The pre-publication offer of Rs. 35.00 for a three volume set is extended. Money Orders or Demand Drafts may be sent to the mfc office till 1.3.85.

All members/subscribers are requested to help with the sales. A pamphlet will be available from VHAI or mfc office about the three anthologies by 1st March. These will be sent out to all potential readers on request. Please send us names and addresses. Names of individuals who will review the third anthology for various journals/bulletins and magazines are also welcome.

3. Bulletin

a. The bulletin subscription list as of December 1984 is as follows. Maharashtra — 201; Karnataka — 63; Gujarat —59; West Bengal—31; Delhi — 28; Kerala — 28; Tamil Nadu — 27; Andhra — 21; Bihar — 21. Madhya Pradesh —12; Rajasthan — 9; Punjab — 8; Orissa — 6; Uttar Pradesh—6; 2 each from Mehalaya and Goa and one each from Nagaland and Haryana and 34 foreign subscribers. Total — 560.

A concerted subscription drive is necessary and we request all members to participate actively this year.

b. A readership survey will be undertaken this year.

c. Some areas to be covered in the bulletin are occupational and environmental health, non-allopathic system of medicine, unnecessary surgery, clinical investigation 'business', health of urban slums, return/rise of epidemics of infective hepatitis, dysentery and malaria, and capitation fee medical colleges. Contributions, letters, fillers on these and any other relevant topic are welcome.

d. To maintain a certain continuity, follow up reports on action follwing the TB meet, the Bhopal study, the NET-EN campaign and the evolving work of the Rational Drug Policy Cell and the All India Drug Action Network will be featured from time to time.

e. The editorial board continued as before with one addition — Abhay Bang.

4. Rational Drug Policy Cell

a. The first report on 'Rationality of Anti-diarrhoeals', by Shishir Modak is ready for sale. Copies are available with the Cell in Pune and the mfc office in Bangalore for Rs. 3.00 only. Please send Rs. 4.00 by money order to get a copy by post.

b. The second report on 'Analgesic combinations' by Jamie Uhrig and Penny Dawson will be ready for despatch in a few weeks. Await further details in the bulletin of March.

c. The campaign against injectable contraceptives has been initiated by the Bombay mfc group along with other groups (further details of the campaign in the March bulletin).

5. Organisational:

The annual report for 1984, the statement of accounts for the period 1.4.84 to 31.12.84, and the annual budget for 1985 were presented and approved.

6. Executive Committee

Anant Phadke, Amar Jesani and Amar Singh Azad continued on the executive committe for their second year. Kartik Nanavati, Lalit Khanra and Mira Sadgopal, who completed their second year were replaced by Narendra Gupta, Daxa Patel and Thelma Narayan. Satyamala who completed her second year was re-elected for another two year term and continued on the Committee. Ravi Narayan continued as Convenor.

7. Annual Meet

The tentative them will be "Ocupational and Environmental Health". The focus and scope of the annual meet discussions will be clarified at the Core group meeting. The dates for the next annual meet have been tentatively fixed for 27 — 29 Jan 1986 and the venue will be Bombay. Further details will be finalised at the mid-annual meeting.

8. Mid-annual Core group Meeting

The mid-annual EC/core group meeting will be held on 26—28th July 1985 at Patiala. Amar Singh Azad and group agreed to host the meeting. During these three days we shall dicuss Ashvin/Anant's articles on the role of mfc (refer mfcb 100—1), the report of the mfc team going to Bhopal, and the approach papers on the theme of the annual Meet 1986. Three case-studies on this theme will be presented viz.

a) Occupational hazards of agricultural workers — Amar Azad, Satish Gogulwar, Lalit Khanra, Marie D'Souza.

b) Occupational and environmental hazards of viscose—rayon factories in India — Thelma Narayan.

(c) Occupational lung diseases — Textile factories, asbestos etc—the Bombay mfc group.

The Double Standard In Industrial Hazards

— Barry I Castleman

Industrial health hazards, both occupational and environmental, have been the object of increasing concern in industrialized nations. Control requirements and compensation liabilities have favored the the emergence of alternatives to asbestos, carcinogenic dye intermediates, mercury, and other very hazardous materials. However, despite the domination of world markets and production by firms well aware of such dangers, progress has been delayed in the developing countries. Numerous examples of a double standard in health protection are cited, in which the affiliates of companies based in the United States, Europe, and Japan expose workers and communities in developing countries to dangers that would not be tolerated in the home countries of the multinationals. This widespread problem stands as a threat to public health and a challenge to professionas in this field, worldwide

Double Standard Cases*

Industry	Location	Type of Hazard Reported	Multinational affiliation	Type of affiliation
Asbestos friction product and textile manufacture	Bombay	Numerous workplace hazards uncontrolled, failure to inform workers and tell them of medical exam findings	Turner and Newall Ltd (UK)	75% ownership
Asbestos cement manufacture	Ahmedabad	Water pollution, solid waste dumping, no warnings on products	Johns-Manville (US)	Minority ownership exclusive marketing of exports, raw material sales, plant design and construction supervision
Asbestos brake lining manufacture	Madras	Solid waste dumping	Cape Industries (UK)	25% ownership
Dye manufacture Mercury cell Chlorine plant	Bombay	Water pollution Mercury poisoning, water pollution	Montedison (Italy) Pennwalt Corp (US)	Partial ownership 40% ownership and management of the plant
Steelmaking	Malaysia	Air pollution, work place hazards	Nippon Steel (Japan)	Minority ownership and plan design
Polyvinyl chloride manufacture	Malaysia	High worker exposure to carcinogen vinyl chloride	"Japanese" companies	Partial ownership
Arsenical pesticides manufacture	Malaysia	Arsenic poisoning symptoms in workers, no monitoring of exposure	Diamond Shamrock (US)	Subsidiary

* Only Indian and Malaysian examples are cited.

What to do about Hazard Export

Workers education and alert.
New plant design for process control.
Environmental appraisal before granting of industrial licenses.
Development of expertise in toxic substances control.
Ongoing and competent appraisal of world wide movement of hazardous industries.
Trade unions to press for regulations to protect workers health.

* Extracted from two articles by Barry I Castleman entitled "The Export of Hazardous Factories to Developing Nations" (International Journal of Health Services Vol 9, Number 4, 1979) and "The Double Standard in Industrial Hazards" (International Journal of Health Services Vol 13, Number 1, 1983). The former article includes sections on Asbestos, textiles and friction products, lead smelters and battery plants, primary refined zinc, mineral industries in general, benzidine dyes, vinyl chloride industries and steel industry. Both articles have an exhaustive list of references. For direct reprint requests write to : Barry Castleman, 1722 Linden Avenue, Baltimore, Maryland 21217.

Are you Harming Yourself?

PAIN KILLER DRUGS

Analgin, a pain killer drug (Novalgin, Baralgan, Ultragin etc) can cause damage to bone marrow causing deficiency of white blood cells, "Agranulocytosis", a potentially fatal condition. A doctor who had himself taken just two tablets containing analgin, developed agranulocytosis and could survive with difficulty after a fight of nearly six months under intensive medical care. Analgin has been banned in a number of countries including Bangladesh but continues to be manufactured even by public pharmaceutical companise and is freely available in the market without any warning system to consumers. Pain is a subjective phenomenon and certain natural methods like taking rest, massage with gentle hands, going out for a walk for diversion of mind etc., are preferable to taking drugs. Similarly sponging of the body with water or ice cold packs are better for symptomatic relief of fever and should be used as a primary measure. Fever is basically the body's defence mechanism and stress should be on proper diagnosis of the cause of fever and specific treatment of that cause. Paracetamol (Metacin, Crocin, Pyrigesic etc) is a relatively safe drug and can be used for relief of pain or fever. Aspirin, another drug (eg., Disprin) when taken should be consumed with a glass full of water or milk and preferably after food. Unfortunately the market is being flooded by drug combinations of either useless or harmful medicines and it may be sometimes difficult to get a single drug preparation.

Bulletin Consumer Guidance Society of India

A WARNING

Bharani et al (Journal of the Association of Physicians of India, 1984, 32:382-383) have done a singular service to patients and the profession by highlighting marrow toxicity of dipyrone (analgin) and various combinations containing dipyrone. In my hematological practice, I encounter an average about 12-15 cases of agranulocytosis in a year. Of these 10-12 are caused by dipyrone or dipyrone containing drugs. Agranulocytosis in existing circumstances carries mortality of 50-60%. Unfortunately in almost all cases the drug is used by otherwise healthy individual for a trivial symptom and that use could have been easily avoided without any inconvenience to the patient. Medical personnel who prescribe some of these drugs are unaware that a particular drug contains analgin because the brand name does not end in 'gin'. This ignorance can be disastrous and cost a patient his life. To illustrate this point the following case would suffice. A patient with 'Novalgin' induced agranulocytosis was recovering gradually with leucocyte count rising from 500/emm. to 2000/cmm over a period of 6 days. At that stage the patient complained of abdominal discomfort for which he was given Inj. Baralgan by the doctor in charge of the patient. Leucocyte count dropped down to 300/cu. mm in 12 hours and patient succumbed. Identical story was repeated in another patient with the same drugs but fortunately the patient recovered. In my 25 years of medical practice, I have never used dipyrone or other drugs containing dipyrone, and I do not think my patients have been worse off without them. However majority of the medical profession has been so much conditioned to use it that it really needs strict vigilance to make a resident doctor in a hospital discard the habit of using dipyrone when he works with me after working elsewhere from where he has picked up the habit of prescribing 'gins'.

—Dr. BC. Mehta
Hon Prof & Head
Dept of Haematology
KEM Hospital, Bombay

(letter sent to the Editor, Journal of Association of Physicians of India)

BANNING BRANDS (U. K.)

Some 300 branded medicines will be banned from National Health Service prescriptions from next April, as the government attempts to cut its £1400 million medicines bill. Most of the drugs are for minor ailments and are usually available in chemists' shops-at a price. A study of the 31 medicines listed by the health minister Kenneth Clarke last week as replacements for the banned brands reveals, for the first time, the emergence of a government medicines policy.

Twenty-eight of the 31 approved medicines are pharmacopoeial preparations, that is medicines for which composition and standards are laid down in the British Pharmacopoeia (BP) or the British Pharmaceutical Codex (BPC). The other three are benzodiazepines, such as Valium, for which no standard yet exists.

Nearly 100 cough medicines with names that tell nothing will disappear from NHS prescriptions. They will be replaced by six medicines with such simple titles as Diamorphine Linctus BPC or Methadone Linctus BP. Alkaline Gentian Mixture BP alone will replace the various "tonics" to improve the appetite.

The numerous multivitamin preparations with fancy names will give way to straightforward Vitamin Capsules BPC, or to single substance preparations such as Ascorbic Acid Tablets BP (Vitamin C) or Pyridoxine Hydrochloride Tablets BP (Vitamin B 6) or Vitamin B 12 (cyanocobalamin) for the treatment of pernicious anaemia.

Two BP laxatives and five antacids will do NHS service for the 65 brands and more than 100 proprietary preparations listed in the pharmacists' bible, MIMS.

five aspirin and paracetamol preparations replace the 34 brand-named mild analgesics listed in MIMS, though some doctors think they will be able to go on prescribing the branded products for arthritis. Ministers' opposition to benzodiazepines will remove the money-spinner Valium from NHS prescriptions in favour of plain diazepam, Mogadon as nitrazepam.

A score of other brand-named "sedatives and tranquillisers" will also disappear, including bluzodiazepine bypaotics. Last week's THE LANCET reported once again on the inappropriate prescribing of prochlorperazine as a tranquilliser, particularly for the elderly suggesting that non-bluzodiazepine tranquillisers should also be considered. /

FRANK LESSER

Source : New Scientist—15th November, 1984.

BOOK REVIEW

OUR JOBS, OUR HEALTH — A Women's Guide to Occupational Health and Safety, Boston Women's Health Book Collective, 89 pp.

In recent years health issues at the work place have generated considerable research, literature and action. The status of women's health at work — inside the home and outside — has become a cause for concern only since women's work became recognised as contributing to social and economic development. In other words, health problems of women at work became visible only when women's work became visible.

This book offers a good guide to the health hazards women face at work. The basic premise of the Collective in writing the book is that health and safety concerns of working women are not especially different from those of working men. At least not most of the time. But the reason why work related health problems of women cause distinct concern is because they are defined by the kind of work that women do. And that, is in turn determined by women's status in society. The authors point out that traditionally in any sphere of activity women have been performing the most tedious, tiring, monotonous, lowly and ill paid jobs. They are thus exposed to a larger number of hazards and more frequently than men.

This booklet offers much needed information on health and safety hazards, how to recognise them and how to do something about getting rid of them. It contains 12 short chapters beginning with a short rather too brief note on women's work through history.

Do you come home with a headache everyday? Do you find that you are gradually growing deaf? Have you lately heard of higher incidence of cancer in the plant? If you have, then it is time you realised that you might be working in a hazardous environment. The authors classified hazards under categories of industry. For instance, the health effects in the electronic industry are dermatitis, dizziness, damage to the nervous system and the liver, skin burns, heart disease, eye, nose and throat irritation.

The booklet exposes some commonly held cancer myths which have often been used to counter workers' demands for a healthier environment. One oft quoted argument is that any substance can cause cancer in animals if given in large enough quantities and so, animal studies are not sufficient proof that a substance is carcinogenic. This is untrue because only some chemicals are carcinogenic although high doses used in animal studies increase the likelihood of cancer in the experimental animals. But this does not mean that *all* chemicals are carcinogenic if consumed in sufficient quantities. Animal studies are the only available means of screening potentially hazardous chemicals. It is also untrue that most cancers are caused by personal lifestyles. If a woman is exposed to high levels of benzence she will run the risk of developing cancer no matter what her lifestyle.

A major chapter in the booklet is devoted to reproductive issues in the work place. How do substances in the workplace affect the reproductive system of men and women? Impotence, loss of sexual desire, infertility and mutation of the germ cell are listed in answer. The growing concern for 'the unborn child' has led many US companies to formulate policies which effectively prevent women between '18 and 60 from gainning access to a wide range of jobs which were open to them so far. The authors point out that "removing women from these jobs instead of cleaning up the workplace divert attention from the real issue: protecting all workers from reproductive and other health hazards". Mostly of academic interest to us here, but nevertheless heartening, is the information about the pregnancy disability amendment of the Federal Civil Rights Act in the US which provides for the protection of the right of pregnant women to work. It ensures among other things that employers treat pregnancy disability just like any other disability by providing light work, modified tasks or leave. Women cannot be denied unemployment benefits merely because of pregnancy.

Another important and informative chapter is on controlling hazard once they are identified. Although some of the suggestions may not be applicable to Indian conditions, the method involved in dealing with workplace hazards would be very illuminating to activists and to workers. It would, in fact be, a good idea to adapt this book to Indian situations and to translate and distribute some of the chapters.

Mention must be made here of the work being undertaken by the Union Research Group, some of which has been presented in the URG Bulletins. It not only throws light on the health hazards in some industries, but also suggests possible and practicable solutions.

— padma prakash, Bombay.

Dear Friend. . .

THE MARD STRIKE.

1. Sanjay Nagral gives us an interesting internal view of the MARD strike, But did I perceive a note of pessimism in his essay?

The recent strike in Kerala, against capitation-fee Medical Colleges, was a grand success. This strike too was spear-headed by interns and medical students, very few senior doctors openly supported the strike, though it had their tacit approval.

The mass contact programme was carried out with enthusiasm. A few non-professional colleges had token strikes. Jud ing from the letters to the Editor" column of virtually every newspaper and magazine in Kera'a, the people were very much interested in what was going on. Finally it was the subtle but powerful support of the strike by the masses that caused even senior politicians and parties to change their stance, and the government had to withdraw.

We tend to underestimate the power of the people. MFC, VHAI, CHAI, & similar associations can do little unless they not only work in partnership but also broaden their base and stop striking an elitist pose.

MFC, VHAI, CHAI etc must vitalise the apathetic, and guide the pentup anger and frustrations of the massess into proper channels. But it is ultimately the masses that produce change, not 'thought currents' and associations.

NEWTON LUIZ,
COCHIN.

2. I am constrained to make some observations on the article 'The MARD strike — a view point' by Sanjay Nagral in the mfc bulletin no 108. The evaluation of the impact and the criticism of the conduction of the strike appear to be superficial and incomplete. It is difficult to agree with the conclusion that the "strike was a failure". The MARD strike was, in a sense, a unique one. Agitations of doctors on causes of social interest is only a decade old and is now fast attracting public attention, but the issues were usually related to medical care and health policy. MARD strike has added a new dimension in drawing attention to the malpractice prevailing in the administration of medical education. Failure or success of a movement can hardly be judged by the instant impact or immediate return. The strike of the state-employed doctors of West Bengal in 1947 ended in an agreement which the Govt., taking advantage of the EMERGENCY in the country, did not keep. But after the emergency was lifted. the resurging public opinion pressurised the Govt., to concede some of the demands. Similarly, the present Left Front ignoring the protests of the medical profession, launched their half-baked 'Barefoot Doctor' scheme but had to terminate it after 3 years admitting their mistake. The latest Junior Doctors' movement in Bengal had failed to achieve any significant concession but we consider it the most successful movement of the medical profession to the effect that the movement caused such an unprecedented upsurge of public involvement that a good number of Mass Organisations have since taken up the issue of health care and a sustained campaign on Health is still going on.

The critical comments regarding the immature and opportunist conduction of the movement by the leaders of the MARD strike appear to be simplistic. It was rather expected that the leadership might fail to grasp the political realities and if they did, they atleast did not reveal less wisdom than that of the big Left Political Parties and Trade Unions vis-a-vis the Bombay Textile Strike.

On the other hand, the author himself could not make much headway in analysing the political realities except making some nebulous observations popular among the left circle. The class interest behind the move of Capitation Fee, the class character of the different sections of the organised medical profession, the out-look, attitude and the level of awareness of the organised working class to this issue in the perspective of health care, the quantitative and qualitative impact of Capitation Fee system on the medical profession—these were the issues which should have been analysed and discussed in order to understand the political realities. In fact it is not even clear what motivated the resident doctors to organise and agitate and what was their real cause of grievance.

The author made another faux pas in, on the one hand, looking down upon the MARD for calling off the movement just in exchange of a no-victimisation assurance while on the other, advocating compromise at an early stage of the movement with a partial concession of percentage of merit seats. While agreeing with the author that "political moves have to be fought 'Politically', it may be worthwhile to suggest that political fights should also be fought on principles and material concessions may often erode the very basis of politics of a movement.

The suggestion of the author to broaden the base of the struggle by involving the trade unions, mass organisations, science movement groups etc will be welcomed by all but we, from our own experience, feel that this could only be done by clarifying the relationship and impact of these issues with regard to health care service. In any case, I must express my satisfaction in finding an article of this nature in the pages of mfc bulletin and I hope, in view of the apologetic observations of Padma Prakash and Amar Jesani in the "Dear Friend" column of the same issue, that article on such subjects will continue to appear in future.

SUJIT K. DAS
CALCUTTA.

III ANTHOLOGY

medico friend circle are glad to announce that our third anthology of articles (covering bulletins 53.. 95..) and entitled "HEALTH AND MEDICINE—UNDER THE LENS" will be published by March 1985. Price Rs. 15/-

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Bhopal Disaster: Citizens Response

1. **The Delhi Science Forum** had sent a team to Bhopal and have published a report on the 'Bhopal Gas Tragedy'. It is available for Rs. 3.00 from B-1, 2nd floor, J. Block, Saket, New Delhi 110017.

DSF have also prepared an exhibition with 40 modules which is being taken to schools, colleges, public sector offices and factories. Xerox copies of these are available. For details write to the above address.

2. **Kerala Shastra Sahitya Parishad (KSSP)** have launched a campaign for the boycott of Eveready Batteries manufactured by Union Carbide. Posters and Post-cards for this campaign are available for Re. 1.00 each from KSSP, Parishad Bhavan, Trivandrum 695037, Kerala.

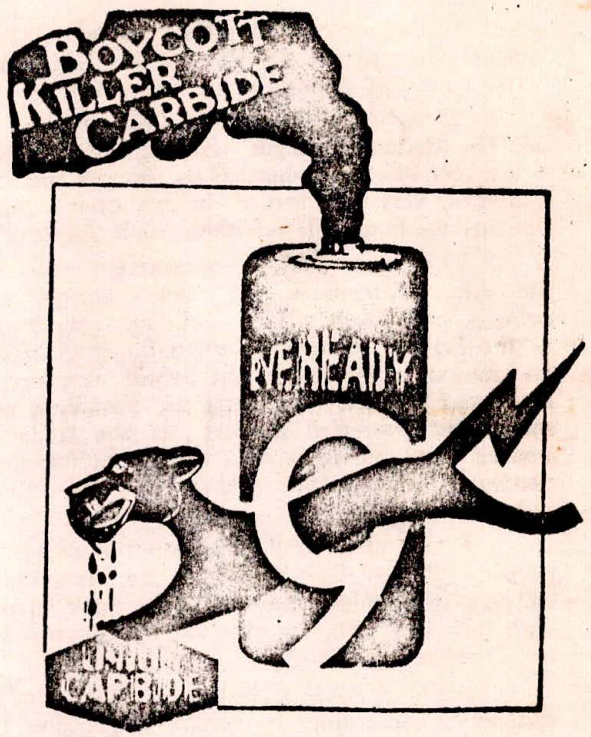
3. **Eklavya** who are actively involved with the Zahreeli Gas Kand Sangharsh Morcha in Bhopal have published a report on BHOPAL: CITY OF DEATH, a people's view of death, their right to know and live. A reconstruction of the gas tragedy, its background and aftermath from press reports and local information. It is available at a contributary price of Rs. 3.00 from Eklavya, E 1/208 Arera Colony, Bhopal.

4. The **Zahreeli Gas Kand Sangharsh Morcha, Bhopal** are organising a Solidarity March on Feb 16, 1985 and a National Convention in Bhopal on Feb 17 & 18, 1985 on Lessons from Bhopal, environment, science and democratic rights (in the context of the role of foreign capital and the Indian State). Contact address: Vibhuti Jha, Advocate, 49 Shyamala Road, Bhopal 462002.

5. **ad erratum — mfcb 109 — Citizens Responses**

—The note from **Madras should read as** —

SPACE — Students for Protection and Care of Environment (Y-54, Anna Nagar, Madras 600040) took out a protest march on 14 Dec 1984 and presented memorandum to the government, Union Carbide and the US governent. The Movement for Environmental Protection (54 Jani Jan Khan Road Madras, organized a public meeting and a demonstration by Children at Basin Bridge on 5 January and a dharna outside the Union Carbide Office. Anna Salai on 8th January.



Dear Friend.

Let us begin this New Year with a firm resolve to flight the Killer Union Carbide, who murdered and maimed thousands of our brothers and sisters at Bhopal. Let us fight with all might the Multinational blood suckers who exploit the third world poor.

Kerala Sastra Sahithya Parishad
Parishad Bhavan
Trivandrum-695037

Announcement

In July 1984, the Indian Women Scientists Association (IWSA) arranged a seminar on 'SOCIO ECONOMIC AND HEALTH IMPACT OF EMPLOYMENT GENERATION SCHEMES FOR WOMEN' at the Third All India meeting of Women in Science. A few copies of the proceedings are available for distribution. All those involved in such projects and interested in the proceedings should write to Mahtab S. Bamji, Convenor, IWSA, Hyderabad Branch, National Institute of Nutrition, Hyderabad 500007.

Views and opinions expressed in the bulletin are those of the authors and not necessarily of the organisation.

Annual subscription — Inland Rs. 15-00

Foreign ; Sea Mail — US $ 4 for all countries
Air Mail : Asia — US $ 6; Africa & Europe — US $ 9; Canada & USA — US $ 11

Edited by Ravi Narayan, 326, Vth Main, Ist Block, Koramangala, Bangalore-560 034

Printed by Thelma Narayan at Pauline Printing Press, 44, Ulsoor Road, Bangalore-560 042

Published by Thelma Narayan for medico friend circle, 326, Vth Main, Ist Block, Koramangala, Bangalore-560 034

p r e s s
r e l e a s e

medico friend circle
organization & bulletin office
326 V Main I Block Koramangala
Bangalore 560034

30.3.1985

The medico friend circle (mfc), an All India group of socially conscious doctors and health workers has just completed a systematic study of the continued effects of toxic gas in two bastis in Bhopal.

The observations of the study conducted between March 18-25 in the highly affected Jayaprakash Nagar and the less affected Anna Nagar are yet to be fully analysed. However, the initial findings definitely indicate that : (i) the affected population is already showing signs of reduced breathing and working capacity which is likely to be permanent unless remedial measures are urgently introduced; (ii) pregnant women who had been exposed to the gas in the first three months of pregnancy or have become pregnant since the disaster have still not been informed about the possible dangers to the foetus. Moreover, detoxification measures recommended by the ICMR over a month ago--the administration of sodium thiosulphate has not been implemented. The mfc is deeply concerned and agitated about the situation.

Reduced breathing and working capacity among the affected population

The mfc's study team has observed that men are not able to go back to work because of breathlessness on accustomed exertion (exertional dyspnoea). Those who have returned to work report definitely reduced working capacities. Most women find it difficult to carry on their usual household chores. The team has noted with particular concern that very few of the children can even play or participate in normal physicial activity in the affected bastis.

It is well known that a large proportion of the MIC affected population is likely to develop fibrosis of the lungs (development of scars) following inflammation of the lungs due to irritation. This condition permamently affects breathing and hence working capacity. Such a condition is already in evidence in the population covered by the mfc study.

Simple breathing exercises are known to help to reduce this disability. Information about these exercises must be widely known and their importance stressed.

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Mass detoxification by sodium thiosulphate

More than a month ago the ICMR had recommended the administration of sodium thiosulphate for detoxification of all patients suffering from symptoms of MIC poisoning. This recommendation was based on conclusions drawn from a double-blind clinical study. But as yet, there appears to be no strategy in action with regard to administration of sodium thiosulphate to the vast majority of affected people. Only a tiny fraction, consisting of the seriously ill are receiving the injection.

mfc emphatically feels that as suggested by the ICMR, all patients suffering from symptoms of mic poisoning should be urgently administered sodium thiosulphate so that their suffering is reduced and they may go back to work. This service and other medical facilities should be urgently provided in a decentralised way, close to the bastic in affected areas.

The insight that sodium thiosulphate may well be effective was known even in the first week after the disaster. It is extremely disturbing and deplorable that decisions on vital issues like this which affect the lives of thousands of people should have been so long delayed. Even more shocking is the fact that even now, a month after the recommendation was publicised, mass detoxification of MIC victims has not begun.

Possible risks to the foetus

Another disturbing feature is that pregnant women who have been exposed to MIC have not been given any advice regarding the possible risks to the foetus. Given the fact that the first three months of pregnancy is the most sensitive period, it is likely that these women as well those who became pregnant immediately after the disaster are likely to give birth to deformed babies, since MIC or its breakdown products are very reactive chemicals. Moreover many of these women have received several types of drugs when as a rule in the first three months no drug should be given for fear of drug induced deformations. Somce of these drugs, especially steroids are known to cause deformities.

There is an urgent need to inform people, especially women about these dangers and to advise them to undergo medical termination of pregnancy. Adequate and free facilities should be made available to those women who opt for it without

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coercing them to undergo sterilisation. Further, those couples who have lost children and want reversal of sterilisation must be offered these facilities free of charge.

Doctors belonging to mfc had pointed out these dangers in anearlier note sent to the concerned authorities a month ago. But to date nothing seems to have been done.

Many of these women have by now crossed the five month limit of pregnancy beyond which MTP is unsafe. But there are some who can still terminate their pregnancy although the risks are greater than in the first weeks. Facilities for ultra-sonographic examination should be made available to these women immediately to detect gross abnormalities in their foetuses.

That this is not being done is a reflection of the indifference of health authorities towards the health problems of poor women. Moreover mfc feels that the ICMR study designed to follow up these women on a long term to assess the percentage of deformities without informing women about the possible risks or the advisability of MTP is unethical. The dangers to pregnancy are well known and poor women should not be used as guinea pigs in medical research.

Contraceptive advice to affected couples

Most of the MIC affected population is still suffering from symptoms of cyanide like poisoning indicating, therefore, the persistence of the biochemical changes which have occured due to MIC poisoning. It is safer to avoid pregnancies till complete detoxification has taken place. Since a large proportion of the women are suffering from menstrual disorders and other gynaecological problems, male contraceptives (Nirodh) should be recommended rather than Copper T or oral contraceptive pills by the women.

We demand that the health authorities should give serious and urgent consideration to the issues raised here.

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released by the convenor of mfc

draft manuscript
for private circulation only
not to be quoted

THE BHOPAL DISASTER AFTERMATH

--an epidemiological and socio-medical study

15--25 March 1985

medico friend circle

Dedicated to the thousands
who died or were disabled
by the Bhopal Gas Disaster
--one of the worst industrial
accidents in recorded history.

with a

resolve to prevent
medical research
from becoming an exploitation
of human suffering

with a

resolve to make
medical research
an expression of
humane concern

Comparisons of some of the important characteristics of J P Nagar and Anna Nagar populations (study/control populations)

Table 1A

Age-Sex Structure

Age	Sex	J P Nagar % n = 148	Anna Nagar % n = 138
11-15 years	M	8.10	10.14
	F	9.46	4.35
16-45 years	M	35.81	34.78
	F	33.78	31.88
46 +	M	6.08	10.14
	F	6.75	8.70

Table 1B

History of smoking and chronic diseases

		J P Nagar n = 148 %	Anna Nagar n = 138 %
Smoking (a)	+	22.75	25.0
	-	77.24	75.0
Chronic diseases (b)	+	9.58	10.37
	-	90.41	89.62

(a) a smoker is one who has smoked at least one cigarette per day for at least one year in a life time.

(b) chronic diseases specifically included asthma, chronic bronchitis, tuberculosis and others.

Table 1C

Occupations and income levels

Occupation	J P Nagar % n = 148	Anna Nagar % n = 138
Unskilled	18.91	27.73
Skilled	7.43	8.73
Self-employed	13.51	15.32
Service	14.18	10.21
Housework	29.72	24.08
Others	16.21	13.86
Per capita income per month before gas exposure		
Less than Rs.50.00	4.68	4.58
Rs.51-75	10.93	22.93
Rs.76-100	16.40	21.10
Rs.101-125	14.84	13.76
Rs.126.00 and above	53.12	37.61

Figure 1. Percentage change in income of individuals of both communities after gas exposure

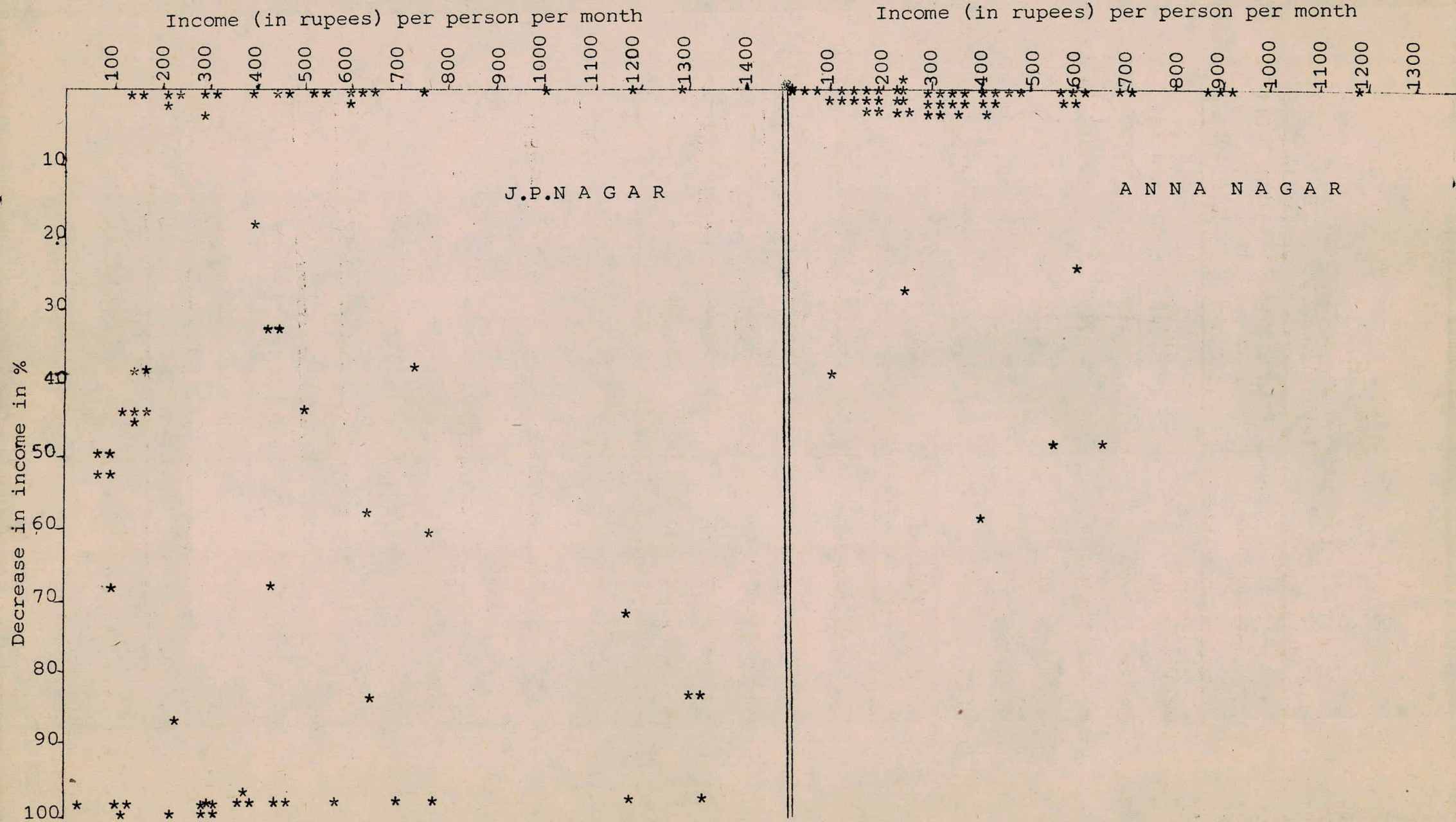

Table 1D

Comparison between body surface area (M^2) in JP Nagar and Anna Nagar according to age-sex (figures in bracket show S.D)

Body surface area (mean) in Sq M^2		J P Nagar % n = 136	Anna Nagar % n = 137
11-15 years	M	1.23 (0.14)	1.22 (0.19)
	F	1.22 (0.12)	1.15 (0.13)
15-45 years	M	1.49 (0.09)	1.51 (0.12)
	F	1.37 (0.11)	1.35 (0.12)
45-60 years	M	1.50 (0.14)	1.53 (0.09)
	F	1.37 (0.09)	1.41 (0.22)
61 + years	M	1.35 (0.04)	1.38 (0.15)
	F	1.32 (0.06)	1.28 (0.05)

Note: The differences in mean BSA's were tested by 't' test -- all the differences were statistically non-significant (NS)

Table 2

Death compensation with or without additional loan in two areas

	WITH Compensation		WITHOUT		
	with loan	without loan	with loan	without loan	Total
J P Nagar					
Death	2	3	2	4	11
No death	8	2	20	12	42
Total	10	5	22	16	53
Anna Nagar					
Death	-	-	1	1	2
No death	-	-	17	32	49
Total	-	-	18	33	51

Table : 3A

Comparison of Symptoms reported by individuals in J.P. Nagar and Anna Nagar. (Expressed in percentage. Numbers of cases are shown in bracket.)

SL. NO.	Symptoms	J.P.Nagar %	A. Nagar %	P. Value *(a)
1.	Dry Cough.	27.70 (41)	14.49 (20)	$P < 0.01$
2.	Cough with Expectoration.	47.29 (70)	23.91 (33)	< 0.001
3.	Breathlessness at rest.	10.13 (15)	2.89 (04)	< 0.025
4.	Breathlessness on usual exertion.	87.16 (129)	35.50 (49)	$<< 0.001$
5.	Chest pain / tightness.	50.0 (74)	26.08 (36)	$<< 0.001$
6.	Weakness in Extremities.	65.54 (97)	36.95 (51)	$<< 0.001$
7.	Fatigue.	81.08 (120)	39.85 (55)	$<< 0.001$
8.	Anorexia.	66.21 (98)	28.26 (39)	$<< 0.001$
9.	Nausea.	58.10 (86)	16.66 (23)	$<< 0.001$
10.	Abdominal pain.	53.37 (79)	25.39 (35)	$<< 0.001$
11.	Flatulence.	68.91 (102)	25.36 (35)	$<< 0.001$
12.	Lacrimation.	58.78 (87)	42.62 (58)	< 0.01
13.	Blurred vision/photophobia	77.02 (114)	38.40 (53)	$<< 0.001$
14.	Loss of memory	45.27 (67)	11.59 (16)	$<< 0.001$
15.	Tingling/numbness.	54.72 (81)	20.28 (28)	$<< 0.001$

*(a) P Values were calculated by X^2 method.

Table : 3 B

Comparison of Symptoms reported by individuals in J.P.Nagar and Anna Nagar. (Expressed in percentage. Numbers of cases are shown in bracket.)

(Symptoms significantly different but not analysed further)

SL. NO.	Symptoms	J.P.Nagar %	A. Nagar %	P. Value *(a)
1.	Skin problems	29.05 (43)	11.59 (16)	<0.01
2.	Bleeding tendency	9.45 (14)	2.89 (04)	<0.025
3.	Headache	66.89 (99)	42.02 (58)	$<<0.001$
4.	Muscle ache	72.97 (108)	36.23 (50)	$<<0.001$
5.	Impotence	8.10 (12)	0.72 (01)	$<.05$
6.	Anxiety/Depression	43.92 (65)	10.14 (14)	$<<0.001$

Table : 3 C

Comparison of Symptoms reported by individuals in J.P.Nagar and Anna Nagar. (Expressed in percentage. Numbers of cases are shown in bracket.)

(Symptoms---Non - significant)

SL. NO.	Symptoms	J.P.Nagar %	A.Nagar %	P.Value *(a)
1.	Blood in Sputum	10.13 (15)	7.24 (10)	N.S.
2.	Fever	27.70 (41)	28.98 (40)	N.S.
3.	Jaundice	0.67 (01)	00	N.S.
4.	Blood in vomit/stool/ malena	12.16 (18)	10.14 (14)	N.S.
5.	Vomit-ing	11.48 (17)	5.79 (08)	N.S.

*(a) P Values were calculated by X^2 method.

Table 3D

Symptoms

Symptom groups	No./Total	%
P + G.I. + Eye + CNS	92/148	62.16
P (Pulmonary only)	4/148	2.7
P - NIL (ie G.I./CNS/Eye)	52/148	35.14

(For symptoms included in grouping please refer 5.4.2.2

Table 3E

Symptom Complexes other than Pulmonary System

Symptom Groups	No./Total	%
G.I. (with or without eye/CNS)	31/148	20.94
Eye (with or without GI/CNS)	32/148	21.62
CNS (with or without GI/Eye)	23/148	15.54

Table : 4

Patterns of disturbance of vision in 10 - 45 yrs. of population in J.P. Nagar and A. Nagar. (Figures in bracket indicate actual numbers.)

	J.P. NAGAR %	ANNA NAGAR %
Blurring of vision (1)	74.24 (98/132) (a)	28.57 (34/117)
Abnormal distant vision (2)	42.6 (65/141) (a)	21.88 (21/96)
Abnormal near vision (3)	17.55 (20/114) (b)	8.74 (9 /103)
Corneal Opacity (4)	4.7 (7/148) (b)	2.8 (4 /138)

NOTE:-

1. Includes Photophobia.
2. Normal vision 6/9 - Distant Vision tested by means of Snellen's chart
3. By means of near vision chart
4. In J.P. Nagar and Anna Nagar each there are two central opacities.

(a) tested by X^2 d.f.1 P 0.001

(b) tested by X^2 d.f.1 P - Non-significant.

Table : 5 A

Mean pulse rate/minute (S.D.) in males & females of J.P. Nagar and Anna Nagar.*

	J.P. NAGAR	ANNA NAGAR
Male	77.13 (11.28) n = 67.	77.94 (10.68) n = 73
Female	85.73 (13.21) n = 78.	85.05 (11.20) n = 59
Total	81.70 (13.20) n = 145.	80.4 (13.0) n = 132.

* All the differences in mean pulse rates were tested stastically by 't' test and found to be non-significant.

Table : 5 B

Mean Respiration Rate/minute (S.D.) in males & females of J.P. Nagar and Anna Nagar. *

	J.P. NAGAR	ANNA NAGAR
Male	21.73 (3.98) n = 69	21.21 (3.84) n = 74
Female	21.84 (4.93) n = 70	20.92 (3.70) n = 56
Total	21.87 (4.51) n = 139	21.09 (3.77) n = 130

* All the differences in mean respiration rates were tested stastically by 't' test and found to be non-significant.

Table : 5C

Mean blood Haemoglobin in gm.% in J.P.Nagar & Anna Nagar. (The figures in bracket are S.Ds of means.) n = sample size.

	J.P. NAGAR	ANNA NAGAR
Male	14.68 (1.79) n = 11. (a)	12.70 (1.35) n = 17.
Female	12.7 (1.46) n = 20. (b)	10.79 (1.34) n = 18.

(a) $t_{d.f26} = 3.18$ - $P < 0.01$

(b) $t_{d.f36} = 4.20$ - $P < 0.001$.

Table : 6A

Mean Menstrual cycle length in days in J.P. Nagar and Anna Nagar after and before gas exposure - (Figures in bracket indicate S.D. in days.)

J. P. NAGAR		ANNA NAGAR	
Before	After	Before	After
32.32 (13.51) n = 31.	25.59 (12.04) n = 31.	35.41 (20.09) n = 29.	36.10 (19.89) n = 29.
$t_j = 2.06$ d.f.60 $P < 0.05$		$t_a = 0.131$ d.f. - 56 $P > 0.8$	

j.a.

j.a. :- differences in means menstrual cycles length in days between J.P.Nagar and Anna Nagar after the gas exposure.

$t_{j.a}$ - 2.46

d.f. - 58

$P < 0.05$

Table : 6 B

Percentage distribution of Flow in J.P. Nagar & Anna Nagar before and after the gas exposure.
(Figures in bracket are number of cases)

	J. P. N A G A R			A N N A N A G A R		
	Scanty	Excess	Total	Scanty	Excess	Total
Before	5.5 (2)	11 (4)	100 (36)	2.6 (1)	18.4 (7)	100 (38)
After	25.7 (9)	31.4 (11)	100 (35)	5.8 (2)	20.7 (7)	100 (34)

$X^2 = 11.96$
d.f. = 2.
$P < 0.01$

$X^2 < 1$
d.f. = 2.
$P > 0.50$

After the gas exposure
J.P. & A.N.
$X^2 = 7.82$
d.f. = 2.
$P < 0.025$

Table : 6 C

Percentage distribution of colour of menstrual flow in J.P.Nagar and Anna Nagar before and after the gas exposure. (Figures in bracket are No. of cases)

	J.P. N A G A R		A N N A N A G A R	
	Black	Total	Black	Total
Before	5.8 (2)	100 (34)	0 (0)	100 (37)
After	46.8 (15)	100 (32)	8.8 (3)	100 (34

$X^2 = 14.46$
d.f. = 1
$P < 0.001$

$X^2 = 3.41$
d.f. = 1
P - N.S.

After the gas exposure J.P. and A.N.
$X^2 = 12.03$
d.f. = 1
$P < 0.001$

= JP Nagar : AN = Anna Naga

Table : 6D

Percentage distribution of Dysmenorrhoea in J.P.Nagar and Anna Nagar, before and after the gas exposure. (Figures in bracket are number of cases.)

	J.P. NAGAR		ANNA NAGAR	
	+ve	Total	+ve	Total
Before	28.5 (10)	100 (35)	48.7 (19)	100 (39)
After	65.6 (21)	100 (32)	39 (14)	100 (36)

X^2 = 9.21
d.f. = 1
P 0.01

X^2 = 0.71
d.f. = 1
P - N.S.

After the gas exposure
J.P. and A.N.
X^2 = 4.89
d.f. = 1
P 0.05

Table : 6E

Percentage distribution of Leucorrhoea in J.P. Nagar and Anna Nagar - before and after the gas exposure. (Figures in bracket are number of cases)

	J. P. NAGAR			ANNA NAGAR		
	Non-Specific Leu.	Specific Leu.	Total	Non Specific Leu.	Specific Leu.	Total
Before	15.5 (7)	0 (0)	100 (45)	16.6 (7)	14.3 (6)	100 (42)
After	22.2 (10)	35.5 (16)	100 (45)	14.6 (6)	14.6 (6)	100 (41)

X^2 = 22.5
d.f. = 2.

X^2 1
d.f. = 2 P N.S

After the gas exposure
J.P. & A.N.
X^2 = 7.455
d.f. = 2.
P 0.025.

J P = JP Nagar : A N = Anna Nagar

Table : 7

Distribution of Mean Values of Body Surface Area (M^2), FEV, (Litre.), FVC (Lit.), FEV/FVC % in different age-sex gp. in J.P. Nagar and Anna Nagar.(a)* (Figures in bracket are S.Ds) n = number of persons in each cell. P = P value.

Age-Sex	BSA (M^2)		FEV,(Lit.)		FVC (Lit.)		FEV,/FVC %	
in yrs.	J.P	A.N	J.P.	A.N.	J.P.	A.N.	J.P.	A.N.
10-14 M	1.23 (0.14) n=4	1.22 (0.19) n=4	1.59 (0.74) P=NS	1.93 (0.48)	1.72 (0.77) P=N.S.	2.20 (0.51)	87.05	87.8
F	1.22 (0.12) n=3	1.15 (0.13) n=6	1.76 (0.84) P=NS	1.77 (0.33)	2.07 (0.88) P=N.S.	2.10 (0.40)	84.3	84.2
15-44 M	1.49 (0.09) n=45	1.51 (0.12) n=55	2.04 (0.47) P<0.001	2.66 (0.51)	2.39 (0.47) P<0.001	2.99 (0.55)	79.1	88.9
F	1.37 (0.11) n=56	1.35 (0.12) n=52	1.64 (0.44) P<0.001	2.25 (0.42)	1.97 (0.38) P<0.001	2.54 (0.43)	76.3	88.6
45-60 M	1.50 (0.14) n=12	1.53 (0.09) n=6	1.88 (0.53) P<0.05	2.26 (0.19)	2.20 (0.43) P<0.05	2.54 (0.24)	85.3	88.9
F	1.37 (0.09) n=11	1.41 (0.22) n=7	1.51 (0.48) P<0.01	2.13 (0.18)	1.86 (0.58) P<0.01	2.48 (0.21)	79.8	85.9
61+ M	1.35 (0.04) n=2	1.38 (0.15) n=4	0.94 (0.39) P<0.02	1.91 (0.15)	1.83 (0.35) P=N.S.	2.17 (0.16)	61.8	88.0
F	1.32 (0.06) n=3	1.28 (0.05) n=3	1.39 (0.31) P<0.05	1.90 (0.07)	1.96 (0.31) P=N.S.	2.13 (0.15)	63.4	86.2

(a)* All the differences in Mean Values between J.P. Nagar & Anna Nagar in each age-sex category were tested by 't' test.

Table 8

Exposure History and Safety Measures

Where at the time of leak	J P Nagar				Anna Nagar			
	Wet towel	Blanket	Ran out	Nil	Wet towel	Blanket	Ran out	Nil
In the Basti.	5	7	124	8	9	6	64	52
Out of home (in Bhopal)	1	-	1	2	-	-	2	5
Out of Bhopal	-	-	-	10	-	-	-	11
	Total No. 158				Total No.148			

Note: Nil means remained in the house without safety measure.

Table 9

Number of attacks (respiratory infections) in the one month preceding the study

Age	J P Nagar			Anna Nagar		
	One attack	often	Nil	One attack	Often	Nil
10-15 yrs	3	13	15	4	1	16
16-45	15	46	35	24	7	68
46 +	3	14	4	4	4	11
	21	73	54	32	12	95

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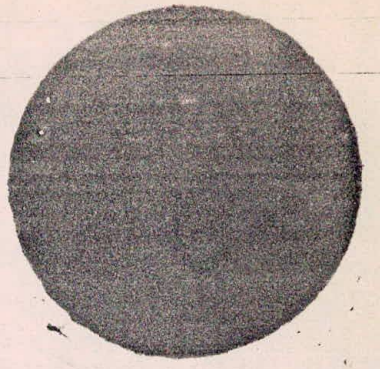
JANUARY 1985



Editorial

The Bhopal Disaster

We live in a world in which violence, waste and manipulation have not only become central elements in our lives but which have become profitable for the merchants of death, the rapists of the earth and those who manipulate our behaviour, our fears and desires.

—Anwar Fazal
International Organisation of Consumer Unions

The world's worst ever man made industrial and ecological tragedy took pace on the 3rd of December 1984 at Bhopal. 30 tonnes of stored methyl iso cyanate escaped into the atmosphere killing over three thousand people and over 3000 cattle and affecting over a lakh people (official estimates!). Even these shocking statistics hide the actual enormity of the human tragedy — of the lives lost, the families affected, the people blinded and ill and the thousands impoverished.

Public and government reaction to this catastrophe had resulted in relief efforts. Wide media publicity has led to the spontaneous formation of citizens groups and collectives to look into not only the deeper issues of this event but also to prevent such events in the future. Zahreeli Gas Kand Sangarsh Samiti (Bhopal), PARISARA — Movement for Environmental Protection (Bangalore), Movement for a Safe Environment (Bombay) and Movement for Environmental Protection (Madras) are some examples of this upsurge.

Notwithstanding the phenomenal human tragedy and suffering caused by this event which need relief, rehabilitation and compensation efforts, all concerned citizens should not miss the opportunity to analyse/understand the deeper socio-political and technological crisis of which this disaster is only a symptom.

This is the time to question —

- the role of multinational corporations and the double standards in their functioning in the developing world;
- the governments role and complicity in improper siting, continued licensing, improper monitoring of dangerous industries and in the continued flouting of its own rules and regulations;
- the national industrial and development policy in the light of people's health and ecological issues;
- the political exploitation of the poor especially the slum dwellers and workers;
- the lack of awareness among people, citizens groups, consumer groups, workers unions, voluntary organisations and action groups on health, safety and environment issues;
- the whole question of the right to information at all levels and the existing control/monopoly of information at multinational and government and professional levels;
- the basic question of the relevance of pesticides to our agricultural economy in the light of available scientific and social knowledge regarding the disruption of eco-systems and the long term effects on land and agriculture

This bulletin issue is a start in that direction and includes a memorandum from Bombay of which mfc was a signatory, first hand report from one of our members of the dynamics of relief work in Bhopal, and an overview of the efforts of unions and workers in occupational health action in the U.S.

INSIDE

No more Bhopals

FIGHT FOR THE RIGHT TO LIVE*

We have witnessed the worst ever industrial and environmental disaster in the history of humankind, in Bhopal recently. This horrendous tragedy has forced people from all walks of life to react strongly and actively.

Industrialisation in India has taken little account of either the appropriateness of technology or work related health issues, safety measures or health hazards for people at large. Hazards and accidents in industries — whether in textiles, chemicals, mines, petrochemicals, railways, docks, cements or fertilizers are either hushed up, underreported or are totally ignored. And even when they are known, neither the management nor the government, nor workers' organizations or voluntary groups have paid much attention to it. The time for passive acceptance of industrial hazards is forever past.

What happened in Bhopal is not merely a tragedy — it is a crime against people. We mourn the dead. And strongly condemn those who were responsible for it.

This incident proves to us over again that we cannot depend on industrialists or governments to ensure our health and safety. We appeal to the citizens — professional bodies, civil liberties organizations, workers unions, women's groups and individuals — to press for the following demands through demonstration, mass education, signature campaign, letters to the editor in the press, legal action and by sending petitions to Assemblies and to the Parliament.

1. *Citizens' Committees*: Citizens' vigilance groups which can co-opt legal, medical and technical experts in the field should be constituted for supervision and effective implementation of the measures recommended here.

2. *Punishment to the guilty*: All persons, organizations and agencies responsible for the tragedy — Union Carbide management, state and central government which sanctioned the plant, supervisory and monitoring agencies including factory and explosives inspectors — must be severely punished.

3. *Rehabilitation, compensation and other aid to victims*: Victims should be paid a compensation that is at least equivalent to that legally available in the parent country of Union Carbide, ie., in USA. Those who have been disabled should be rehabilitated and provided employment. Union Carbide should be charged with the financing of the setting up of rehabilitation centres. A Special court must be constituted for the speedy processing of Bhopal cases Long term monitoring of health conditions of victims, epidemiological and environmental studies must be instituted immediately, paying special attention to the fact that women might have been more susceptible. The results of these studies should be published in the mass media. All arrangements must be made to provide health care facilities for those who will suffer from long term effects of the poisoning, years from now.

4. *Right to information*: All the information with Union Carbide especially with reference to details of the manufacturing process, immediate, long term, carcinogenic and genetic effects of MIC and phosgene must be made available to the public. The government must intervene to obtain this information immediately. All hospital records of victims, and post-mortem reports of the dead must be made public. All information — process details and toxicological data of products — of all hazardous plants should be made available to people in neighbouring areas in a language that they understand. All studies undertaken by institutions such as NIOH, CDI, ITRC, NEERI etc. must be made accessible to the public.

5. *Review of Existing laws*: Existing laws concerning industrial zoning, industrial health and safety, and environment should be implemented uniformally all over the country. A re-examination and thorough review of these laws must be undertaken immediately and it must be made public. All such laws must be periodically reviewed.

Current compensation laws do not adequately protect the health and safety of all sections of the population. A comprehensive law covering all compensation issues, making payment of compensation a strict liability on the company must be brought into existence.

6. *Environmental and Health Studies around existing and proposed industries*: The government should finance citizen's committies or other independent authorities to undertake environmental and health studies around existing hazardous plants and industrial areas. These should be made accessible to the public. Periodic surveys should be carried out to assess ill effects. It should be made mandatory to issue public notice adequately in advance of the setting up of any new potentially hazardous plant. Health and environmental studies must be undertaken around the sites and made public.

7. *Rights to workers, unions and citizens committees:* Independent committees of workers and their representatives should be given the right to investigate work conditions and to make direct complaint to the court where necessary. All workers in such plants should be provided with relevant safety equipment. All workers — whether temporary, permanent, badli or contract — should have the right to stop working with full payment until the hazardous conditions are remedied.

(Continued on page 8)

* A public statement released on 22nd December, 1984 at Bombay by the Movement for Safe Environment of which mfc was a signatory.

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Manuscript from Abhay

LEARNING FROM THE RELIEF WORK IN BHOPAL

... abhay bang

An article in mfc bulletin on Bhopal disaster is expected, by tradition, to focus on the political and economic reasons behind the the tragedy. For such analysis the readers are recommended to read two excellent papers of Barry Castleman which appeared in International Journal of Health Services some time ago (The export of hazardous factories to Developing Nations', Vol.9, No.4, 1979 and 'The double standard in industrial hazards', Vol.13, No.1, 1983). I shall also not attempt to investigate and describe the chronology of the events. Newspapers have published lot of information on that and I am no wiser than the journalists. As the title suggests I shall restrict to the relief aspect, that too mostly in relation to public health, for there were ample things to learn from that alone.

When the Gas Struck

When the gas struck at about 1.00 am on 3rd December, people woke up with severe sense of suffocation, cough and [redacted] irritation in the eyes. Most of the deaths were instant due to suffocation or pulmonary edema. The worst hit were children, many of whom died in the beds. The result of this cruel preference of the gas was that very few children remained orphan, because usually children died before their parents.

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It is almost an universal law that the poorest live in the dangerous areas. When the flood strikes, the people who live on low land and are the most affected are always the poor. Bhopal was no exception. People living in the immediate vicinity of this chemical volcano, were mostly the slum dwellers. But besides this fact, two other disturbing pieces of information explain the very striking class distribution of the victims.

The residents of the Jayaprakash Nagar slum which is the closest and the worst affected area, categorically state that at about 12 O'Clock in the midnight, all the workers in the Union Carbide plant fled away in the factory buses but no siren was blown. It means factory staff came to know about the impending danger at 12 and safely escaped without warning people or the police. This may explain the strange fact that only one worker of the factory was injured by the gas when hundreds were working in the night shift.

Similarly, it is alleged that on coming to know of the danger, most of the police and other government officers and the ministers escaped out of Bhopal by the government vehicles at their disposal, instead of trying to warn or help the people. Rich also fled in their private vehicles. Those who did not have any vehicles, obviously the poor, had to face the gas.

The immediate effect of the gas on the survivors was irritation of the mucus membranes of eyes and the respiratory

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tract, leading to severe and widespread conjunctivitis, sometime keratitis, and large number of people with respiratory symptoms. Many also had vomiting. The medical persons were in dark about the harmful effects of methyl iso cyanate (MIC). They were even not certain whether it was MIC or phosgene gas: so the fear of the coming unknown effects was looming on everybody. 19 cases of CNS involvement were reported in the Hamidiya Hospital. This gives credit to the rumour that on autopsy, cerebral oedema and haemorrhage were often found.

The Ongoing Relief and its Criticism

When we reached Bhopal on the morning of 5th December, the administration had overcome the initial shock and the relief operations had begun. Hospital staff, interns, and medical students; various social and religious organisations had responded quickly. Food and blankets were being distributed freely. Dead bodies were being removed.

The first instinct of the medical profession naturally was to offer symptomatic relief to the sufferers. As the hospital was full with the dead or very serious, most of the relief work was done from the temporary tents. About 100 such medical relief clinics were opened in the premises of the hospital or on the roads near the affected areas. Doctors were treating long queues of patients. The method was typically uniform everywhere, with some obvious shortcomings.

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No case papers were made. Hence the identity of the patients, physical signs and the treatment given - nothing was being recorded. The reason offered was that the doctors were too busy in treating and the records were not the priority in such situation. The result of course was that the medicines were distributed like toffees. One of us saw a child taking an injection and then running to his friends to boast that it was his sixth shot that day.

People were the first to recognise this deficiency and started losing faith in such totally adhoc and symptomatic treatment.

Interns and doctors running these clinics were not given any guidelines for treatment by the senior doctors. Hencethey were using medicines in the most bizarre way.

No attempt was made to train or involve non-medical volunteers or family members. Thus for conjunctivitis, even the eye drops were put in the eyes by the doctors alone. This resulted in an unending burden on the doctors; and the patients were able to get eye drops in their eyes once in a day when they could reach the doctor through the long queue.

No certificates of death or disease were being issued. There did not even exist a reliable method of recording and counting deaths, which resulted in widely varying estimates of death from 2000 to 6000. This neglect may become a tremendous handicap to the poor to get compensations whenever that comes.

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Besides the sheer magnitude of the problem, another reason for such erratic medical relief was that it was put in the hands of clinicians. When about 200,000 people were affected, it was absurd to control the medical relief operation from the hospital by the medical superintendent. Though a very decent man, he thought the respirators as the most important need of the hour. The whole operation was carried out through clinician's point of view. This resulted in such decisions as offering treatment in clinics expecting victims to come there. Clinicians can only see those who come to them and never know about those who don't come. This deprives them of the total view of the situation. We found that a large number of victims were not going to the clinics due to reasons like despondency, inability to walk because of severe eye problem or loss of faith in the quality of the relief offered.

This also meant that the real number of the people affected would never be known. The estimates of number of patients treated varied from 65000 to 1,50,000 and each estimate may have counted same patient many times and totally missed those who did not attend the clinics.

A quick and crude survey of the remaining residents of JP colony showed us that about 50% had eye problems and about 25% had respiratory symptoms. Surprisingly large number of people, even those with minimum respiratory symptoms, had rhonchi and coarse crepitations in the chest. It seems that the irritation by the gas had produced chemical bronchitis and bronchopneumonia on a large scale. As many

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of such 'mild cases' were not being examined, clinicians in the OPD could fail to appreciate the widespread nature of the respiratory involvement. Unfortunately all these facts were not documented and hence, it seems, the real epidemiology of morbidity may never be known.

Alternative Plan

We planned a relief program to be run by SEWA, a local Women's organisation for a small but defined population. The main features were :--

(A) Female social workers from SEWA visiting all the houses in a slum of 1000 families for

1. population enumeration
2. identifying dead, lost or moved out persons for compensation and economic rehabilitation of the family
3. screening of all persons for the presence of symptoms which started with the gas exposure and recording these
4. uncomplicated conjunctivitis and gastritis to be treated by the social workers, involving and training the family members in eye care and handing over a tube of eye ointment to them
5. identifying patients with suspected keratitis and patients with respiratory symptoms to be examined by doctor

(B) Doctor visiting all the houses, examining those with respiratory symptoms and suspected keratitis (identified by social worker), recording physical signs and treatment given

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We thought that all the persons with rhonchi and/or crepitations should be given antibiotic cover (preferably inj. benzathene penicillin) as they carried a great risk of catching secondary infection, similar to one after an attack of measles or influenza.

We thought that the treatment should be provided at home so that all the population will be identified, examined and treated, which can not happen in an OPD set up. This was specially important for the documentation of the morbidity as many victims did not go to OPD.

(C) All the population to be followed up for coming few weeks to provide continuous care and recording complete impact of the tragedy.

Two doctors, three interns, four nurses and about ten female social workers could be mobilized and were explained the deficiencies of the ongoing relief operations; and the concepts and methods involved in the one planned by us. Forms for population enumeration and case records, and guidelines for survey and treatment were prepared and explained. Unfortunately I could not stay longer but felt that the plan was well explained and agreed upon by the team.

<u>The experience</u>

The experience of the next 10 days work, as reported by the social worker in charge of the operation was as follows:

- On the first day when the team went to the slum and started home visiting, doctors protested that it was not their job and they set up an OPD. At least half of the

doctors could be pursued to continue home visiting

- Doctors could not swallow the idea of social workers treating conjunctivitis and kept all the clinical work to themselves

- The doctors in OPD refused to write physical signs and diagnosis in the case papers on the ground that it would take time and the fact that the diagnosis could be guessed from their treatment

- The typical treatment given was:
  - : eye drops put once in a day by doctor or nurse;
  - : cap tetracycline ITDS for one day;
  - : tab B Complex;
  - : tab multivitamin;
  - : corticosteroid injection

- All the time saving devices in the plan like training and delegating easy tasks to social workers; using eye ointment which has longer duration of action than eye drops; using benzathene penicillin to ensure week long antibiotic cover, were stubbornly refused by the doctors. It was not possible for the social worker to over rule the medical supremacy.

The physical signs recorded by the doctors by home visiting were usually of poor quality. Some examples are:-

- chest clear, crepts present
- mild crepts found (there is nothing like 'mild crepts')
- slight coarse crepts +ve

Each doctor used his pet expression and the recorded signs were

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monotonously the same in all the patients examined by the same doctor. Obviously the doctors did not examine sincerely or they were not at all sure of their findings of physical examination.

In spite of these short comings, this relief approach gained instant popularity mainly because it was the only place in Bhopal where case papers were being prepared and record maintained. People quickly realized its importance and even asked for records to be given to them. The relief authorities in the city brought foreigners to proudly show this operation.

Surprisingly and fortunately the tide of secondary infection did not occur anywhere and hence death toll did not continue to rise after initial 3-4 days. The reasons for this reluctance on the part of micro organisms to invade damaged respiratory tracts are not understood. Antibiotic cover was either not vien or was very inadequate for most of the affected persons; and hence, cannot explain the phenomenon.

After 10 days of working when the operation neutralization of the stored MIC started most ofthe relief work was wound up as the people fledaway. At that time, eye problems had considerably reduced but the respiratory one had continued, though at the reduced level.

I recently learnt that the ICMR has declared a decision to devlope a plan of long term surveillance to find out the effects of gas exposure. That would be a stupendous but very

valuable task, specially because industrial toxicologists in the West are predicting that 5 to 10 percent of the affected will have chronic respiratory diseases.

The compensation for the death and the disease may not be fully available to all due to lack of record or evidence.

Lessons

1. Organising mass medical relief in the disaster situation should be done not with a clinical approach but a population approach;
2. Persons in the responsible positions shouldbe trained for disaster management in anticipation;
3. There should be continuity in the planning and implementation of any program, the lack of which was responsible for proper implementation of our plan;
4. Record keeping and documentation is vital in all such operations;
5. Besides their well known biases against delegation, even the clinical performance of the doctors was a sad commentary on the outcome of medical education and the standard of the profession. One tends to question the right of objection by the medical profession to the use of auxiliaries or village health workers on the ground of the lack of professional training to them.

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6. The Bhopal tragedy acts as a warning signal to all the socially conscious persons that the industrial hazards and pollution are no longer a remote problem restricted to the developed countries. As Barry Castleman points out in his earlier mentioned papers, developed countries are rapidly exporting their technology, production processes and the products to the third world without proper safety measures or information and education to the people.

7. Bhopal tragedy can be a powerful tool in the hands of environmentalists and consumer and citizens rights groups. A careful documentation of the ill effects - medical, social, economic and ecological - will go a long way to support the efforts of such groups.

.....

(Plan of Study)
Mumbai 10/3/1985

medico friend circle
[organization & bulletin office]
326, V Main, Ist Block
Koramangala, Bangalore-560 034

P R O J E C T

To evolve a strategy of medical relief and rehabilitation which best meets the people's medico-social needs and expectations.

...

An approach document to the study/ intervention by the team from the medico friend circle to be conducted in Bhopal 17-25th March 1985.

...

Objectives-methodology-plan of action outcome.

(Finalised in Bombay on 10th March, '85.)

These are not our objectives.

1. To organise a parallel study by a non-governmental voluntary agency. in addition to the numerous studies being undertaken by ICMR in collaboration with local departments of the Gandhi Medical College and other research institutes in the country.

2. To organise studies to identify long term sequelac of MIC exposure including carcinogenecity or mutagenicity or to obtain basic understanding of the biological alterations associated with exposure to MIC.

MFC does not have the resources, the organisation, the expertise or for that matter the mandate for such studies.

We believe that the primary role of relief. Service, research is that of local and national institutions and delivery services specifically established for this purpose.

... 2.

Our role is to catalyse, evolve, stimulate, suggest and enable a greater people orientation in the efforts.

OBJECTIVES

A - To evolve a strategy of medical relief and rehabilitation which most effectively meets the medico-social needs of the gas disaster victims and their expectations

by

1) Assessing the current health status and medico-social problems of the people and quantify/Qualify them within the available technical resources of the team.

11) By priontising these problems in terms of magnitude and implications for relief and rehabilitation.

111) By identifying health problems and issues which urgently require health education input and to clarify the content and context of this education.

1v) By studying the existing plan of medical relief and rehabilitation services available to the people.

v) By studying the peoples perceptions of these services.

B - To evolve a strategy to operationalise the strategy outcome of A by working towards its adoption by the local government health service organisations

by

1) Assessing the perceptions of government doctors in dispensaries and polyclinics to the medical problems and relief efforts and eliciting suggestions from them for its improvement.

11) Studying the local dynamics of decision making, organisation, coordination and communication for relief and rehabilitation.

... 3.

METHODOLOGY

The MFC team will be arriving in the selected Bastis of Bhopal three months after the tragedy. Numerous teams of investigators and relief workers both governmental and non-governmental have visited the people, made enquiries, offered or promised relief, raised expectations about compensation and assistance and have carried out various tests. These teams have not often been complementary and quite often worked at cross purposes.

For the MFC team to ensure that it is able to get reliable/ authentic/ relevant information from the subjects of the enquiry it has to apply an approach that will counter this pre-conditioning of the basti dwellers and establish a meaningful rapport. This rapport must be free of suspicion, dependency or false expectations.

We have therefore decided to employ the following strategy.

1. Preparation of the community

   a) A series of informal group discussions will be held in the bastis during which members of the visiting team will explain the objectives of the study, the methodology and the possible outcomes.

      The approach in these group meetings will be frank, open and participatory. It will clarify the nature of the enquiry, the absence of concurrent terminal medical relief, the free availability of data to individuals and the community, the method and for a sample. It will encourage participation by the community in operationalising the proposed plans.

   b) To supplement this effort a small pamphlet in Hindi which clarifies and emphasises the salient features of the study - the objectives, approach and components - will be prepared and distributed.

   c) To respond to requests for consultation, examinations, dialogue, reassurance and counselling by families not included in sample a small team will be kept available specifically to undertake this task.

... 4.

d) A referral link will be established with the government dispensary and polyclinics and the NGO clinics so that the inevitable expectation of medical relief may be suitably channelised. The doctors and health workers in these clinics will be contacted earlier and informed about the study and procedure of referrals.

e) In the last two days of the stay informal group discussions will be held in the bastis to share the main findings, explain some of the implications, demystify the situation and respond to the peoples queries about their problems.

2. Sample

a) Three bastis with reported differential exposure to gas have been selected.

b) Approximately 250-300 families will be covered in these three bastis by a systematic sampling.

c) The number plates issued by ICMR for enumerating the households will be used to identify/ select households.

3. Survey

The survey will be recorded on proformas which have both a family component and an individual sheet.

a) Identification data

b) History of complaints after disaster esp. presenting.

c) Clinical examination

d) Tests for visual acuity, lung function etc.

e) Interview regarding perceptions of relief available and expectations.

f) Other relevant investigations (resources for which are mobilised by 14th March)

(Seprate proforma for survey has been prepared and is being converted into a standarised key of questions in Hindi for the investigators).

... 5.

4. Additional components

g) Interview with senior government officials and decision makers to identify content/ rationale/components of medical relief and rehabilitation services (actual plan).

h) Interview with doctors in government dispensaries, polyclinics as well as GP's in affected areas to assess perceptions of problems, awareness of guidelines, available services and suggestions for improvement.

i) Perusal of all available data/records/ information/survey reports available and accessible locally with voluntary groups and governmental organisations.

PLAN OF ACTION

Till 16th March –
Identifying team
Mobilising resources/equipment
Reviewing available literature reports on the problem.
Clarifying issues for study.
Finalising objectives (10th March, Bombay)
Finalising family/individual proforma.
Finalising format for group discussions.
Finalising organisational details.
Finalising local arrangements.
Finalising of bastis and families in sample.

From 17th March till 25th March
Group discussions in Bastis.
Orientation of investigation team.
Preliminary round of survey and finalisation of daily plan.
Survey of families.
Interviews with local doctors and decision makers.
Terminal meetings with basti dwellers on findings.
Perliminary tabulation.

...6.

Outcomes

1. Evolution of a medical relief and rehabilitation strategy geared to the medico-social needs of the disaster victims and their expectations.

2. Identification of a priority list of medico-social problems for which rational management guidelines need to be evolved and disseminated.

3. Identification of Health problems and situations for ehich health education materials/media/methods need to be evolved for patient education, preparation, reassurance. (also some preliminary content guidelines for these).

Follow up Action

1. Forward report/plans/suggestions to

   MP Govt. health Services
   Bhopal Medical College Faculty
   Doctors of Bhopal including local IMA
   ICMR and associated institutions.

2. Evolve health education materials and methodologies along with other voluntary and government agencies for the problems identified in survey.

3. Evolve guidelines for medical professionals in Bhopal who are providing relief services to disaster victims. (requesting IMA to organise meetings to discuss these and disseminate them!)

Note:- This approach document has evolved out of a review of available news and research reports on Bhopal, report of a fact-finding team from Mfc presented at the Bhopal convention, interviews with doctors, experts, relief and action groups who are concerned about Bhopal and/or have visited it in recent weeks and finally out of a one-day consultation of some members of the proposed mfc team at Bombay on 10th March, 1985.

****

जन विज्ञान समिति, कानपुर

संयोजक,
डा० अ० प्र० शुक्ल A. P. Shukla
Physics Deptt.
IIT, Kanpur, 208016

फिजिक्स विभाग
आई० आई० टी०
कानपुर-२०८०१६

दिनांक 9.4.85

m/cb 112 + P sent
p.l. on Bhopal mailing list
JN
14/5

पत्रांक : To,
Dr. Ravi Narayan
Convenor, MFC
326, V Main, I Block
Koramangala, Bangalore, 560034

Dear Dr. Narayan,
Greetings

I ~~have~~ hope that you have recd. a copy of a letter of Dr. Mira Sadgopal written to Dr. Mira Shiva dt. 7.4.85, regarding MFC work at Bhopal. I had a detailed talk with ~~Mira~~ Mira about your work among the Bhopal Gas Victims and the future nature of work relating to medical relief, dissemination of information, and putting pressure on the authorities so that they act in keeping with the interests of the suffering victims. ~~He~~ Besides the nature of work to be undertaken, we also discussed the budget. I hope Mira has written to you about all this in detail.

RN
13/4

On my return from Bhopal, I discussed the matter with my friends

here, and we all appreciated the usefulness of the work of MFC. In the light of th[illegible] we decided that our donation of at[illegible] Rs 33,000/- should be given to you. We will need to take the formal consent of our director after which we will send the cheque to you.

I must express my appreciation, on behalf of my colleagues, of the excellent work that MFC has done to ensure proper medical treatment of Bhopal gas victims, and we are sure that your future project will go a long way in alleviating the misery of the victims. We will like to hear about the progress of your project from time to time, and will like to hear, if we can be of any further help in the future.

With warm regards,

Yours Sincerely

(A. P. Shukla)

cc: Dr. Mira Sadgopal
C/o Gandhi Bhawan
(Near Polytechnic College)
Shyamla Hills, Bhopal 462002

medico friend circle

Organisation & Bulletin Office :

326, V Main, 1 Block
Koramangala
Bangalore - 560 034
India

Ref. No. B :

Date : 15/4/85

Dear Dr Shukla

Greetings from Bangalore!

We received your letter dated 9/4/85 informing us of your magnanimous support to mfc work. On behalf of the entire circle let me take this opportunity to thank you and your friends for the very generous gesture and for placing so much confidence in our intervention in Bhopal. We feel greatly supported and enthused by this offer.

We are meeting in Baroda on 20/21st April to finalise the report of a study 16 members of the mfc undertook from 17-25th March. We shall also be planning our future strategy there & will be there and we shall consider ways and means by which your donation can support our efforts. I shall write a more detailed letter after the Baroda meeting. In the meanwhile I enclose [illegible] press release for your information.

With thanks and kindest regards

Ram Narayan

Registered under the Societies Registration Act, 1860, with No. MAH/902/Pune/81
and under The Bombay Public Trust Act, 1950 with No. F-1996 (Pune)
Registered Office : 50, LIC Quarters, University Road, Pune-411016

Copy for MFC office

(original delivered by hand to Dr. A. P. Shukla at Bhopal)

Bhopal
7 April 1985

Dear Dr. Shukla and
other Friends at Kanpur,

It is moving to know that you have collected a sum of about Rs. 30,000 (thirty thousand) for Medical Relief of gas-affected persons at Bhopal.

This support is urgently needed although <u>not</u> in the traditional sense, we feel. The people of Bhopal, that is, the gas-affected people, not only had to withstand the toxic gas, but they have also had to survive an onslaught of drugs and irrational treatment, much free and much at great financial cost, too. You may also be aware of the controversy over Sodium ~~Thiosulfate~~ Thiosulfate injections which unfortunately has held the victims at ransom. The situation has been vitiated by a strange atmosphere of fear ~~and confusion~~ among the professional medical community. What is needed is the exercise of intelligent human concern to bring order into the chaos of 'Medical Relief' ~~and stagnation~~ at Bhopal. This concern can be focussed <u>for a start</u> in the building up and support of a nuclear team of concerned doctors from outside of Bhop

we expect this team of concerned young doctors from outside to make a major impact in overturning the local atmosphere of fear and inactivity, particularly by encouraging the junior government doctors who did such extraordinary service in the early days of the disaster and have been inactivated since then by a combination of circumstances.

In short, our approach will be to support the junior doctors and other responsible doctors of Bhopal and strengthen / bring pressure to bear on the public health system to respond to the ongoing crisis and further health needs of the gas affected people.

We are working out a detailed strategy and building our team. We do not yet know what expenses will be necessary. However, we may need funds at short notice. If you are willing to support our effort so that gas-affected people can get standard, free and decent quality medical care from the Government which is their right, please let us know so that we can communicate further details of our strategy.

You may route your contribution of funds through the 'Medico Friend Circle - Bhopal Fund', the details of which are with Dr. A.P. Shukla.

With deep regards, Yours

(Dr.) Amit Sadgopal

An Appeal

Dear friends,

This report of a study undertaken by a team of members of the medico friend circle (mfc) has been sent to the Government of Madhya Pradesh, the Relief and Rehabilitation Commissioner, Bhopal, the decision makers in the Health and Social Welfare Services of the Government of Madhya Pradesh, the senior medical faculty of Gandhi Medical College, the Indian Council of Medical Research, with the full confidence that a meaningful rehabilitation strategy is possible in Bhopal, if bold, imaginative and committed steps can be taken by the planners and decision makers.

2. To you all--voluntary agencies, citizens committees and action groups, representatives of the medical and scientific community in India including professional associations, journalists, media men, donors, members, supporters and friends--. We need your help in bringing a more meaningful strategy of relief and rehabilitation in Bhopal. You can help by doing one or more of the following:

(a) disseminate this information to others to generate pressure of public opinion on government, ICMR and others for more effective action;

(b) share this report with medical experts and scientists and send us their reactions/ responses/suggestions. Open scientific debate is the need of the hour;

(c) Write or lobby about these issues and keep us and all other organisations involved on the Bhopal front informed about your efforts.

Looking forward to your committed support and involvement,

Yours sincerely,

Ravi Narayan
Convenor: mfc

September 1985

Also available from mfc office
326 V Main I Block
Koramangala, Bangalore 560034

1. Medical Relief and Research in Bhopal--
   the realities and recommendations (Feb 1985) Rs.2.00
2. An Epidemic of gynaecological diseases: effects
   of Bhopal disaster on Women's Health--
   Rani Bang Rs.2.00
3. Review of available literature on MIC
   and details of ICMR and other studies Rs.2.00
4. Rationale for the use of sodium thiosulphate
   as an antidote in the treatment of the victims of
   the Bhopal disaster--a review Rs.2.00
5. The Bhopal Disaster--mfc bulletin 109 Rs.2.00
6. Medical Research in Bhopal--are we forgetting
   the people--mfc bulletin 112 Rs.2.00
7. The Challenge of Bhopal--mfc bulletin 114 Rs.2.00
8. The need for a comunication strategy Rs.2.00

Back Cover Page
1985

medico friend circle

The medico friend circle (mfc) is a circle of friends with medical/non-medical backgrounds who sharethe common conviction that the present system of health services and medical education is lopsided in the interest of the privileged few and must be changed to serve the interests of the large majority, the poor. mfc fosters a 'thought current' upholding human values, people and community orientation of health care and medical education, demystification of medical science and a commitment to the guidance of medical interventions by peoples' needs and not comme cial interests.

mfc offers a forum for dialogue/debate, sharing of experienc and experiments with the aim of realising the goals outlined above, and for takingup issues of common concern for action.

.....

For further details regarding mfc BHOPAL STUDY, contact--

Ashvin Patel
ARCH
21 Nirman Society
Alkapuri
Vadodara 390005
Gujarat

OR

Anil Patel
ARCH
Mangrol At & PO
Via Rajpipla
Dist Bharuch
Gujarat 393 150

MF-612
April 1985
(Contd)

I ..ESS RELEASE

The MFC Bhopal Study

The Medico Friend Circle, an all-India group of s .ally conscious doctors and health workers has just completed a systematic study of the continued e :ts of toxic gas in two bastis in Bhopal. The observations of the study conducted between March 18-25 ir he highly affected Jayaprakash Nagar and the less a ected Anna Nagar are yet to be fully analysed. H wever, the initial findings definitely indicate that (, the affected population is already showing signs of reduced breathing and working capacity which is l ly to be permanent unless remedial measures are urgently introduced; (ii) pregnant women who had b n exposed to the gas in the first three months of pregnancy or have become pregnant since the disaster b e still not been informed about the possible d gers to the foetus. Moreover, detoxification m asures recommended by ICMR over a month ago— t. administration of sodium thiosulphate has not been implemented. The Medico Friend Circle is d ply concerned and agitated about the situation.

R duced breathing and working capacity among the a cted population

The Medico Friend Circle's study team has o erved that men are not able to go back to work be ause of breathlessness on accustomed exertion (rtional dyspnoea). Those who have returned to work report definitely reduced working capacities. I st women find it difficult to carry on their usual household chores. The team has noted with particu- l concern that very few of the children can even play or participate in normal physical activity in the a ected bastis.

It is well known that a large proportion of the M C affected population is likely to develop fibrosis o the lungs (development of scars) following inflam- r tion of the lungs due to irritation. This condition p manently affects breathing and hence working c pacity. Such a condition is already in evidence in t population covered by the MFC study.

Simple breathing exercises are known to help t reduce this disability. Information about these e rcises must be made widely known and their i portance stressed.

M ss detoxification by sodium thiosulphate

More than a month ago the ICMR had recom- m nded the administration of sodium thiosulphate for detoxification of all patients suffering from sym- p ms of MIC poisoning. This recommendation was b sed on conclusions drawn from a double-blind clini- c l study. But as yet, there appears to be no strategy i action with regard to administration of sodium thiosulphate to the vast majority of affected people. O ly a tiny fraction consisting of the seriously ill are receiving the injection.

MFC emphatically feels that as suggested by the ICMR, all patients suffering from symptoms of M C poisoning should be urgently administered sodium thiosulphate so that their suffering is reduced and they may go back to work. This service and other medical facilities should be urgently provided in a decentralised way, close to the bastis in affected areas.

The insight that sodium thiosulphate may well be effective was known even in the first week after the disaster. It is extremely disturbing and deplorable that decisions on vital issues like this which affect the lives of thousands of people should have been so long delayed. Even more shocking is the fact that even now, a month after the recommendation was publicised, mass detoxification of MIC victims has not begun.

Possible risks to the foetus

Another disturbing feature is that pregnant women who have been exposed to MIC have not been given any advice regarding the possible risks to the foetus. Given the fact that the first three months of pregnancy is the most sensitive period, it is likely that these women as well those who became pregnant immediately after the disaster are likely to give birth to deformed babies, since MIC or its breakdown products are very reactive chemicals. Moreover many of these women have received several types of drugs when as a rule no drug should be given in the first three months for fear of drug induced deformations. Some of these drugs, especially steroids are known to cause deformities.

There is an urgent need to inform people, especially women about these dangers and to allow them the option of medical termination of pregnancy. Adequate and free facilities should be made available to those women who opt for it without coercing them to undergo sterilization. Further, those couples who have lost children and want reversal of sterilization must be offered these facilities free of charge.

Doctors belonging to MFC had pointed out these dangers in a earlier note sent to the concerned authorities a month ago. But to date nothing seems to have been done.

Many of these women have by now crossed the five-month limit of pregnancy beyond which MTP is unsafe. But there are some who can still terminate their pregnancy although the risks are greater than in the first weeks. Facilities for ultrasonographic examination should be made available to these women immediately to detect gross abnormalities in their foetuses.

That this is not being done is a reflection of the indifference of health authorities towards the health problems of poor women. Moreover MFC feels that the ICMR study designed to follow up these women on a long term to assess the percentage of deformities without informing women about the

(Continued on page 8)

Dear Friend...

* A lot of Medical Representatives visit me in my small hospital. Brimming with enthusiasm, they let loose a torrent of words, a mixture of sales-talk and pharmacology — mostly sincere, not usually accurate.

One enthusiastic fellow tried to sell me a new antibiotic ointment containing Fusidic acid. He showed me pictures of a patient with eczema on the face, before and after treatment. The "before" picture shows the lips and chin of "a 14-year-old girl with extensive eczema" The "after" picture shows the lips and chin of a shaven male. Either the advertisement is a fraud or Fusidic acid has strong androgenic properties.

Another poor Medical Representative gave me the usual lecture, then left behind a lot of samples. Unfortunately the B-Complex capsules, though manufactured only a month ago, were spoilt.

Now all drugs are bought only after consultation between the Pharmacist, the Administrator and myself. The B—Complex capsules were discarded. The other samples are given freely to deserving patients. I have removed all drug advertisements from our hospital, including calendars. But in a prominent spot in the Pharmacy, you will find the advertisement on Fusidic acid—a constant reminder, to the Pharmacist and myself, of the treachery of drug advertising.

Newton Luiz, Kerala.

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* It was heartening to see such a large number of people who believe in the social cause at the mfc meeting in Bangalore.

I shall like to contribute in mfc's programmes.

Now a few opinions. During the discussions on national tuberculosis programme, it became evident that the home work was not done properly and the active members were not prepared sufficiently. This is a sad thing because I am sure that many of the participants had come to the meet for getting a guideline on which they could work after returning to their field. However, this promise was not fulfilled.

Secondly, the sessions were too long to be comfortable. Not only it obstructed the enthusiasm of participants but also did not allow for a purposeful acquaintance with each other. I feel that for such an activity as mfc has undertaken, development of personal communication among various groups are vital for effective working and spreading the movement. It should be seen that the sessions are not extended beyond 2—3 pm and remaining time be left for group interactions. I have learnt a lot during my talk with groups of participants. Though there was not much time for this, I can say that they were more informative than the lengthy sessions of the mfc on NTP critique. I am sure that participants would learn more by informal interaction with each other and provisions should be made to encourage such activities.

—Arvind Jha, Bombay.

Scientific Medicine

Whenever there is a discussion on the different pathies, I am confused by the profusion of terms to describe the system of medicine that I use in my practice. Allopathy, western medicine, modern medicine, and scientific medicine are all terms used to distinguish our system of medicine from the others — ayurveda, siddha, unani, shamanism and homeopathy. Perhaps this confusion and profusion of terms comes from muddled thinking.

The word 'allopathy' is outdated and should never be used by us; we should not define our system of medicine in terms of someone else's incorrect perception of our system. Several mfc members have pointed out that allopathy is a misnomer. The aim of most of our treatments is not to produce an opposite effect to the disease at all. If homeopaths want to continue to use the word to distinguish their system from ours, let them do so.

Western medicine is another popular term, but it is a bit limiting. It fails to distinguish our medicine from the 19th century pseudoscience homeopathy. The practice of unani also originated in the west. Besides lending an unnecessary foreign name to our medical system, it no longer describes the practice as it exists in India.

The term modern medicine is also used. Although most of the knowledge used by us is new, it is not the distinguishing characteristic of this knowledge. Two hundred years have passed since digitalis was first used for dropsy. Modern is a better emotive term than a descriptive one.

The best term to use is scientific medicine. This contrasts our practice with the traditional systems of ayurveda, siddha, unani, shamanism; and even homeopathy.

Scientific medicine includes all aspects of healing that are proven (by scientific method) to do more good than harm. This scientific method includes the powerful experimental tool of the clinical trial. The use of steamed, sterile banana leaves as dressings for burns is not western, modern, nor allopathic. It is scientific medicine employing the scientific principle of antisepsis and proven by clinical trial to do more good than harm. The use of Rauwolfia serpentina for high blood pressure is also described in ayurvedic practice, but has become part of our present practice of scientific medicine only as reserpine has been proven to lower blood pressure, and treating high blood pressure has been shown to do more good than harm. Openminded practitioners of scientific medicine will have no difficulty integrating proven methods from the traditional systems into scientific practice.

If we think clearly, perhaps we will begin to talk more clearly. We will begin to hear less of the other pathies and will begin to hear more of the most important pathy in the healing arts — empathy.

Jamie Uhrig — Mitraniketan

Introducing the Third Anthology

Under the Lens — Health and Medicine

Within ten years of its inception, the Medico Friend Circle (MFC) has become a familiar name in various circles of development workers. It is in response to this growing interest in MFC's analyses of health care, that we venture out to offer yet another anthology of articles selected from our monthly Bulletin.

This book does not carry the same degree of perplexity, which its two predecessors did. For, amidst the intricate scenario of problems, solutions and problems arising out of solutions, one discerns certain well-defined and definite areas of focus. The focus is at times a bit unsteady and not so definite as to generate dogma, not yet, we are still searching for solutions, and have become wise enough to admit, **not the solution.**

After the mad rush of critiques, arguments and counter-arguments, which characterised the earlier two books, particularly the first one, we paused to take a deep breath. A stage had arrived for some calm thinking. This was, in a way, reflected in the narrowing down of areas of focus, and the near total absence of debate in issues Nos. 56—95 of the MFC Bulletin, which formed the source for this anthology. This was a period for reflection, re-assessment and re-structuring of ideas.

Thus, definite areas started to come under focus. What one sees Under The Lens is not the total picture, but a few definite foci in it. Moreover, is not what one sees under the lens, only an image? But the image helps in understanding the situation, in arriving at a diagnosis and thus in finding solutions.

We show you in Under The Lens, some of the pathogens and the pathology: the wrong paths in health care, traps on seemingly right paths and a frightening pattern of "no health". The book contains admissions of self-made mistakes (The other side of Health Education, Role of the V H W); the myths in community health (People's participation, community participation in Health Care; Health For All by 2000 A.D); the wrong directions on the national highway of health (Health Care vs The Struggle for life; Misuse of Antibiotics; Is BCG vaccination useful? How successful are supplementary Feeding Programmes?); the subtle and not so subtle, pressures of international politics on health (Research A Method of Colonisation; Multinationals in Drug Industry).

In line with the earlier two books, the present one is also a potpourri of different aspects of health and health care, a reflection of the wide and varied interests (but always deep) of MFC. It covers community health (questioning on the way, whether there is a homogenous community, what is meant by people and by Health for All), drug policies, clinical medicine, nutrition, contraception and much more. There is a heavy emphasis on various aspects of drug policy and therapeutics. The analyses by Anant Phadke (Multinationals in Indian Drug Policy), clearly bring into focus the growing concern of all genuine thinkers regarding the dangerous and erroneous drug policies in the Third World.

An orthodox reader may wonder how a Caste War Among Medicos or Minimum Wages for Agricultural Labourers could ever find a place in a debate on health. This only helps to emphasize MFC's main refrain that health is not a medical subject but a socio-economic topic, and that no true health worker can isolate himself (or herself) from the current socio-cultural and politico-economic forces. This understanding reveals the other side of the coin too—finances are not the main constraint in achieving Health care for All (Family Planning & Problem of Resources; Kerala, A Yardstick for India).

This book is an attempt to bring under focus issues which have hitherto been missed or ignored and to adequately magnify them to put them under proper perspective. We hope you will welcome it as enthusiastically as you did its predecessors.

Kamala S. JayaRao.

DRUGS

Consumer Alert — Action — Welcome

9th April 1983

"Although Clioquinol can severely damage the nervous system and has injured more people than any other drug, it is still being sold in about 100 countries around the world.

Ciba-Geigy the biggest producer of Clioquinol has at last decided to phase it out from the world market within 3 to 5 years. But this exposes large populations to unacceptable risks for yet another 3 to 5 years and offers no benefits. We urge all national drug regulatory authorities and the World Health Organisation to ensure that the production and sale of oral preparations containing Clioquinol or any Hydroxyquinol ne is stopped **now.**"

—IOCU seminar on Health, Safety and the Consumer, Ranzan, Japan.

26th November, 1984

In October 1982, CIBA-GEIGY had published a new policy on control of diarrhoeal diseases. This policy included the announcement of the world-wide gradual phasing out in three to five years of Enterovioform, Mexaform and others, drugs which have been used for the control of diarrhoeal disease for decades. However, in connection with a series of SMON- cases in Japan, these drugs became the object of a public, controversial discussion concerning drug benefit/risk.

Within keeping of the announced policy,

(Continued on page 8)

(Continued from page 7)

sales of the products concerned have been discontinued since October 1982 in some 90 countries. The gradual phasing out of these drugs has taken place with the approval of the National Health Authorities. The World Health Organization in Geneva was regularly informed of the present state of developments.

Today, the method of Oral Rehydration offers a significant alternative therapy in the control of Diarrhoeal Diseases—particularly in the field of Infant Diarrhoeal Diseases. Ciba-Geigy has decided to account the present concepts and developments in this field into a new policy, thereby abandoning the use of Clioquinol—containing and related drugs. Consequently, Ciba-Geigy will accelerate it original policy on controlling diarrhoeal diseases, whereby the supply of the Anti-Diarrhoal products will be stopped by the end of the first quarter of 1985.

Press release by Ciba-Geigy.

30th November 1984.

The Presidont of IOCU, Anwar Fazal, today welcomed the news that Ciba-Geigy is abandoning the worldwide supply of its clioquinol containing and related drugs by the end of March next year.

Clioquinol and related drugs—the group of hydroxiquinolines — have been proven responsible for a serious nerve disease "SMON" (subacute—myelo-optic-neuropathy) which often leaves people severdly crippled, blind or both. There have been more than 10,000 "SMON" victims in Japan alone in the late 1960s.

"We hope that this marks the beginning of a new assertiveness on the part of Ciba-Geigy to have nothing but the highest ethical standards in the marketing of its products," says Anwar Fazal.

The IOCU President added that there is a clear moral responsibility on all manufacturers of oral Clioquinol and other hydroxiquinoline containing drugs to follow Ciba-Geigy's example and stop the production and sale of these products without any further hesitation. "We will insist on the recall of such drugs already distributed to retailers and there is no excuse whatsoever for governments to allow this drug to be in circulation".

—Press release by IOCU

NOTE:— Malaysia has banned this drug. It is however widely available and used in Indonesia, Thailand and **India**. The two commonest preparations are Mexaform and Enterovioform.

mfcf ollow-up in Bhopal

Wanted volunteers for follow-up action in Bhopal in the month of May. This will include study of pregnancy outcome, health education and a communication strategy for doctors and voluntary agencies. Anybody who would like to participate/support—contact mfc office immediately.

Placement Available

Required a doctor to serve the rural community around Madurai in Tamil Nadu. Persons oriented in community health and preventive health care activities will be preferred. Monthly emoluments Rs. 1200.00 (all inclusive) plus free housing.

Interested persons may apply to: The Director Rural Theological Institute PTC Post Madurai 625022

(Continued from page 5)

possible risks or the advisability of MTP is unethical. The dangers to pregnancy are well known and poor women should not be used as guinea pigs in medical research.

Contraceptive advice to affected couples

Most of the MIC-affected population is still suffering from symptoms of cyanide—like poisoning indicating therefore the persistence of the biochemical changes which have occurred due to MIC poisoning. It is safer to avoid pregnancies till complete detoxification has taken place. Since a large proportion of the women are suffering from menstrual disorders and other gynaecological problems, male contraceptives (Nirodh) should be recommended rather than Copper T or oral contraceptive pills by the women.

We demand that the health authorities should give serious and urgent consideration to the issues raised here.

Views and opinions expressed in the bulletin are those of the authors and not necessarily of the organisation.

Annual subscription — Inland Rs. 15-00

Foreign ; Sea Mail — US $ 4 for all countries
Air Mail : Asia — US $ 6; Africa & Europe — US $ 9; Canada & USA — US $ 11

Edited by Ravi Narayan, 326, Vth Main, Ist Block, Koramangala, Bangalore-560 034

Printed by Thelma Narayan at Pauline Printing Press, 44, Ulsoor Road, Bangalore-560 042

Published by Thelma Narayan for medico friend circle, 326, Vth Main, Ist Block, Koramangala, Bangalore-560 034

113 medico friend circle bulletin

MAY 1985

INJECTABLE CONTRACEPTIVES

Injectable contraceptives (ICs) have been on the pharmaceutical map of the world since the early 'sixties. Ever since then they have been at the storm centre of a controversy that may well be the longest ever on a medical issue. Two countries, USA and UK have appointed public enquiry committees on the matter.

In India, the ICs controversy was of largely academic debate until about six months ago when the government issued a directive permitting the import of NET-EN, one of the ICs. Around the same time it was also decided to introduce the IC as one of the cafeteria methods offered in the government Family Planning Clinics.

The ICs controversy has raised some fundamental issues — the manner in which decisions which affect thousands of people are taken; the ethics of medical research and control and the more fundamental problem of appropriate animal models for the testing of drugs. It also brings into focus once again, the role of the multinational drug companies in pushing potentially harmful drugs in the third world with the active participation of the concerned governments.

ICs are hormonal contraceptives which may be administered in the form of once in 60 or 84 day injections. They are synthetic progestogens. The two currently available ICs are Depot medroxy-progestogen acetate (brand name Depo Provera) and Norethisterone enanthate or NET-EN (brand) name Norigest) While they are both synthetic progestogens they belong to different groups of steriods. These synthetic progestagens inhibit the production of gonadotropin which in turn prevents ovulation. The endometrium and the fallopian tubes are also perhaps affected contributing to a reduction in fertility.

Depo Provera has currently been approved for use in 84 countries whilst NET-EN is 'registered' for use in 25 countries but approved for use in 40. It is neither registered nor used in UK or the US (War on Want, 1984).

The Depo Provera Board of Inquiry in the US has strongly recommended to the FDA that the drug sould not be licensed as a contraceptive. In UK however, the Board of Inquiry has cautiously permitted the use of ICs in cases where other methods are unsuitable. In India Depo Provera is not allowed to be imported. However, it is not banned dither.

Since Depo Provera has been in use much longer, much more research material is available on this than on NET-EN. Although they are different steriods, it is possible to examine some of these findings with reference to NET-EN. Toxicological studies have been carried out in accordance with the requirements of the US FDA. These results have been monitored by the WHO Toxicological Review Panel periodically. The drugs have been tested on rodents, beagle dogs and rhesus monkeys. The Depo Provera animal studies have come in for a lot of criticism. Stephen Minkin a former Nutrition Chief of the UNICEF project in Bangladesh first revealed that Upjohn, Depo Provera's manufacturer had not in fact reported all the findings of their trial on beagle dogs. The 7-year studies on beagle dogs had

INSIDE

shown that mammary gland nodules developed in all those animals which survived beyond the first few years and some of these were malignant. Another finding was acromegaly or an abnormal growth process. Ten-year monkey studies have also been conducted using DP. Again mammary nodules developed in the low-dose groups. Endometrial carcinoma was also observed in some of the monkeys. (WHO, 1982). Minkin further reports that curvature of the spine was also found in experimental animals, which is a possible indicator that Depo Provera inhibits growth hormones.

The NET-EN studies have not however shown the same results. The beagle dog studies have shown that the drug may be inhibiting or affecting carbohydrate metabolism. One case of endometrial cancer was reported in the monkey studies. The WHO Toxicology Review Panel, after a thorough examination of the results came to the following conclusions — (i) that beagle dogs were considered an unsuitable toxicological model for the study of progestogens; (ii) that the tumours in DP administered monkeys arose from a cell type not found in women and so could not be considered to indicate increased risk for cancer. (WHO, 1982).

Late last year the USFDA's Board of Inquiry has categorically countered both these contentions of the WHO Panel. It has stated that "Data from the studies on the rhesus monkey and beagle dogs cannot be dismissed as irrelevant to the human without conclusive evidence to the contrary. Such evidence is not available at this time. Therefore, the fact that malignant neoplasias developed in two species in target organs of sex steriods must be considered as an indication of the potential of progestogens, including DMPA, to promote the development of malignancies in target organs." (Report of Public Board of Inquiry, (1984).

If one were to accept the WHO conclusions on the unsuitability of beagle dogs as toxicological models for progestogens, then obviously the animal studies data becomes invalid. If this is so, on what basis are human trials, which can only follow upon animal trials, being conducted?.

Human Trials

There are volumes of literature on the Depo Provera human trials. One of the 'pioneers' in the use of Depo Provera was E. MacDaniel who tried out the drug on thousands of Thai women. These studies have come in for a lot of criticism. The US Board of Inquiry has stated that the data on humans is insufficient and inadequate to either confirm or refute the animal study results (Report of Board of Inquiry. 1984.) It has pointed out that in a majority of the studies there were no controls, nor is there sufficient background information on which one may decide on the possible carcinogenic risk. Moreover the Thai trials have also been criticised on ethical grounds—'informed consent' was no where practiced.

Depo Provera has been tried out in India, by the ICMR, but reports have never been available. There are two major NET-EN studies — both coordinated by the WHO. The first was a two-year multinational comparative trial of three regimens of DP given at 90 days interval, NET-EN at 60 day intervals, and 84 days interval. Over 3000 women participated in the trials which began with recruitments in 1977 and the final follow-up in 1982 (WHO, 1983). The other multicentre trial was conducted in India by the ICMR in 16 Human Reproduction Research Centres. This study compared two regimens of NET-EN of one 200 mg injection at 60 days and 90 days. Over 2000 women participated in this study which ended its first phase in October 1983. (ICMR, undated).

A common feature of both the studies is the very high drop out rates, most of which were due to menstrual irregulaities. In the 1977 WHO trial the drop out rate per 100 women ranges from 59 to 89 and in the Indian study about 50 per 100. Menstrual irregularities included amenorrhoea, excessive bleeding, and spotting. In the WHO study 40 percent of the women suffered from amenorrhoea of more than 90 days.

The 1982 WHO document has specifically noted that menstrual irregularities are not likely to be a major health problem. There is really no scientific evidence to back this up! Very little is known about the mechanism of bleeding disturbance especially those related to steroid contraceptives (WHO 1982). This being so, it is rather curious that the Indian decision to introduce the IC into the family planning programme should have come after the study results were known. One apparently facetious argument that is being used is that since Indian women are in any case anaemic, amenorrhoea would in fact help them in the long run. A similar argument is forwarded for another of the side effects, weight gain. In the light of how little is known about menstrual irregularities, such

mfc Anthologies

We are sorry to inform our readers about the unavoidable delay in the Printing of the IIIrd anthology and the reprinting of the I and II anthology. Those who have sent us pre-publication payment are requested to bear with us. The pre-publication offer of Rs. 35/- for the set of three anothologes is also being extended till 30th of May 1985.

arguments coming from 'experts' in the field must be roundly condemned as being thoroughly unscientific.

It is also rather disturbing to note that a 24-month study should be deemed sufficient to prove the drug's safety when it is known to be a possible carcinogen. Another area which has been ignored is the possible teratogenic effects of ICs. The child may be exposed to the drug if the mother's pregnancy is undiagnosed when the contraceptive is administered.

Expents have stated that there is a positive and significant association between progestins and birth defects (War on Want, 1984). There have been hardly any well-designed follow-up of children who might have been exposed to the drug. Contraception failure may also lead to exposure of the foetus to progestogens. In the two studies cited contraception failure occured in 0.4 to 1.4 women per 100 women (WHO, 1983). While this seems like a small proportion, the total numbers are likely to be large when ICs are being given through the family planning clinics. Another factor to be considered here is the effect of progestogen's on breast fed infants. According to the WHO report a breast fed infant of a mother on NET-EN would receive about 0.05 per cent of the maternal dose over a two-month interval. (WHO, 1982). It has been reported that even this small amount may prove harmful because (i) the brain is not fully developed and is sensitive to hormones and (ii) the immature liver and the consequent slower elimination may lead to a high accumulation of the hormone in the blood. (War on Want, 1984). When so little is known in this area, is it ethical to introduce this contraceptive in the national family planning programme.

The ICMR has outlined a set of guidelines for family planning clinics regarding the use of ICs (GOI, undated). These are very similar to the WHO guidelines and include criteria for selection, pre-examinations to exclude cancer of the breasts and genital cancers, undiagnosed abnormal uterine bleeding and so on. Given the overcrowded understaffed family planning clinics how much time would the doctor be able to devote to the potential IC user.?

As reported earlier the government has now allowed the import of NET-EN by private practitioners, nursing homes etc. And yet there is no mechanism to ensure that the guidelines are followed. Moreover, ICs have a great potential for misuse. For instance, in UK, women in some hospitals were refused rubella vaccine unless they accepted DP (Campaign against Depo Provera). Closer home in Bhopal, women are not being allowed to have MTPs unless they accept copper T's. This perhaps is the most frightening aspect of the whole situation. Women will loose whatever little control they had over contraception. There is plenty of evidence that even during the trial phase, 'informed consent' was only a myth. When IC's become part of the 'cafeteria' approach, information will be at a greater premium because then there will be no need to 'persuade' the subject so as to get a adequate sample for research. The manner in which ICs have been introduced smacks of indecent haste. For one thing, although the ICMR study was completed by October '83, no report was forthcoming until recently. In fact the first published article seems to have appeared not in an ICMR publication but as an article in a specialised journal to which few non-research oriented institutions have access—**Contraception**. It may of course be argued that since there has never been a tradition of debate on scientific and medical issues in the country, why should ICMR have acted any differently. And that is in fact the major issue here. — that people have a right to decide whether or not they would like to take the risks that are today being thrust upon them.

Padma Prakash, Bombay.

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Placement Available

We are looking for a Hindi speaking doctor to help run a small rural health project in Santhal Parganas. Salary negotiable. Applicant please write with details of qualification and experience to: M. Ganguli, PO Jagdishpur, Via Madhupur; Dist Deoghar; Bihar 815353.

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mfch 113
May 1985

Bhopal — Citizens Responses

(a) A **National Convention** on 'Lessons from Bhopal: Environment, Science and Democratic Rights in the context of the Role of Foreign Capital and the Indian State" was held on Feb 17-18 at Gandhi Bhavan, Bhopal. It was attended by more than 150 delegates belonging to about 65 organisations from 13 different states of the country and also by delegates from Afganistan and Nepal. Copies of the declaration made by the Convention are available from: Rashtriya Abhiyan Samiti, Zahreeli Gas Kand Sangharsh Morcha C/o Vibhuti Jha, Advocate 49 Shyamala Road, Bhopal 462002.

(b) A National Campaign Committee (Rashtriya Abhiyan Samiti) was formed at the above convention and had its first meeting on April 6-7, 1985 at Bhopal. It decided to organize a mass rally (hold a public meeting and present a memorandum to the Prime Minister with signatures—target being ten lakhs) at Delhi on June 5, 1985 which is observed as world Environment Day. For a copy of the memorandum, and further details of the national committees, plan and suggestions for action, write to the above address. (a)

(c) Bharat Vignan Kala Morcha

The Kerala Sastra Sahitya Parishad has organized an All India Science through Art campaign, covering 8000 kilometres in the month of May through 100 places spread over Karnataka, Andhra Pradesh, Madhya Pradesh, Maharashtra; Rajasthan Uttar Pradesh and Delhi. This morcha is dedicated to the memory of the brothers and sisters who lost their life in the Bhopal genocide with a promise to avenge their death. The route/dates in May 1985 of the Yatra are as follows: Bangalore (1-3); Harihar (4); Hubli (5-6); Sholapur (7); Pune (8-10); Secunderabad (11-14). Bhopal (14-18); Indore (18-19); Ajmer (20-21); Jaipur (21-22); Delhi (22-29).

(d) **Eklavya** has brought out a Bhopal—The State of the Environment report on the 100th dav of the gas tragedy (March 12, 1985), in English and Bhopal Gas Tragedy—Jan Vigyan Ka Saval — a brochure in Hindi on their exhibition held in the bastis. For further details/copies write to:
Eklavya, E1/208, Arera Colony; Bhopal 462016

(e) "No More Bhopals"—an exhibition

The Centre for Education and Documentation, Bombay, along with a few friends has put together a large exhibition to highlight the world's worst industrial accident in Bhopal. Two sets of 35 posters mounted on flat hard board are available: one in Hindi and one in English. These two sets are now circulating in India. All groups interested in showing it may contact: **CED 3 Suleman Chamber,** 4 Battery Street, Behind Regal Cinema Bombay 400039 (telephone 2020019).

The mfc Bhopal intervention

(a) the mfc study report :

The report of the study undertaken by the mfc team from 17-26 March 1985 has just been consolidated at Baroda on 27-28 April and will be ready for circulation by the end of May. The report which probably will be among the first community based epidemiological and socio-medical surveys to be released to the scientific community, press and public will highlight the grave findings of the state of health of the Bhopal gas victims three months after the disaster. It will also contain a report on peoples perception of health services, case studies and bibliography. For further information, write to mfc office, Bangalore.

(b) Communication strategy on Health Issues

A note on the need to evolve a communication strategy on health issues following the Bhopal gas tragedy has been prepared and circulated to voluntary agencies and citizens groups working in Bhopal and the MP Government health authorities. This note is available on request from the mfc office. Bangalore. Thelma Narayan of mfc will be based in Bhopal from 12 to 28 May 1985 to help evolve such a communication strategy. Please send comments on the note, ideas suggestions to her C/o Gandhi Bhavan, Shyamala Hills Near Polytechnic; Bhopal 462002.

(c) Study on Pregnancy outcome

A tentative plan for a study on 'Pregnancy Outcome' to be undertaken in Bhopal in the second week of June has been drawn up and preprations are on the anvil. Volunteers interested in participating and readers/members interested in supporting this study with ideas, suggestions and technical information, please write to: Satyamala, C-152; MIG Flats, Saket, New Delhi- 110017.

The J N U Study

An epidemiological and sociological study of the Bhopal tragedy focussing on the size, distribution and causes of the various health conditions produced by the tragedy, and social and economic profiile of the victims was undertaken by the Centre for Social Medicine and Community Health of JNU in December- January 1984-85 and has been reported in JNU News in April 1985

For further details and copies of the report, write to: D Banerji, Professor of the above Centre, JNU New Delhi 110067.

Dear Friend...

Annual Meet 1985 — Some reflections

1. This was the first mfc meet I attended. I am very happy to have come. I am impressed and encouraged to meet such a variety of people who are committed to people especially the oppressed and who are concerned about a change in values — a change of society.
The meet was interesting, but a little too packed; there was not enough time to meet people individually (But in only 2 days it is almost impossible)

Hilda Sina, Vagamon, Kerala.

2. First let us say that the qualities, backgrounds, achievements, activities, and aspirations of the group in general were varied and exciting. It is good that such different people can come together with some hopes and interests in common, and share and develop their ideas. The 'old' group did not dominate the 'new' nor did they show impatience nor intolerance with the 'new'. Even the long term mfc members did not criticise each other in harsh terms and showed mutual respect even in disagreement. This is amazing and highly commendable.

Everyone seemed welcome to attend and participate. The attitude seemed to be that we could all learn from each other.
Small group discussion followed by plenary sessions were very good. A little more time for informal meetings would have been nice.
It would have been nice to have all the background papers before the meet because reading time was short once we arrived..
The meet served its main purpose for us in meeting like minded medicos and non-medicos alike from various parts of India.

Penny Dawson, Jamie Uhrig,
Mitraniketan, Kerala.

3. I got to know quite a number of people with whom I would never have come in contact otherwise. It was quite informative except where people were getting into unavoidable technicalities, which of course were difficult to follow.

The time limitation was an inhibiting factor. We had to skip quite a lot of things.

I was in the group discussing how to raise public awareness about TB. The ways that were discussed were the ones that we had already discussed in our SPACE meetings. Participants were trying to express with their experiences why they came to such conclusions. They were not allowed to tell their experiences but what they had inferred from it— of course due to lack of time.

Then some participants had a set of opinions formed and they refused to come out their circle. This led to heated arguments now and then.

On the whole it was nice.

—Malarvizhi, Madras.

Drug Action Focus

4. Instead of choosing new topics each time can we have a meet where we reanalyse some past issues and topics. There is a general feeling amongst people that after discussions we do not follow up on the topics anymore. Drugs topic for example.
I think although the Drug Action Network is working full time some of us in mfc feel sidelined now and find little or nothing to contribute. Raising the issue in an annual meet may turn out newer aspects of the problem. I think that DAN is directing its efforts in the wrong direction. Instead of pressing the drug controller of India for action all of us should conscientize undergraduates and upcoming doctors. Our fight should be at a lower level rather than at the level of government policy. This is my disillusionment with the DAN and I hope we can correct its course by another discussion on the topic of drugs.

Vineet Nayar, Vellore.

Whither Company Doctor?

5. The purpose of this letter is to motivate a social scientist or a researcher to conduct a study on the interaction between a worker and the so called "company Doctor" I am sure that the findings of such a study will be revealing. Both public and private sector Industries employ doctors on parttime or full time basis to man their first aid centres, ambulance rooms, dispensaries and hospitals, and these doctors are called "company Doctors".
An observation made by me (over a period of three decades) is that the workers look at the company doctor with askance. He is considered as a "management Agent" having no sympathy for the workers. The workers attribute the following characteristics to the company doctor.
   1) He lacks human touch. He thinks that workers FEIGN sickness.
   2) His medical opinion and diagnosis are dependant on the instruction of the company/management.
   c) At the behest of the management, he goes to the extent of certifying as "medically unfit" even physically fit persons.
   4) He asserts that working environment and sanitation are the best available any where.

In most cases where his opinion is contested and referred to outside doctors and specialists, he is proved wrong. In most of the court cases, he is disbelieved and held to be biased. I wish that there is a healthy debate and any company doctor comes forward to assuage these feelings of workers. It is observed that public sector employees have better opinion about their company doctors.
Yours

U.S. Venkatraman, Bangalore

GARIBI HATAO !

A move is on in India's Planning Commission to determine anew the parameters for defining poverty.

The action was undertaken, reportedly, after Prime Minister Indira Gandhi observed that she found a lot of bright faces in rural India, which was not reflected in current official statistics showing that poverty in India is actually increasing.

The controversy actually started last year after a cross-country walk-athon by Janata Party President Chandra Shekhar, who said that he was appalled to find the dehumanizing poverty in which India's masses were living 36 years after independence.

Drinking Water Data

Half of the country's 576,000 villages still did not have any drinking water facilities, Shekar said after his 2,500-mile trek that took him through six of India's 22 states in six months.

According to official statistics, 339 million of the total population of about 700 million were below the poverty line defined as a daily minimum calorie intake of 2,400 per person in the rural areas and 2,100 in the urban areas, or a $6.50 per capita income a month in the rural areas and $7.50 per capita income a month in the urban areas

This means that 45 percent of the people still live on a less than subsistence level. Of them, 272 million were in the rural areas and 67 million in the urban areas, showing that large-scale poverty continued in the villages.

Officials Are Upset

These statistics and comments by Shekar were not appreciated by the powers that be. They felt, and some economists backed them that the extent of poverty in the country was being exaggerated and that undue publicity might hamper foreign investment.

So a group in the Planning Commission advocated a lowering of the cut-off point, thereby lifting a large segment of the people above the poverty line.

According to views expressed by some members of this group, the actual calorie intake for Survival was actually much lower One of them, Prof. P.V. Sukhatme, contended that the present cutoff point was the average requirement of a healthy and active population and not the minimum below which a person should be considered undernourished. He suggested that a defined lower end of the range of the energy intake of a healthy individual be used as the cutoff point for determining undernutrition and the poverty line.

Targets of Sixth Plan

The Sixth five year development plan (1980-85) target is to reduce those below the poverty line from 339 million to 215 million and the midterm appraisal contends that that the number has already been cut to 282 million in the first two years of the plan.

If these claims are indicative, all 339 million can be expected to be lifted above the poverty line by 1990 some economists said. And if the line itself was amended, poverty itself could be expected to be eradicated in India very soon.

Prof. C. Gopalan Director General of the Council of Medical Research, has disputed Prof. Sukhatme's claim and said that mean calorie intake of a community should continue to be the dividing line of poverty. He hoped that the commission would not undertake such a deceptive short cut to national prosperity considering the magnitude of the problems of poverty.

Source: INDIA ABROAD.
April 6, 1984.

Rational Drug Policy cell mfc

PRESS RELEASE

Irrational Pain-Killers

Only 14 out of 59 analgesic preparations found scientifically justified !

Dr. Jamie Uhrig and Dr. Penny Dawson of Medico Friend Circle have analysed 59 preparations listed as analgesics and antipyretics in the July' 84 issue of MIMS, India and found 45 of these 50 preparations to be irrational on some ground or the other.

Basing themselves on the latest authentic text-books, Dr. Uhrig and Dr. Dawson rigorously studied each of these preparations and graded them into the following categories :

A: Use of the product is justified-14 preparations for example: Plain paracetamol, Aspirin etc..

B: The combination is not proven to be superior to single ingredient preparation and hence not recommended .....17 preparations. For example — Equagesic, Malidens, Micropyrin, Optalindon .... etc.

C: The combination has been proven to be inferior to single ingredient preparation and should be withdrawn .....11 preparations. For example—Apidin, Carbutyl, Dolopar Plus, Norgesic, Parvon—N, Parvon—P, Proxivon, Spasmo—proxivon, Sudhinol—N C.... etc.

D: The preparation contains analgin and should be banned ..... 17 preparations. For example——Codosic, Dolopar, Novalgin, Ultragin, Sedyn—A forte, Spasmizol....etc.

We conratulate Dr. Uhrig/Dr. Dawson for their spontaneous initiative in conducting this study. This study is available with the Rational Drug Policy Cell of M.F.C. at a cost-price of Rs. 3/. Please write to:—Anant Phadke, 50, LIC Quarters, University Road, PUNE—411 016.
Also available with mfc office, Bangalore.

Book Review

BEHIND POVERTY, Djurfeldt and Lindberg, Oxford & IBH Publishing Co., 1976 — Books 22 & 23 in Scandinavian Institute of Asian Studies Monograph Series.

Health Care in India seems to have few hard cut opinions: this makes it easier to digest (but far more boring) than Rakku's Story. The latter is a hard hitting (ie., unpleasant) view of the medical system. It rejects the alternative approaches usually suggested and so rejects their creators (after all it is these people who might have profited from reading Rakku's Story).

Futher, Rakku's Story is too local in place as well as in time; it does not explore the broader Tamil Nadu or Indian situation at all; no effort is made to refer to the history of the area.

I agree that the people represented in the book do not know history or a geography — political, economic or social. But changing the world begins at this point, at this question: How do we in this historical and geographical situation relate to other situations? For this is the beginning of the next question: How can we change the present situation?

Here one points to Djurfeldt & Lindberg's book Behind Poverty. The first section of this study is devoted to filling in such background material and, it is both specific to the area discussed (Chingleput in 1969-70) and also related to relevant parts of the broader situation unlike Health Care in India which has a vague "wide" background or Rakku's Story, which has a super "narrow" outlook.

Studies like Behind Poverty (the social formation of a Tamil village) might be done for other areas — North Arcot, Larkana, anywhere. This study is useful to its immediate neighbours and as a model for other areas to imitate. But ready made analysis of all India (without specifying how different various areas are) like Health Care in India are prone to become "Bibles'.

Why don't more people read their State Gazettes, State Histories and study local languages as a background to NGO work in communities?

Pills Against Poverty — companion volume to Behind Poverty — is a book by two Scandinavian University Sociologists on the introduction of Western Medicine in a Tamil village.

The name gives away the authors' views but one hopes doctors will read Behind Poverty first, however tempting the medical topic is.

Prabir, CMC, Vellore

Keeping Track

(mfc Sources)

1. When the Searh Began — Ulhas Jajoo

The story of a team of friends and their experiences in organising a Novel Health Insurance Scheme among villagers in Maharashtra — the lessons learnt, the failures, the perspectives gained.
Mahatma Gandhi Institute of Medical Sciences Sevagram — 442 102, Maharashtra (Rs. 5|—).

2. Health Education Posters on Malnutrition
—Ulhas Jajoo

A set of xeroxed posters developed from the experiences gained in the above project (1) Mahatma Gandhi Institute of Medical Sciences Sevagram — 442 102, Maharashtra (Rs35|- for a set)

3. Minimum Wages — need for fair reward to labour in Agriculture and Employment Guarantee Scheme — Abhay Bang.

— An examination of the cost of production of labour and new recomendation of what should be appropriate minimum wages based on Calorie and Protein requirements.

—Acadamy of Gandhian Studies, 2-2-11334/5, New Nallakunta, Hyderabad — 500 004 (Rs. 2|-)

4. Diarrhoea and ORT — Lalit Khanra

A discussion of the issues involved in the management of diarrhoea and the rationale of oral-rehydration therapy for pro-fessional and and community education (in Bengali)
Chandabrati, Tamluk Dist, Midnapore; West Bengal — (Rs. 1|-)

5. Diseases of Children (in Marathi)
— Bipin K. Parekh

A book for educating para-medical staff and for child health education with 64 pages of line drawings from a total of 175 pages.
Mamata, Mamledar Malegaon — 423203 Dist Nasik. (Rs.20/-)

ANNOUNCEMENT

If you are prepared to launch a public service or development project, working full time and develop this into a self sustaining, independent innovative effort — contact Kishore Saint, Executive Director, The Ashoka Foundation 11—A, Old Fatehpura, Udaipur. — 313 001 with introductory note, plans and brief biodata. The foundation wishes to support young enterprising persons with strong social commitment in efforts expressing creativity and initiative so that new solutions to the myriad problems in our society may emerge.

Drugs in Diarrhoea—A Question of Life & Death

Clioquinol & Antimotility Drugs—are they safe?

CLIOQUINOL

Medicines like Enteroquinol, Mexaform and Enterovioform contain Clioquinol — the drug that has resulted in thousands of cases of paralysis and blindness due to Subacute Myelo Optic Neuropathy (SMON).

SOME FACTS

1. In the thirties, when Ciba-Geigy introduced Clioquinol, the animal experiments had shown the occurance of the same disorder of the nervous system as was found later on in human beings. The company, in fact had warned the veterinarians not to use the drug in animals. But this information was not passed to others.

2...Even cases of SMON studied by doctors on behalf of Ciba-Giegy have shown that the disease is found all over the world and was not confined to Japan. Seven cases were reported from Bombay.

3. Clioquinol can also produce Optic atrophy. The Indian Opthalmogists do see cases of Optic atrophy for which they fail to assign any cause. When asked, if they took the history of prolonged or repeated courses of Clioquinol taken by these subjects, the answer was in negative.

4. Now that Clioquinol is shown to be harmful to animals as well as human beings, why should this drug be used when we have comparatively safer alternatives like Metronidazole? Dr. Andrew Herxheimer, editor of the reputed 'Drug and Therapeutics Bulletin' told me that considering all the factors like efficacy, safety and price; Metronidazole was definitely to be preferred and with the present available evidence, Clioquinol should not be marketed. (Incidentally he is aware of the suspected carcinoginecity of Metronidazole in mice)

5. After all the scientific evidence was presented in the Japanese Courts, Ciba-Geigy rendered an unqualified apology for the suffering that Clioquinol caused and then decided to withdraw the drug world-wide.

6. When Clioquinol is readily available, even cases of watery diorrhoeas (which are mostly due to viruses) are treated by Clioquinol group of drugs. So it is better not to have such a drug for which a safer alternative was available.

7. Myself, a pediatric Colleague and two very busy general practitioners of Bombay have not used Clioquinol for years and we are all quite happy about it.

With my most sincere regards,

Yours sincerely,

Sd/—

Chairman, Medical Committee,

Consumer Guidance Society of India,

Ciba — Geigy Withdraws Tanderil

The multinational pharmaceutical firm Ciba-Geigy Pharma has announced the withdrawal of the drug Tanderil world-wide and restricted use of the drug Butazolidin, the Voluntary Health Association of India said here today.

Tanderil was commonly prescribed for joint pains. While its sales will be discontinued by the firm, it has announced that Butazolidin will be restricted to the treatment of only four classical forms of rheumatic diseases: active ankylosing spondylitis, acute gouty arthritis, active rheumatoid arthritis and acute attacks of osteo arthritis. It is to be recommended only for cases where other therapeutic measures have been tried and found unsatisfactory.

Dr. Mira Shiva, Coordinator, Low cost drugs and Rational Therapeutics attached to the Voluntary Health Association, said the demand for sceeening all the drugs in the market, with immediate withdrawal of the hazardous drugs cannot be emphasised more. The basic expectations from the national Drug Policy in the offing were: (A) The withdrawal of hazardous and irrational drugs: (B) Adequate production, distribution, and availablity of essential and life-saving drugs; (C) Availability of unbiased drug information for health personnel and public and (D) Effective quality control and drug control.

DECCAN HERALD 13th April 1985

Views and opinions expressed in the bulletin are those of the authors and not necessarily of the organisation.

Annual subscription — Inland Rs. 15-00

Foreign ; Sea Mail — US $ 4 for all countries
Air Mail : Asia — US $ 6; Africa & Europe — US $ 9; Canada & USA — US $ 11

Edited by Ravi Narayan, 326, Vth Main, Ist Block, Koramangala, Bangalore-560 034

Printed by Thelma Narayan at Pauline Printing Press, 44, Ulsoor Road, Bangalore-560 042

Published by Thelma Narayan for medico friend circle, 326, Vth Main, Ist Block, Koramangala, Bangalore-560 034

Post - Script

Most of this report relates to events, information and issues in Bhopal till end of March 1985. Two months have passed since our survey. Much has happened in the last two months. April - May in Bhopal. Much still remain to be done.

1) I.C.M.R. has reiterated its guidelines on the use of Sodium Thiosulphate as a detoxification agent. Guidelines were released to the press on the 4th of April. At the 3rd meeting of the working group on thiosulphate therapy held at ICMR head quarters on 4th April all aspects of the problem, interpretation of research findings and points of controversy were considered and the guidelines released earlier have been re-endorsed.

11) Locally in Bhopal, sodium thiosulphate injection is now available in a few government clinics and dispensaries and is gradually being made available to voluntary agencies and general practitioners. However the implementation of this scheme is still very tardy and reflects the apathy of the local medical services. Many voluntary agencies are in the process of starting detoxification clinics. A dip-stick method of estimation of urinary thiocyanate level has been evolved by Regional research laboratory in Bhopal and refined by Christian Medical College, Ludhiana. This will take care of the problem of logistics of estimation by the more sophisticated methods.

111) Levimasole (an ascaricide) has been used by some investigators as an immunomodulator agent for ameliorating the symptoms attributable to the respiratory system. The rationale is not yet clear and the results of trials not yet communicated. Respiratory physiotherapy has been accepted as having a definite place in treatment. This was pioneered by the Union Research group but will now become part of the general treatment schedule in all centres. Some interest has been generated in the possible role of treatment with hydroxycobalmin.

iv) A meeting of citizens groups and voluntary agencies on 4th & 5th April has resulted in the fromation of a national campaign committee with the Zahreeli Gas Kand Sangarsh Morcha as coordinator. The committee will bring pressure to bear on the government decision makers and the medical and scientific community for a speedy, just and relevant relief and rehabilitation strategy. Public meeting, community education programmes, signature campaigns, memoranda and other forms of collective action are planned.

v) A communication strategy evolved on the overall perspectives of the mfc survey team was circulated to voluntary agencies, decision makers in Madhya Pradesh health services, Professors of the

...2.

medical college in Bhopal and the ICMR. The ICMR director general has written to say he considers it a significant and constructive contribution which should certainly be circulated to all concerned in the government and in the voluntary and private sector, and has offered to provide research results and support with research and development activities. The note has been welcomed by the voluntary agencies in Bhopal but generally ignored by the decision makers in the government and the local medical college.

vi) The voluntary agencies have been active and increasing their collaboration and joint action. There have been two meetings to share experiences and there may be joint action on the detoxification front. One group the Trade Union Research Group have started nutrition supplement programme with a soya/wheat mix. Some doctors scientists and others have started the Madhya Pradesh Vigyan Sabha which has opened a clinic, initiated a survey of 6000 families to build up data base to provide legal aid and plan rehabilitation programmes. They will also be undertaking an a wareness building programme among the people. The Indian Red Cross Society have also initiated services in Bhopal.

vii) The Bhopal Eye hospital organised a meeting sponsored by the Royal Commonwealth Institute for the blind on the Eye problems. Many ophthalmologists have felt that all the eye symptoms are attributable to trachoma, vitamin A defficiency and the expected number of refractive errors in such a population. There is evidence however that refractive errors corrected in October-November 1984 has deteriorated. They have eyes but cannot see!

viii) Overdrugging has become a problem and some doctors are beginning to recognise it finally. There have been reports of fungal ulcer of the cornea due to excessive doses of antibiotic ophthalmic preparations, a case of hyperglycemia diagnosed as diabetes after high doses of steriod. There are indications that tuberculosis would have flared up due to indiscriminate steroid therapy.

ix) The I.C.M.R. organised a two day meeting May 3rd/4th 1985 attended by over eighty eminent scientists to review the current status of research. The press release about the meeting gives some information: carbamylation of hemoglobin may prove to be an important marker to identify those exposed to the gas, detailed epidemiological study covering 85,000 persons in the affected area and 20000 in a non affected area have been initiated and will include periodic visits to monitor health problems as well as lung functions.

... 3.

blood gas analysis, occular studies, mental health, growth and development, neurological problems, immunological and genetic parameters on a cohort of these, no case of total blindness identified, a survey of cognitive function in school children is planned; the treatment schedule continues to include bronchodilators, steroids, sodium thiosulphate and psychosocial therapy; ICMR expert committee has recommended well designed and properly monitored clinical trials using double blind method on the efficacy of bronchodilators, aminophylline, sodium thiosulphate and levimasole.

x) Psychological stress and mental health problems have been established as being of grave importance by visiting psychiatrists. A mental health team from Lucknow comprising psychiatrists, Psychologistsand psychiatric social workers have been conducting regular out patient services in one of the polyclinics, and visiting 10 government dispensaries in rotation. Surveys of mental health problems in adults, adolescents and children are planned.
A team of psychiatrists from National Institute of Mental Health and Neurological Sciences have conducted training programmes for medical officers of the state health services posted in gas affected areas. The training provides necessary skill to diagnose and manage the common mental problems seen in the victims of gas exposure.

xi) Pregnancy outcome and effects on the foetus continues to remain a point of serious controversy with government reports, ICMR report, news items in local media and voluntary agency assessment being in constant conflict. There is growing evidence that abortions, still births, deformities and low birth babies are on the increase. The controversy will hopefully be settled in June-July when most of the mothers who were in the first trimester at the time of exposure will deliver. This calls for well planned community based investigation ICMR and other agencies including mfc are gearing up for this.

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mFeb 114
June 1985
(Contd)

The JNU study

An Epidemiological and Sociological Study of the Bhopal Tragedy

— A Preliminary Communication, (Feb 1985) Debabar Benerji

Study of the immediate sequence of events which culminated in the Bhopal Tragedy should cover a very wide range of scientific investigation. It becomes still more extensive when the immediate causes are analysed against the background of the wider issues of concern for protecion of people against industrial hazards in India.

The immediate task before scientists in India was to have an integrated approach to collection of data. At the Centre of Social Medicine and Community Health of Jawaharlal Nehru University (CSMCH), we were particularly anxious to synchronise our own actions with other units within wider organisations under the leadership of the CSIR. CSMCH had immediately got in touch with ICMR to develop a joint approach to study the problem. However, as time passed it was felt at CSMCH that there were still considerable uncertainties about obtaining the vitally needed epidemiological and social science date through a joint study with ICMR. As it was feared that valuable informat- will be lost if there was any further delay, CSMCH took upon itself the task of collecting at least some basic data. These included: (1) size and distribution of the cases: (a) who were cured? (b) who continue to suffer? (c) who have developed complications? and, (d) who have died because of the poisoning?

(2) social-economic background of the victims;
(3) ecological setting of the affected areas;
(4) community organisation and power structure;
(5) pre-existing community perception and knowledge about the hazards; and (6) community response to the disaster

It was quite a challenging task to design and conduct in a short time such a complex study.

(Continued on page 2)

bilition services being organised; and a study on the peoples perception of these; the scientific controversy about the cyanogen pool and thiosulphate treatment and our recommendations for relief, rehabilitation, communication, research and Govt-NGO collaboration. The report also features a reference list of over 80 articles relevant to the Bhopal disaster. We release this report with the sincere hope that it will support the affected people in their demand for justice and meaningful relief and rehabilitation.

Copies will be available on request from mfc office in Bangalore & Pune; CEDS—Bombay; K.S.S.P. Trivandrum; VHAI, New Delhi; Gandhi Bhavan, ZGKS Morcha office; Eklavya in Bhopal; and S.H.R. Office, Bombay after 25th of June.

Non-availability of certain critical information concerning the poisoning and several other hurdles created further problems. Quantity and the rate of discharge of the "gas", its chemical composition, direction, and velocity of the wind and the influence of physical behaviour of the discharged "gas" on incidence, spread and virulence, are examples of such critical information.

Clamping of virtual embargo on information on these activities, mass exodus of the victims before "Operation Faith", invasion by lawyers and touts and (an understandable) deep distrust of the victims, have been other hurdles which came in the way of conducting the study.

Demarcation of the affected population, their stratification into most intensely affected (high mortality), moderately affected (low mortality) and others (no mortality) and their sub-stratification interms of **mohallas** was the first phase of the study design. Each **mohalla** was taken as a unit for applying the field work (observation) technique to obtain data on the sequence of events. With the observational data forming the back-drop, quantitative data were obtained by administering a semi-structured interview schedule to a random sample of 6.66% (1 in 15) households in each mohalla of the most intensely and the moderately affected population. A study population of 68,000, covering 29 **moballs** (yeilding 700 households for administering the schedule), was taken up.

Data from field work made it possible to reconstruct the social, psychological atmosphere among the population which had to take the brunt of the poison gas. They were mostly very poor people sleeping huddled together in their ramshackle shanties in the winter night of December 2-3, 1984. They were not told of the potential danger from the Union Carbide Plant. They all insisted that they were never told of the preventive measures to be taken against any possible gas leakage. They did not hear any alarm sinnal.

They were woken up with a sense of increasingly intense feeling of irritation of the eyes and accompanied with a most horrifying sense of suffocation The suddenness of the onslaught affecting every person in the middle of the night, violent cough and vomiting and purging and the agony of suffocation and the psycholo ical and physical impact of sudden blindness generated an atmosphere of extreme panic. Even at a time when the very survival of an individual was at stake, there were numerous instances of efforts to come to the help of the near and dear ones. But in the depth that winter night, when a virtual panicky stampede had already started in the neighbourhood, individuals were struck with a dreadful feeling of help-

lessness when they were themselves unable to see anything, coughing and vomiting violently and, above all, gasping just to keep alive.

At a macro level it has been possible to reconstruct the terror inspiring spectacle of the Union Carbide Plant taking the form of a real life Frankensteinian Monster in the middle of the night and literally fumigating tens of thousands of innocent human beings like rats and pests. It is a devastating indictment of those who blindly worship technology and industry and consider themselves as liberators of mankind.

Following the now well established pattern of tyranny of industry on the toiling masses, even among the shanty dwellers, the weakest sections suffered more because many were already handicapped with pulmonary insufficiency (due to various conditions) and poor oxygen capacity (due to anaemia). They had also to pay a heavier price because the patched up planks, pieces of tin, elastic sheets and thatch which formed the walls and roofs of their pathetic hutments, left gaping holes for the deadly gas to come within the grossly overcrowded single "room". When they found themselves getting increasingly suffocated within their hutments, they tried to run away in the open, often in the direction of the wind carrying the gas. Men, women, children ran till they fell down unconscious. Many were trampled on in the stampede. There were no rescue efforts till the day break.

As in any other city in the country, a large number of homeless people lived in and around the Bhopal Railway Station — transit passengers, vagrants, destitutes and beggars. As they were more exposed, the impact of the poison on them was much greater — the deaths must have been proportionately larger in their case. But there is no record or estimates, of this.

As expected, the few rich, who came within the central sweep of the fumigation, did not suffer as much damage. They had the protection of their well-built houses and healthier bodies and many of them could escape the gas by using bicycles, scooters, cars, jeeps, tempos or trucks.

More than half of the affected population belong to a category which did not get two full meals everyday all around the year. Only 10 per cent of them could be considered well-off in the sense that they do not have any problem in getting two-full meals and have an income of, say, Rs 150 per head per month or more. Half of the houses had holes in them which allowed in air from outside in the winter. 70 per cent of the houses were kuccha houses. Only 38 per cent had a tap and 69 per cent had an electrical connection, 30 per cent of them were muslims, 20 per cent belonged to lower castes and 18 per cent to the backward castes.

A remarkable feature of the socio-econo-profile of the dead is that in terms of every criteria, this group was even more disadvantaged than the affected population. There were more poor among the dead. 56 per cent of them lived in houses with large holes, proportion of kuccha houses was higher; proportions having a tap or an electrical connection was significantly lower While the proportion of muslims among the dead was similar to that in the overall population, the proportion of those belonging to the lower and backward castes was significantly higher.

In all, 82 dead people and 5 lost cases, presumed dead, were identified in the course of data collection through the schedule. This amounts to 1305 dead in the population of 68,000. Amongst 87 dead or lost cases, males predaminate, accounting for 52 (60 per cent) of them.

A very significant finding in the analysis was that this male predominance was almost exclusively accounted for by those falling within the age range of 2 to 20. Why is it that in all the age groups within 2-20 years, the males predominate to such an extent? This needs very careful study. In 49 households there was only one death per household. There were two deaths in 11 households, three deaths took place in four households and only one household had four deaths

Even at the time of collection of the date (January 6-15, 1985), 57 per cent of the victims still complained of being ill.

21 per cent had decided not to run out of their houses and the percentage of the dead who did not run is 25.42% 73 per cent came out and ran on foot; 6.3 per cent used some vehicle in trying to get away. None of those who used a vehicle had died, while 75 per cent of the dead were among those who ran on foot.

40.2 per cent of the affected population have been treated in hospitals, 2.5 per cent in dispensaries, 25 per cent by general practitioners; 2.5 per cent by registered medical practioners (RMPs); 46 per cent in camps and 9.1 per cent in institutions outside Bhopal.

NOTE: The quantitative date presented above are only tentative, based on hand tabulation of some data. Furthur analysis is awaited.

MID-ANNUAL MEETING

The mid-annual EC/Core group meeting of mfc will be held at Sainik Rest House, Patiala from 26th to 29th July 1985. At this meeting we will be discussing the following:

1) The role of mfc — Discussions will be based on articles of Ashvin Patel and Anant Phadke featured in mfc bulletin 100-1 in April — May 1984.
2) The mc intervention in Bhopal — an assessment and future strategy.
3) Some case studies will also be presented to try and identify the focus of the next annual meet on the theme. Occupational and Environment health.

Detailed information and further background is being sent to all invitess separately. In lieu of the uncertainties of Punjab, alternative venues are also being explored. Delhi is a likely alternative.

The 'Nagrik' Study

(Highlights of the survey conducted by the Citizens Committee for Relief and Rehabilitation, Bhopal, the Voluntary Health Association of India; New Delhi and the Bhopal Relief Trust, Bombay).

Salient Findings

* People living as far as 8 Km away from the carbide factory have been affected by the MIC gas.
* Of the 741 patients examined by the Survey team, (104 to 109 days after disaster) it was found that injury persisted in almost all the cases in spite of the treatment that the victims had received so far.
* There was a high level of thiocyanate in the sub-soil lakes and filtered water of Bhopal, even more than 100 days after gas disaster
* The blood of affected population showed that their average thiocyanate level was three times that of the average found in Bombay.
* An unusually high number of women had aborted and were also complaining of unexpected white discharge.
* Clinical examination of expectant mother revealed that the development of the foetus has been adversely affected
* The vision of a large percentage of children had been affected by MIC and a sizable number of the affected people may develop cataract irrespective of their age. A large number of people have refractive errors.
* A good number of patients were found to be having stomach and abdominal complaints.
* The affected population mainfested neuro muscuweakness of an unknown nature.
* The tragedy has also created excessive psychological stress

Important Recommendations

* Systematic follow up and monitoring of all affe- people for a minimum of three years.
* Every person in affected area to be X-rayed at six monthly intervals for three years. to ensure that further complications did not arise.
* All women who were pregnant at the time of the gas disaster and those who conceived subsequently should be carefully monitored. Modern monitoring techniques like Ultra-Sonography and aminocentesis should be used for the purpose. The parents must be advised about the possibilities of abnormal babies, and should be suitably conselled for continuation or termination of pregnancy.
* Ophthalmic camps should be set up immediately in the city for testing of vision and providing spectacles.
* Affected people should be made to undergo investigations like the electromyography (EMG) before and after exercise for both limb and eye muscles.
* All babies born since December '84 have to be monitured carefully for the growth and latent abnormalities.
* Rehabilitation programmes will have to be worked out after assessing the damage for helping the victims to take up new jobs and occupations in conformity with their disability.
* Potable water in Bhopal needs to be made safe and there is urgent need to decontaminate the water if the level of thiocyanate was found persisting.

Source: *Report of* **"Medical Survey on Bhopal Gas Victims"** *released on May 2, 1985. Copies available with Nagrik Rahat Aur Punarvas Committee, 34 Ashiana Complex, Kohefiza, Bhopal-462 001.*

The Bhopal Disaster:

Effects on Mental Health

'Things can be so bad that to be sane is insane'
Nietzsche

The Bhopal disaser has once again brought to the fore the phenomenonal psycho-social collective stress that people can be subjected to by man-made or natural interventions in history. "The psychological phenomena of disasters are the consequences of the combined individual stress reactions and of reactions to changes in the social milieu. Hence the psychic distress and behavioural disturbances of an indivdual cannot be fully understood or managed unless they are analysed as —elements in the disruption of the equilibrium of a social system". (1) The fourth Advisory meeting on Mental Health (ICMR) December 12-14, 1984, viewed the mental health needs of the affected population as follows: (3)

The acute needs are the understanding and provision of care for confusional states, relactive psychoses, anxiety-depression reactions and grief reactions.

Longterm needs arise from the following areas, namely (1) Psychological reactions to acute and chronic disabilities, (II) Psychological problems of the exposed subjects (currently not affected) to uncertainities of the future, (III) effects of the broken social units on children and adults, and (iv) Psychological problems related to rehabilitation".

A mental health team from Lucknow comprising psychiatrists, psychologists and psychiatric social workers have been conducting regular out patient services at a Government Polyclinic in Bhopal and visiting 10 Government dispensaries in rotation. The mental disorders seen are neurotic depression, anxiety neurosis and hysteria. Psychotic disorders are rare. There are plans to survey the affected population for detecting and providing

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Nuclear Reactors — An Alert

Nuclear reactors and fuel complexes are increasingly becoming status symbols of modernisation. As an energy resource the government is fast promoting their development all over the country. In many countries their continued use is beginning to be questioned in lieu of the potential environmental hazards. We present here a letter to the Prime Minister which was sent by the Joint Forum for Protection of the Environment, Hyderabad in May 1982. This forum consists of the Hyderabad branches of the Indian Women Scientists Association, Forum for Science, Technology and Society and the Society of Biological chemists of India. The letter brings out in graphic detail a real-life case study of the potential hazard of such complexes.

"This letter is to share with you our serious concern about what we have read, heard and seen regarding the safety measures and methods of disposing wastes at the **Nuclear Fuel Complex (NFC)** in Hyderabad. The information contained in this letter is based on a) recent visits by the members of our Forum to NFC, and the discussions held with some senior officials of NFC regarding waste disposal facilities, and (b) feed-back from some of the past and present employees of NFC, regarding in-house safety measures. We are convinced that the situation as it stands is alarming, and likely to become disastrous if NFC goes ahead with its plans to double the production under the existing conditions. NFC is a high technology enterprise, which handles vast amounts of toxic, mutagenic, inflammable and radioactive materials. Thus it has to be especially responsible in its material handling and disposal, and in educating the workers regarding the hazards involved and the care needed. As a public sector enterprise, it should be a trend-setter in such matters.

Some of our findings of particular concern are as follows:

1) **Contamination of drinking water wells in the area with nitrates and radioactive materials:** This is a problem that the NFC is aware of, the trend already is alarming, and is bound to reach serious proportions in the near future if no corrective measures are taken. Also, the firm that buys the nitrate-rich effluents from NFC, M/s. Deccan Nitrates, does not handle them with the required care, resulting in ground water pollution.

2) **Burial of radioactive waste — Uranium:** The present containers used for the packing and burial of the waste uranium are dangerous, since they cannot withstand the environmental wear and tear. There is every chance of the waste seeping into the ground and entering the food chain. Though alpha rays are poor penetrators, they are extremely dangerous when ingested.

There also appears to be the eventual danger of spreading this hazard to areas other than the environs of the present NFC site, since daily one drum of waste is produced and the quantity is likely to double. This hazard is particularly dangerous since it gets carried through generations.

3) **Disposal of non-radioactive wastes:** Despite the NFC's claim that only non-pyretic materials like magnesium chloride are dumped out, the presence of inflammable materials like magnesium and zirconium in these dumps appears to be true; and the recent deaths due to burns in the area that have been repored in the national press need no reiteration here. In view of the ignorance and poverty of the masses in India, extra precautions and security in disposal of such wastes is essential. The disposal of extremely toxic metals like arsenic and selenium produced in the special materials-plant of the NFC is also not safely done.

4) **Effluent treatment facilities:** The sedimentation tanks and evaporation ponds are poorly constructed and lead to contamination due to spillage, particularly in the monsoon season. The effluent treatment facilities at the NFC appear to us to be primitive and inefficient, considering the fact that the NFC is a high-technology enterprise.

5) **Hazards to school children in the area:** Besides the hazards mentioned above, we are also informed that three children of the DAE Central School have died in recent years of malignacies. It is imperative that routine screening and health checking of children be done by an independent body such as the school health board doctors.

6) **Workers' safety:** Apart from the environmental hazards listed above, there seem to be inadequacies in the safety measures in the in-house working of the NFC, posing health hazards to the workers there. A few examples are: chlorine leakage in the zirconium sponge plant; bursting of boiler pipes (such as what happened on 26/3/82); exposure to high temperatures near the chlorinating plant (which might lead to conditions of "sub-fertility" in men as suggested by the high rate of abortion among their wives); high levels of alkali dust and sulphur dioxide in the atmosphere around the zirconium oxidation plant causing allergy and bronchial problems; respiratory problems due to fumes of oxides of nitrogen in the uranium oxide plant where exhaust facilities are poor; provision of poorly designed masks to workers in the grinding, blending and ammonium diuranate cake oven areas; no masks in the wet areas where there are fumes of nitrogen oxides. Rubber gloves are provided twice a year only, and as a result the workers often have to handle dangerous material with torn gloves or even bare hands. An instance was reported to us where an officer allegedly handled uranium powder with bare hands as an act of bravado, presumably to convince the workers that the material they were handling was not all that hazardous. This report, if

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Food in the Hands of Big Industry

Iodine -- deficiency goitre is one of the nutritional prolems that can be very easily controlled and prevented. This has been successfully done in many European countries. In India, the entire Sub-Himalayan belt comprising of Jammu & Kashmir, Punjab, Haryana, H P; northern parts of UP, Bihar and Bengal, the far-eastern States and isolated pockets in Maharashtra and M P. are endemic for goitre. In 1959, the government with UNICEF aid set up 12 iodisation plants to produce iodised salt (Potassium iodate added to common salt). The salt produced was to meet about 50% of the estimated needs and also some of the needs of Nepal. However, and not surprisingly, even this simple programme of manufacture and distribution of the salt, suffered from various defects. These were reviewed by Dr. Gopalan under the title 'The National goitre Control Programme — A sad story' (NFI Bull. July 1981).

About four years ago, at a seminar at the NIN, we were informed that the government was contemplating handing over the iodisation programme to the Tatas. In this matter, obviously the govt, did not drag its feet and on my recent visit to Delhi, I saw iodised salt in the market. Whether handing over the production to the Tatas will solve the goitre problem, is an entirely different matter. I do not know whether Tatas will also handle the distribution One of the reasons for the failure of the National Programme was nonavailability of the required number of railway wagons for the transportation of salt, and that the railways did not provide covered wagons during the rains. How will the Tatas solve this problem, and if distribution is still in the hands of the government, then what matters who produces the salt?

The Control Programme involved manufacture and distribution of the iodised salt. Plants for iodisation were set up with UNICEF aid and we had all the technical know-how. Since it was fortified common salt, the house wife would use it in cooking and there was not much nutrition education involved. The salt was to be sold in place of ordinary cooking salt, therefore sale of ordinary salt was to be banned. The extra cost of iodisation was not to be borne by the people but by the govt. There the salt was to be sold at subsidised cost. Perhaps, Tatas are now receiving the subsidy. Whether administrative inefficiency alone was responsible for handing over the production to the Tatas or whether other factors weighed equally or more, one will never know. As Dr. Gopalan said "administrative incompetence, lack of co-ordination between various agencies involved, and **Commercial and vested interests** (emphasis mine) have apparently combined to wreck the Programme." Although termed a National Programme it was naturally restricted to certain contiguous geographical areas. Of couse, in a country of India's dimensions. even this area is sufficiently large. Nevertheless, the Programme was a comparatively simple one. But it failed and that too, in the hands of a government which claims to improve the health and nutrition of millions of children through a nation-wide network of ICDS Programmes.

I do not know whether the Tatas are using the national iodisation plants or whether their salt production is in addition to that produced by the public sector or whether those plants are now let to lie idle. The point is, that a health programme, not dependent on 'drugs', has passed into the private sector.

That, however is not the end of my story. Of the total common salt, or sodium chloride manufactured, only a small amount goes for human consumption. Much of it is used for industrial purposes. The Tata chemicals were perhaps already manufacturing common salt, and production of iodised salt will be a very small part of this venture. However, for producing edible salt for iodisation, they apparantly produce more salt than needed for fortification. The Tatas are therefore now marketing table salt, at least in the cities where table salt (powdered common salt) is mostly used.

Hitherto, table salt was marketed by small entrepreneurs. It was mostly pulverised crude salt. Tatas salt may be more refined. However, the small industries will never be able to compete with a big industrial house. By taking the lead from the Tatas, if other chemical manufacturers also market table salt, the small or cottage industries will have to close their business. A year or two ago, Brooke Bond, the famous Tea and Coffee House started marketing powdered spices like chilli, turmeric, dhania etc. Once again, entry of a big industrial house into the domain of cottage industries. Very recently, in the South, another big company has started marketing vadams (badis) and papads, in fancy shapes and under very fancy names

This then is a slow but steady entry of big industry into that part of the processed food market, which uptil now was entirely under cottage industries. Although such cottage industries were in the hands of middle classes, driving them out of busi-

(Continued on page 8)

mfc needs you in Bhopal

Your support, donations, involvement; volunteered presence and participation continue to be required in Bhopal.

Ths tasks ahead.

— Organisation of Detoxification clincs and trials through voluntary agencies.
— Pregnancy outcome study
— Developing content for Health education and awareness building postsrs, pamphlets etc.,
— and many other areas of action.

For further details write to mfc, Gandhi Bhavan, (near polytechnic), Shyamala Hills, Bhopal — 462 002 or to mfc, Bangalore office.

Effects on Mental Health

(Continued from page 5)

supportive follow up for mental health problems in adults, adolescents and children (2).

A team of psychiatrists from NIMHANS, Bangalore have conducted training programmes in mental health for the medical officers of the state health services, posted in the gas affected areas. Tht training provides the necessary skill to diagnose and manage the common mental problems seen in the victims of the gas exposure (2).

A mental health care manual has also been prepared by the Bangalore team (3).

The mental health dimension is a much neglected dimension of health inspite of the much publicised WHO definition of health. Doctors in Bhopal were disregarding or misinterpreting the symptoms of stress and passing it off as malin ering or compensation. neurosis. This mis-diagnosis was sadly reflective of our medical training which plays only lip service to mental health inspite of its grave importance in health care and the doctor patient relation-ship.

We salute our community oriented Psychiatric colleagues for bringing to the fore this much neglected dimension through practical interventions in supportive care, communication and training in Bhopal and not exploiting the situation only for its research potential.

1. Kinston, W and Rosser, R. (1974) Disaster: Effects on Mental and Physical state, Journal of Psychosom. Research *18*, 437
2. Directorate of Information and Publicity, M.P. Govt (1985) Review meeting of ICMR Projects at Bhopal, Khabar, 5th May 1985.
3. *Mental Health Care Manual for Medical Officers.* by R. Srinivas Murthy et al., National Institute of Mental Health and Neuro Sciences, P.O. Box. 2900, Bangalore - 560 029. (For copies of the manual write to Dr. R. Srinivas Murthy at the above address)
4. Also available with mfc office a list of references on mental health aspects of disasters.

The Challenge of Bhopal

(Continued from page 1)

ght provoking example showing that if we want to, we can.

Bhopal too is a challenge? So are many other more insidous developments in our country. The growing investment in nuclear — energy now discredited as an energy resource in the West, or the gradual take over of the cottage industry in food by big business, — each of this though different from the other has a growing similarity representing either a subservience to the profit motive or an insensitivity to health hazards or both. We feature some of these aspects in this bulletin. We also feature investigations in Bhopal which raise some of these issues for our readership.

Minimata, Seveso, Long island were too distant to make any impact. Amlai, Chembur, Handigodu, Harihar, Zuari, Nagda, Mavoor, Silent vally, Thal vaishet hare not stimulated us either. Will Bhopal do so?

Nuclear Hazards

(Continued from page 6)

true, is truly shocking.

7) **Functioning of the health physics unit:** The health physics unit that monitors radioactivity and oher environmental pollution in the NFC should be under an independent agency not answerable to NFC or the BARC. The alleged victimisation of a scientist of the health physics unit who did try to raise his voice about some of the environmental issues. (if correct) is a matter of deep concern.

In conclusion we suggest that an independent panel of experts and concerned ctizens be invited to make an indepth, impartial inquiry, and review the situation in its totality (rather than isolated accidents) and suggest immediate remedial measures. In this regard our Forum will be willing to offer Whatever help it can."

(Some action towards improvement has taken place in response to this letter. For instance the Nuclear Fuel Complex has been brought under the Pollution Control Board and they have to obtain consent from the Pollution Control Board before discharge of the effluents. They have built a compound wall to improve security. Their sedimentation ponds have been lined with some kind of plastic material to prevent seepage. Several shortcomings still need to be reexamined.)

Will citizen's groups keep up the pressure please! This is particularly urgent since a recent government decision will promote their installation all over the country in our attempt to prepare ourselves for the 'quantum jump' into the 21s Century. The movement against the prevention of Nuclear War is not enough!! (see mfcb 102)

(Continued from page 7)

ness in this manner, will not help the poor but only expand the ranks of the poor. I am not an economist. I do not understand the full implications and the reasons for big industry entering into the small-chain food market, but to me the consequences appear alarming.

— K. S. Jayarao, Hyderabad

Views and opinions expressed in the bulletin are those of the authors and not necessarily of the organisation.

Annual subscription — Inland Rs. 15-00

Foreign ; Sea Mail — US $ 4 for all countries
Air Mail : Asia — US $ 6; Africa & Europe — US $ 9; Canada & USA — US $ 11

Edited by Ravi Narayan, 326, Vth Main, Ist Block, Koramangala, Bangalore-560 034

Printed by Thelma Narayan at Pauline Printing Press, 44, Ulsoor Road, Bangalore-560 042

Published by Thelma Narayan for medico friend circle, 326, Vth Main, Ist Block, Koramangala, Bangalore-560 034

114 medico friend circle bulletin

JUNE 1985

EDITORIAL

THE CHALLENGE OF BHOPAL

"The growing multinational culture must be destroyed because it leads to economic chaos, increased social disparities, mass poverty and filthy affluence in coexistence, environmental degradation, and ultimately civil strife and war.

To get a balanced, rational development and to preserve the environment, a new development process is needed. The biggest intellectual and political challenge of our times is to articulate and demonstrate this new kind of development."

— A statement of shared concern
Citizens report on state of India's Environment, 1982.

Its six months since the worst industrial and environmental disaster in recorded history. Bhopal has not only been a nightmare for those who were there on the night of 2/3 December, 1984. It is also a portent of events to come.

World Environment Day (5th June) has come and gone. There have been the usual meetings. seminars and lectures, the usual lip-service to ecological sensitivity, the usual narrations of the health and social hazards of environmental pollution and the usual pious recommendations of what can and should be done.

How many more Bhopals will we need in this country before we are shaken from our apathy?

—from our callousness to our disadvantaged and exploited fellow human beings who are always the worst hit in such disasters.

—from our insensitivity to nature, our forests, our rivers and our land.

—from our insensate rush for chemicalising and technologising our lifestyles.

—from our race for profits even at the cost of the health of our workers, our people.

The medical community in India will be increasingly called upon to respond to the medical and health problems caused by more ecological disasters. What will our response be?

Will we see every disaster as a chance to refine our clinical skills, satisfy our charity and welfare urges, exploit the research potential for career development and use the opportunity to ask for more and more sophisticated gadgetry for our institutions?

Or will we be challenged by these disasters to raise our voice collectively to oppose the unhealthy trends in our society to use our knowledge and social potential to support the growing awareness for a healthier and more egalitarian social system; to use our research skills to strengthen and concientise our fellow human beings to an increasing health and ecological awareness.

The dilemma of a man who enters a room to find a tap running and a wash basin overflowing, faces us today. Will we choose to be floor moppers or tap turners off?

Overpowered, compromised and hypnotised by the products and high pressure sales tactics of the multinational pharmaceutical industry, our sensitivities have been so dullened that we are quite content to be merely 'floor moppers'. Can we ever be tap-turners off? The International movement of physicians for prevention of Nuclear war is a thou-

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The mfc study

The Bhopal disaster aftermath

— an epidemiological and medicosocial investigation.

The medico friend circle survey team which undertook an epidemiological and medico-social survey in Bhopal, of a randomly selected community based sample of 60 families each of J.P. Nagar (severely affected) and Anna Nagar (minimally affected) from 19th to 25th March 1985 has found that more than 100 days after the disaster the people affected by the toxic gas exposure which included MIC suffer from a multisystemic manifestations of physical and mental ill health further compounded by psycho-social and socio-economic family and community crisis.

Salient Findings

* A multidimensional symptomatology reflective of pulmonary, gastrointestinal, neuro muscular and visual dysfunction
* Disturbances in vision particularly distant/near vision problems
* Disturbance in menstrual function in women with an increase in certain types of gynaecological problems, as well as a disturbance in sexual functions in male.
* An established effect on Lactation in nursing mothers.
* A highly probable risk to the child in utero.
* A large magnitude of psychic impairment

All the above ill health is within the social context of a highly disadvantaged, low income group of basti-dwellers, whose earning capacity has been further compromised due to loss of wages; physical disability and mental stress affecting work performance; and who have escalated into an acute socio-economic crisis due to inadequate compensation and greater indebtedness due to increased loan taking to avoid penury. Unless the health of Bhopal victims is seen in this totality, one cannot even begin to appreciate the true magnitude of the human problem.

Recommendations

The relief and rehabilitation of the affected population must therefore be through an integrated community health and development plan which is evolved by multidisciplinary interaction and close collaboration between the government and non-government voluntary agencies and citizens groups fully involving the affected community in planning, decision making, organising and maintenance of the services.

We recomend,

1, A community oriented relief and rehabilitation strategy which must include

(i) Occupation/economic rehabilitation
(ii) Basic supplies till (i) is over
(iii) Psychosocial support
iv) Medical relief including detoxification
v) Medical Monitoring of affected people
vi) Community health orientation of medical relief centres.
vii) Family based records.

— only this will meet the peoples needs and expectations.

2. A communication strategy which will include

a) A continuing education strategy for all health personnel working in gas-affected areas in government or voluntary agency clinics.
b) A creative non-formal health education of the affected people in which available knowledge of the disaster and its effects on health must be translated into supportive interventions in lives of the people.

This strategy must be dynamic, responding to new developments in the peoples health status as well as to research findings as they become known.

3. An integrated, community based, epidemiologically sound, research endeavour.

This must shift focus from hospital or dispensary based samples to population based samples. Epidemiological profiles of ill health and disability need to be built up using sodium thiosulphate and other treatment not only as therapy but also potent epidemiological tools through well designed community based trials.

Urgent issues needing focus are risk to the unborn foetus and risk to the reproductive system of affected individuals. There is also urgent need for informed consent as a minimum medical ethic.

4. Government — voluntary agency collaboration

Closer coordination and encouragement of active collaboration by government, ICMR and local decision makers with voluntary agencies, citizens committes, action groups and socially sensitive sections of the medical and scientific community.

This coordination must be dynamic, open to dialogue and debate, mutually supportive and free of suspicion.

The welfare and rehabilitation of the disaster victims must be our primary concern.

(NOTE:— The above is a synopsis of our conclusions and recommendations which will be available as a printed report of the mfc study by the middle of the month (cost Rs. 5/-). The report includes the detailed findings of the team; including tables; review of available literature on MIC and details of ICMR and other studies in Bhopal, some observations on the psycho-social dimensions of health; a review of the medical relief and reha-

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115 medico friend circle bulletin

JULY 1985

Blessed are the small in size — if they are Indians

Kamala S. Jaya Rao

(A debate has been going on over the past 4—5 years regarding the meaning of malnutrition and the significance of small body size. The debate is published mainly in Economic and Political Weekly, and to some extent, elsewhere also. The debate was sparked off by a study by V. M. Dandekar and N. Rath on the measurement of poverty in India. Since the whole debate is of topical interest and concern to mfc, Anil Patel has been coaxing me to write about it in the Bulletin. I have been hesitating because, being a debate mainly between economists and statisticians, I felt I cannot do ample justice to it. However, I agree with Anil about the importance of the subject to mfc and Abhay Bang assured me it is not too late even now to write about it. I have, for obvious reasons, kept absolutely clear of all complicated statistical definitions and arguments. Yet, I hope, I have brought out the essence of the debate, and more importantly, the implications of it.)

In 1971, Dandekar and Rath published the results of their study on measurement of poverty in India. The definition of poverty is relative, and varies from place to place and, from time to time. Any criterion chosen to measure the incidence of poverty has, therefore, to be necessarily arbitrary. However, there has to be strong logic in using that particular criterion. Dandekar and Rath used the mean per capita energy requirement of a household as the cut-off point; percentage of households consuming less energy than this value should be considered a percentage of population that is poor. The argument being that the income of the household was so low that it did not permit them to buy adequate food to meet the specified energy. Therefore households with such low energy intakes may be considered poor and therefore income levels of such households be considered as being below the poverty line. This argument sounds logical It is well-known that in countries where malnutrition is a sizeable problem, the major cause is poverty. It is also known that in poor households, a major part — 80% or more — of the total income is spent on purchase of food. Dandekar and Rath therefore considered income levels which did not meet with the mean per capita energy intake of a household, as being below the poverty line. Thus estimated, the incidence of poverty, in the seventies, was 40%. It is necessary to point out one thing here: this does not mean that a household with low energy consumption (less than 2,250 Kcals) is necessarily poor or that one consuming more than 2,250 Kcals is necessarily not poor. The figure only indicates that by the chosen yard-stick the incidence of poverty in India was 40%.

Dr. Sukhatme objected to the use of the mean energy intake as the cut-off point. Perhaps Dr. Sukhatme would not have objected if the figure was higher, but strangely and unfortunately the figure was 40%. Let me explain this. In a large population, if the values follow a normal distribution (statistical normal) the mean and the median values will be similar; so, half the population will have values above the mean, and half below the mean. Dr. Sukhatme argued that if nearly half the population is to be considered undernourished, the other half must be overnourished. Hence, there will be no one with normal nutrition! Therefore, the use of the mean figure as a cut-off point was wrong. If you notice, the focus took a strange turn. While Dandekar and Rath said that about 40% of the households were **poor**, Sukhatme said that 40% of the population was **not undernourished**

Dandekar (EPW 16 (30) 1241, 1981) pointed out this anomaly. He said, 'I wish to emphasise that, all through our little study on Poverty in

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India, Rath and myself have been discussing poverty and not undernutrition'.

When a population is classified on the basis of a certain income or expenditure, howsoever determined, ... we are defining poverty ....., on the the other hand, if we classify a population by its energy intake, we are trying to identify undernutrition. ..... The two are related, ... But the two are not identical'.

I will explain in a little more detail why Sukhatme is not willing to accept the mean figure as the cut-off point. However, it is necessary to point out that while Dandekar was considering energy intake of households, Sukhatme was talking of energy intake of individuals.

The range of values for any parameter indicates that the value for that parameter is not the same for every individual studied. Different individuals have different values, and the whole forms the range. Thus there are variations in values of individuals, that is, there is inter-individual variation. Apart from this, there is an intra-individual variation. For example, if my fasting blood sugar is 80 mg% one day, it may be 75 on another day 85 on another day—but all within the normal range.

According to Sukhatme, the inter- and intra-individual variation in energy intake of individuals of a given physiological group, are similar. Thus, if the energy intakes of females of my age and body size were to range from 1900-2500 Kcals, my energy intake on different days may also vary from 1900-2500 Kcals. Sukhatme derived this by analysing data published by other workers. His contention may be true, or may not be true. The reason for my doubt is not on statistical grounds; but from a purely common sense point of view, it seems incredible that the variation can be so large. Nevertheless, we shall accept it in the absence of any contrary data. This being the case, Sukhatme says that one should consider only values below—2 S.D. of Mean as low intakes. Thus estimated, and according to Sukhatme, the incidence of undernutrition in the country is only about 20%, or half of the figure derived by Dandekar. Dandekar, in turn, analysed data published by the NNMB, using the criterion suggested by Sukhatme and found that 40 — 45% of the households had energy inadequacy. Dr. Sukhatme prompty rejected this on grounds that NNMB data were not reliable.

Two questions arise here. If a normal individual's energy were to vary between — 2 S.D. to + 2 S. D. of mean, why can it not on occasion fall below — 2 S.D. too. Why should he be classified as undernourished if on one day his value is this low; in the next few days he may go back to the above—2 S.D. level, since his intake is highly variable. Secondly, how does the body deal with such large variation in energy intake? Sukhatme gave his answer (EPW 17 (50) 2000, 1982): 'If the control system in the body were to tolerate energy balance of this order and yet maintain body weight within narrow limits .....(it) means that the control of body weight is exercised through ancillary co-factors'.

'The only inference I can draw is that energy intake is used with variable efficiency by means of some homeostatic mechanism working for the good of the whole body and controlling body weight in the process..... The real controlling variable of the homeostatic process is not energy balance, but fluxes, pressures, electric potentials, concentrations and body temperature, environment, etc.' 'However, a point is reached in the intake; below which the body is not able to maintain body temperature and is forced to part with its fat to maintain weight. That is the point of undernutrition, also alternatively called the lower threshold value of the homeostatic range, for maintaining nutrition state of the body. In ... Kerala, external temperatures are close to body temperature, heat dissipation is negligible and body weight can be maintained at relatively low intakes'.

I will not comment on Sukhatme's knowledge of human physiology. Perhaps, he should have stuck to his own field of statistics and not strayed into nutrition and physiology. He calls the '-2 S.D. level', a threshold value. Thus, wittingly or unwittingly, he has invested this statistical cut-off point with physiological significance. It is important to remember that this so-called 'threshold' is a statistically derived value for a set of energy intakes. If nutritionists were to discover at any later date, that what they hitherto considered the mean energy requirement was an error, and that the mean is actually higher or lower than the presently considered value, the 2 S.D. value may also change. Then, will the body also change the level at which it is 'able to maintain body temperature'?

Now Sukhatme's argument was that since in a healthy, active population half of them are expected to have energy intakes less than the mean, if we accept Dandekar's figure of 40%; it shows that the population is healthy, active and normal! We must remember that energy intakes of half a normal population will indeed be below the mean but but if their requirements were higher, they can afford to buy the extra food. Dandekar was saying that 40% of the households had incomes which did not permit expenditure on food to meet the mean requirement. He therefore sarcastically asked whether in a healthy, active population half of them should have such low incomes too! He said Sukhatme was unable to clearly see the distinction between poverty and undernutrition; the two are related; but not identical, phenomena. He then said, 'Sukhatme is confused'. I do not agree with Dandekar. Sukhatme was not confused. Sukhatme simply tried and succeeded in confusing nutritionists as well as administrators, by neatly exploiting the fact that Dandekar used energy requirement as a yard-stick to measure poverty. Sukhatme's argument that undernutrition is far less than 40%, and his use of terms like 'threshold value' — have come in handy in many quarters. Dr. Gopalan put it mild-

ly when he said that this has 'generated the unfortunate impression among policy-makers that undernutrition is not a serious problem in the country any more' (EPW 18 (15) 591, 1983). Sukhatme himself proudly proclaimed (EPW 16 (32) 1318, 1981): 'Already the term mild malnutrition has disappeared..the principle that an individual eating below the recommended intake is at risk and that as the intake decreases the risk of deficiency increases, is being reformulated'. Whoever has helped Sukhatme in performing this hat trick, I am certain it is not the sensible among the nutritionists.

In assessing nutritional status, energy intake cannot be the sole measure. In fact, a single assessment by itself is not a reliable indicator. It has to be taken in conjunction with anthropometric measurements, at least, height and weight. Irrespective of whether values below mean energy requirement or below—2 S.D. of mean, should be considered as undernutrition, if a large portion of the population is underweight or underheight or both, this needs to be taken note of. Since undernutrition is a major cause of growth retardation in a country like ours, this should also indicate the incidence of undernutrition in a population. If Sukhatme's argument was correct, then a large proportion of the population should have normal body size, which we know is not true. Sukhatme was quick to realize that this argument would crop up.

In fact, he was quicker than the nutritionists, who for some reason kept quiet for a long time. Either we were overwhelmed by the statistical language, or the whole debate was considered to pertain only to statistics. Or, Sukhatme succeeded and he totally confused the nutritionists. It was an opportunity lost for the nutritionists and a tactical gain for Sukhatme. To forestall the above argument, Sukhatme advanced two more hypotheses — leading the issue into a very disturbing and dangerous situation.

First, was the postulate of a threshold value He said (EPW 13:1373 1978) "fortunately for most of us, unless the intake is too low; the efficiency of utilisation of energy is improved. Therefore, ar intake lower than the average may not cause any hardship unless this was so low that the power of regulatory mechanism is diminished'. Although he argues that values above 2 S.D. are all normal (which may be true), implicit in the words 'too low' and 'so low' in the above passage, is the acknowledgement that values below the mean may be low. Then he acknowledges that in their 'own surveys in Uruli — Kanchan and in villages around Pune....the body build of children living on intakes smaller than the average was certainly small', and adds a strange comment that 'the inference that they were ..... undernourished ....was found to be unwarranted on biochemical examination of blood'! And, I was under the impression that nutritionists were yet to find a biochemical index more sensitive than body size to assess undernutrition. If food intake and body size are not good indicators of undernutrition, not only would one be eager to know what this wonderful biochemical measure is, but would have been immensely grateful to Sukhatme had he declared its nature.

Whether it is warranted or unwarranted to label them as. undernourished, the fact remains that a large number have a small body size. In Nepal and Sri. Lanka which are our neighbouring countries; and whose data Sukhatme has published (EPW 17 (50) 2000, 1982), ignoring India, only 40—60% have normal body size. So at least 40% have small size (height or low body weight or both). Strange, but we have come back to the figure of 40%! What about this? Tell them, tell the policymakers and planners they are 'small but healthy' says Sukhatme. They can work hard, they do not die; in other words, they have 'adapted' to this and they are in no danger.

It is indeed true that the small body size is an end-result of adaptation. But what is this adaptation? A growing child cannot grow normally if the building material, namely nutrients, are lacking. That is, there is growth retardation. The organism in order to survive physically, has cut down its growth rate to conform to the energy available. Here, instead of food being sufficient for normal growth, growth has suffered due to lack of food. This 'adaptation' cannot be considered a normal state but as a compromised state, and at what physiological cost it has occured we do not know Gopalan said (EPW 18 (15) 591 1983): 'Adaptation, in the current context, represents not a stage of normalcy but one of "strategic metabolic and functional retreat"..... 'The assumption that these stunted children are perfectly healthy and functionally as effective and productive as children with normal growth and development, is a sweeping one .....The new low levels proposed as the limits of calorie adequacy (mean —2 S.D.) may be a good prescription for a "survival ration" which will permit mere existence. Those interested in building a strong vigorous nation, of healthy productive adults, and of active children who can run, play and bounce about.... may however not be prepared to buy such a prescription'. However, it is not hard to see that there are many who actively welcome such prescriptions.

Sukhatme's argument is two-fold. Since the mild and moderate degrees of malnutrition can take care of themselves we need to bother only about the severe cases and their number is small. Even if this be true, Gopalan pointed out a fallacy (NFI Bull. Oct. 1983 and Apr. 1984). The so-called mild, moderate and severe forms of malnutrition is an arbitrary classification. More importantly, they are not static conditions. The mild and moderate cases can and do slide into severe degrees of malnutrition. Therefore to think of extending help only to severe cases is extremely unwise. This would in effect mean that we wait till a mild case becomes severe and then extend help to it. This is like the Sanskrit saying that one starts digging a well after the house has caught fire.

This argument about small individuals being 'adapted' individuals who are at no risk unless they go below a 'threshold' level is a very harmful theory. This is relegating a large part of the population not merely to remain small in size but to suffer all ills of which the small size is a consequence. Therefore Asok Mitra, formerly of the Planning Commission, said, "the turn the controversy has taken in recent years has not helped in reducing malnutrition.... (but) has sought to bring about what I once called instant revolution ....Intellectuals and scientists responsible for introducing this line, must be held clearly accountable. I would not hesitate to call it harmful, witting or unwitting sophistry because in other forums of debate, we grade the progress of people and countries for instance .....by the average national weight and height.....For our own children we do not consider small bones, low height, small weight, low physical performance and low energy level "beautiful" or "good nourishment" at all'. (Future 11:12).

Sukhatme's second argument is that the small body size is not a consequence of undernutrition but is due to poor environmental sanitation and diarrhoeas. That these two have a role to play, no one would deny. But to say, undernutrition has no role to play whatsoever, without supporting evidence, is most unscientific. On the other hand, there are any number of animal experiments, where environment has been maintained evenly and the animals showed growth retardation when food was restricted.

When Dandekar and Rath spoke of the incidence of poverty, Sukhatme diverted it towards undernutrition, and says undernutrition is no big problem in the country. The statistical jargon and formulae were enough to totally confuse the nutritionists. Then he talked of "adaptation to low energy intakes" and made many off the cuff statements regarding energy balance, BMR, genetics etc.

The papers were published in the EPW which most biologists do not read anyway. The arguments, on the other hand, being outside the field of economics, the economists kept quiet. Having however acknowledged that body size is small, he has advanced the "small but beautiful" hypothesis. And now, ultimately this body size restriction is said not be due to undernutrition but poverty. But, what is the extent of poverty he does not mention. He says (EPW 17: 2000, 1982) : 'The second problem we are confronted with is the problem of poverty. small stature in children is the direct result of this poverty and low socio-economic status, expressing itself in miserable conditions of living. Intervention to deal with this problem need not be focused on food and water ..... As overall economic growth increases environmental conditions may be expected to improve. This will necessarily be a slow process, but this aspect need not disturb us unduly because these people will normally be in energy homeostasis and although looking small in stature for their age, cannot be considered to be under risk of developing malnutrition".

If you have not read the above passage carefully, please do so. We are told we have a problem of poverty. As a consequence our children are small in size. But that will improve, when economic conditions improve. However, do not be anxious about the economic conditions. They take a very, very long time to improve. But even otherwise, the children have adapted to the low food intake and will continue to survive. God bless them.

In case you are the type who will not believe what an Indian tells you and want to hear it from a white-skinned 'expert', here is David Seckler endorsing the Indian's view (Seckler in Newer Concepts in Nutrition — Maharashtra Assn. for Cultivation of Science, Pune. ED. P.V. Sukhatme pp 127-137). Seckler says there are two types of smallness, one 'due to poverty, to poor physical and socio-economic environment'. Second is due to malnutrition. He says in the first instance the environment should be improved; and, Sukhatme has already told us that this is a slow process, but the children though small in size are under no risk. Now, any 'sensible' person would ask sooner or later, that if the population is not under risk, if it is 'small but healthy', why should even the environment be improved? That will automatically solve so many other problems, will it not?

Regarding the second one, Seckler says intervention should be addressed towards individuals. What sort of intervention? In Seckler's own words. 'The great challenge to nutritional science is to devise anthropometric indexes based on safe minimum standards rather than maximum genetic potential'.

The message is clear. Sukhatme says we need not eat as much as the nutritionists ask us to eat, and which the Americans, Europeans and many others are eating. We do not die even if we eat less. We are doing all the necessary work. Your problem is you are shorter and lighter than the Americans. So what, but you are 'healthy'.

Seckler says, who told you, you are small. You are aiming too high. Why should you be so tall and so heavy. What if your own nutritionists have shown that when nutrition, environment and health care are good, your children grow up like the Americans. You need not reach the Standard. Bring down your Standards. So, eat food bare enough to keep you living and bring down your anthropometric standards. See, there is no problem of either undernutrition or small body size.

By equating sheer ability to survive, with health, Sukhatme and Seckler have declared that there is no problem of under nutrition. The existence of poverty is acknowledged but implied is the meaning that we need not be much exercised

(Continued on page 6)

Emerging Medical Culture — I

Too Many Investigations:

Open up any text book of modern medicine, and you find a growing, rapidly enlarging, list of investigations. Take any disease from common cold to cancer and you see a physician ordering a battery of investigations. Being trained in the traditional western style of medical education, a young medico lends a deaf ear to the patient's history, turns a blind eye to the vital examination and relies entirely on complex investigations as if they would, like Aladdin's lamp, always solve the clinical problems, With computers having already made a significant dent in medical technology a day is not far off when blue chips would replace human grey matter. Let us start with a simple investigation—an electrocardiogram. A basic investigation for recognising various heart diseases. 'We must not forget however, that an electro-cardiogram does not solve all the problem', writes J. Willis Hurst in his magnum opus of cardiology.' and **that many problems may be created by its use'.** (emphasis my own). Nothing can be more of an eye-opener than the view of Frank Wilson, father of modern electrocardiogaphy who writing the preface of his son-in-law's book in 1951 warns:

'In the last two decades, there has been a tremendous growth of interest in the ECG diagnosis and the number and varieties of ECG in use. In 1914, there was only one instrument of this kind in the state of Michigan and this was not in operation; there were no more than a dozen ECG machines in the whole United States. Now there is one or more in about every village of any size, and there are comparatively fewer people who are not in danger of having their peace and happiness destroyed by an erroneous diagnosis of cardiac abnormality based on faulty interpretation of an EGG than of being injured or killed by an atomic bomb.'

Frank Wilson's prophecy is certainly sounding true in 1984. An ECG strip, innocent and impressive though it appears, is capable of stripping the poor man's money, happiness and tranquility. Roentgen rays are no longer the rays of hope to a diseased patient. The indiscriminate use of Roentgenology may offset the very advantages it offers. Come what may, an X-ray occupies the numero uno position in diagnostic work up of a busy practitioner, who believes more in Roentgen's tubes than on Laennec's stethoscope.

'Look before you leap to a lab' should be the most candid advise to a busy practitioner. The phenomenal rise in laboratory investigations in the last decade reflects the blind faith of doctors in' the numbers game.' The sufferer is the ordinary man. In his vain hope to get rid of sufferings, he spends his hard-earned money over unnecessary investigations which do not have a bearing on his treatment. Simple investigations which provide important clues to the diagnosis are ignored while costly investigations are advised. Thus compared to sputum acid fast tubercular bacillus, X-ray chest gets a positive nod for investigating tuberculosis of lungs; blood sugar estimation is considered more sophisticated than simple urine sugar examination; blood urea gets an upper hand for diagnosis of kidney disorders when compared with urine albumin and microscopy and urine bilirubin and urobilinogen are seldom considered important when compared to a battery of biochmical liver function tests.

Too often investigations are advised without close scrutiny of the outcome that one expects out of them. For a case of head injury X-ray skull is quite often advised to judge brain injury, while scientific data suggests that bedside examination is a better guide and contribution offered by an observable fracture of the skull in management of a patient is nil. X-ray cervical spine is invariably advised for suspected case of cervical spondylosis, while it is the clinical examination which alone dictates the mode of treatment. And so on.

Out of a battery of tests available for proper diagnosis in a given patient, the clinician has to select the accurate, safe and cheap procedure. He must be aware of the inherent limitations of each test i.e., the sensitivity of an investigative procedure to pick up the disease and specificity of the procedure for a definitive diagnosis of the same disease.

Patholgical investigations, like planned advertising campaigns, often create wasteful wants. A doctor can earn much more from them than what he can earn through a simple consultation. Ring practice-in the current commercial medical jargon-is acquiring new significance it had never assumed before. A patient in the ring is just a defenceless pawn—too meek to make a move — as he passes through the check-posts of specialists, each squeezing his hardearned money.

The human body is treated like a machine. The human element in treatment of the patient is fast vanishing. We have learned to look at the heart, kidney, liver..... and have forgotten the human being who harbours all of them.

How relevant are those immortal words of Sir Robert Hutchinson in this context:

From inability to let well alone;
From too much zeal for what is new
And contempt for what is old.
From putting knowledge before wisdom
Science before an art, and cleverness before common sense;
From treating patients as cases;
and from making the cure of the disease more grievous than its endurance
Good Lord deliver us!

Ulhas Jajoo

Dept. of Medicine, MGIMS, Sevagram.

(Extracted from an article written by the author for creating awarencss in the lay media. The article is entitled— The Emerging Medical Culture).

On Calling the Laboratory

Please contemplate! It would be a good idea to have a space in every laboratory /X-ray/ECG form in which the doctor has to state exactly why he had ordered a test. I believe if answers were honestly filled in, we might get this sort of thing:

1. I order this test because if it agrees with my opinion I will believe it, and if not I shall disbelieve it.
2. I do not understand this test and I am uncertain of normal values, but it is the fashion to order it
3. When my chief asks if I have done this or that test I like to say yes, and so I order as many tests as I can to avoid being caught out.
4. I have no clear idea what I am looking for, but in ordering this test I feel in a vague way (like Mr. Micawber of David Copperfield) that something may turn up.
5. I order this test because I want to convince the patient there is nothing wrong and I don't think that he will believe me without a test.
6. Lastly—(the cynic would say) — it is remunerative to the institution or to my pathology friend (!) —what does it matter if the patient or his relatives are exanguinated!

Source : SURG VICE ADMIRAL G KUPPUSWAMY, PVSM VSM PHS., Doctor, Nurse & Patient, Golden Jubilee Souvenir, St Martha's School of Nursing, 1983, p. 51

PLACEMENT AVAILABLE

1. A Medical Officer for the health programme of village development project (registered charitable society) in rural Tamil Nadu. To be responsible for day to day management of established village health care centre and to supervise TB, leprosy, MCH and ANC and school health programmes, plus village outreach work. A full time and challenging position requiring a definite commitment to justice in health for the poor. Salary negotiable.

2. A qualified and experienced nurse/ANM for health programme of village development project (registered charitable society) in rural Tamil Nadu. Duties include clinic work, mother and child care and ante-natal care with home visiting. Mature person preferred. Salary negotiable.

3. A Field Officer for community health and development programme of village development project (registered charitable society) in rural Tamil Nadu. Prefer INSA/RUHSA/Deenabandu trained applicants for responsible and demanding work. Salary negotiable.

Apply to the Director, Reaching the Unreached of Village India, Ganguvarpatti PO., Madurai 624203

Announcing A.R.I. News

—A forum for the exchange of news and views on acute respiratory infections.

The challenge to health services in developing countries to introduce effective control programmes for acute respiratory infections (AIR) remains largely unmet. A major reason for this is the lack of available information about the causes of ARI and possible approaches to the problem. Since 1976 WHO has initiated ARI control programmes and research studies, but lack of information to complement these programmes is still a major problem.

ARI News is intended to provide an information channel for disseminating new research ideas and a focus for discussion by readers of the practical issues involved in ARI control.

The newsletter will be available free of charge in developing countries

If you would like to be placed on the ARI News mailing list please write to:

AHRTAG, 85 Marylebone High Street,
London, WIM 3 DE, U.K.

(Continued from page 4)

about it, since the people are 'healthy' and surviving. It is obvious that this will be most welcome to a government, which hitherto did not know how to deal with this problem of poverty and undernutrition. We can now, not make even a show of socialism and can, as is being done now, talk more openly of computers, colour TVs, delux cars and what not. It is, therefore, important that this issue is again taken up freshly — the issue of poverty and under nutrition. Previously we were told we were small in size because of racial and genetic factors. When this was disproved, we are now told being small is no handicap. Sukhatme's arguments have led the country into a dangerous situation, and created a happy situation for those who want to see us always small, poor and undernourished. We must realise that the three go together and cannot be artifically separated as Seckler has tried to do. It is time some economists, nutritionists and other scientists write strongly and clearly about this issue. This is not just a statistical exercise, as the nutritionists hitherto thought. Nor is it a question of mere nutritional physiology as perhaps the economists are thinking. It is a very important issue of whether the race will survive as a strong, independent nation or not.

mfc study report

Due to unavoidable reasons, the printing of the mfc study report — The Bhopal Disaster Aftermath an epidemiological and medico social investigation — has been delayed. It will be released next month. Send your order for copy/copies immediately at Rs. 5.00 per copy.

Dear Friend

To be fair to "Rakku's Story"

I was quite surprised to read in MFC bulletin (May'85) a very casual treatment of four important books in a single column (!) under the title "book-review." I do not know whether Prabir, the author of this "review" had sent these jottings as "review" for publication. If not, even then it is quite unfair to pass casual remarks on such important books. In the recent past, I have read one of these books ("Rakku's Story") "reviewed" by Prabir and I would like to point out that none of the remarks made by the reviewer are fair. He says that "Health Care in India' is far more boring than "Rakku's Story"; meaning thereby that "Rakku's Story" is somewhat boring. But on the contrary, I found that Sheila Zubrigg, the author, lends this book an unusual character which is exactly opposite of boredom by starting the book with a chapter containing Rakku's Story—the tragic, poignant tale (based on real events) of a poor mother who unsuccessfully tries very hard against all odds to save her son from the clutches of death in an attack of diarrhoea. Her narration has a literary quality not usually found in books in the medical world...

"After their father had finished, Ponnu and her brother took their places on the mat and plunged into the tasteless porridge with an enthusiasm imagined for the festival meal. Rakku scooped out the remaining porridge. Lifting up the plate with her right hand, and with the baby in her other arm, she sat down opposite the children. She loosened her blouse to let the child nurse in her lap while she quickly ate. She left a small portion on one side of the plate and told Ponnu to feed it to the baby at mid-day. And shaking her head she added, "For the baby, dear child, not for you." The small girl nodded, but her lips tightened as she turned away from her mother's look."

The reviewer finds fault with "Rakku's Story" because it is "local in place as well as in time; it does not explore the broader Tamil Nadu or Indian situation at all...." This is quite an irresponsible statement to make, to say the least. The book very much explores the "broader" situation. I can do no better than quote from the author's introduction.

"Rakku's story is then used as a base and stepping-stone for a deeper understanding of the causes of ill-health and unnecessary mortality. And so the second part of this book is a closer look at this woman's life in relation to the rest of society, seeing how her life differs from that of women in India whose children do not die. The questions which her story raises lead the analysis step by step out from her thatched mud home, beyond her village, beyond even the hospital where she takes her dying child, to the very structures and nature of Indian society as a whole.....

Part three of the study looks at the structure and assumptions of the existing Indian health care system, and its historical roots in the Western medical and social model. It examines the forces, economic and political, national and international, which continue to shape and legitimize a health system which is clearly inadequate and often inappropriate to the needs of the majority...

Finally the fourth part of the analysis looks at the much broader social and political conditions which appear to be the foundation upon which significant health improvement can occur. This final section thus leads to specific proposals for change based on the primary need for collective pressure from the poor, as the only realistic starting point for a solution to the related problems of ill-health and social injustice." I can only add that the author has succeeded in what she intended to do.

Prabir seem to be sore because this book "rejects the alternative approaches usually suggested and so rejects their creators (after all it is these people who might have profited from reading "Rakku's Story.") It would have been fair to "Rakku's Story" if Prabir had pointed out what in his view was the mistake in Sheila Zubrigg's arguments for "rejecting" "alternative approaches."

This is not to say that this book does not have weaknesses. But since it is not the purpose of this letter to review the book, I would not go into the strengths and weaknesses of this book. I can only say that this book, as well as "Health-care in India" are quite readable sources of analysis of socio-economic and political aspects of medical-care, containing valuable information and wide-ranging arguments. Prabir has the right not to agree with the authors. But certainly these books also have a right to a fair treatment in the pages of MFC-Bulletin.

—Anant Phadke
Pune.

1) "Rakku's story" by Sheila Zubrigg, pp. 234, price Rs. 10- 2) "Health care in India".

Both books are available with—Centre For Social Action, Gundappa Block, 64, Pemme Gowda Road, Bangalore — 560006.

Injectable Contraceptives

Padma Prakash in her write up on Injectable Contraceptives (May 1985) mentioned the high percentage of menstrual irregularities observed in the ICMR trial study. She said that one 'argument that is being used is that since Indian women are in any case anaemic, amenorrhoea would in fact help them in the long run'. In the ICMR study an equally high, if not higher, percentage of excess bleeding was reported. Instead of checking the haemoglobin levels of these women separately, the investigators merely checked group averages and said the values were not different. In fact excess bleeding was a significant problem in this study.

—kamala jaya rao

News from Bhopal

Jana Swasthya Programme

Four organizations working amongst gas victims, viz., Nagrik Rahat aur Punarvas Committee (NRPC), Trade Union Relief Fund (TURF, Bombay, Union Carbide Karmachari Sangh and ZGKS Morcha joined hands on June 1 to form a Joint Health Committee. The joint health committee has undertaken the task of organising a Jana Swasthya Programme as a constructive challenge to the government as part of the on going people's struggle. The purpose would be to establish a working alternative based on a humane and scientific approach and on the principle of patient's right to know. Health cards containing all basic information regarding the progress of treatment and medication would be issued to each patient, something which the Chief Minister refused to do in his meeting with the Morcha delegation on May 8. Careful medical record of each patient would be maintained so that these could be used as evidence in litigation against Union Carbide.

Components

The Jana Swasthya Programme would consist of the following components

a) Three sodium thiosulphate clinics, each with a capacity to give 100 thiosulphate injections per day, or 3000 injections per month.
   The first clinic has started operating on June 3.
b) A respiratory physiotherapy programme to be started after organising the above named three clinics
c) A programme for gynaecological and ante natal check ups and monitoring of newborn babies to be added later.
d) A psychiatric clinic to be added later.

The beginnings

The first Jana Swasthya Kendra was started on June 3 to mark the observation of the completion of six months of the tragedy. This Kendra was started in the open ground within the Union Carbide premises where the Morcha forced its entry through agitation on May 18 and has been doing a dharna there since then. After laying the foundation stone of a people's hospital at this site on June 3, the Joint Health Committee declared this ground as the 'liberated zone' to be utilised for the welfare of gas victims.

The Drug Action Forum, Calcutta and the West Bengal Junior Doctors' Association have jointly undertaken the responsibility of making two voluntary doctors available on rotation under the auspices of the RAS. The second team has already arrived. The first two West Bengal teams, along with three members of the medico friend circle, have played a crucial role in working out the detailed plans, recording systems and treatment schedules, and in organising the first Kendra. Another doctor from Benaras Hindu University has joined this team. A group of young doctors at Bombay's KEM Hospital has decided to work with us on rotation on a voluntary basis from mid-June onwards. Another young doctor from Bombay is expected to join this team full time on behalf of TURF. The mfc activists have assured us of their continuing technical support.

Future need

Although the work has started on the health front, we require a great deal of support in terms of more doctors, paramedical workers, technical consultation, specialists in the fields of gynaecology and obstetrics, physiotherapy, psychiatry, paediatrics etc. A number of complicated medical questions need to be investigated and answered. Special research projects, in coordination with the Jana Swasthya Programme, need to be undertaken in the areas of biochemistry and biophysics. We are determined to throw a challenge to the government by providing a constructive alternative.

—Rashtriya Abhiyan Samiti, Newsletter, 5 June 1985.

For further information contact:
Rashtriya Abhiyan Samiti,
c/o R. K. Sharma, E.W.S. 87, Dhobi ghat
Behind Char Bungalow, Bhopal 462002.

Convenors Note: mfc's involvement in Bhopal including support to above programme will be discussed at mid annual core group meeting in Patiala (end July) to arrive at a wider consensus.

mfc anthologies

The I & II anthologies (reprinted) are ready. The III will be ready by the end of July. We regret the delay.

AUG-SEPT Joint Issue

A joint August-September 1985 (116-117) issue of the mfc bulletin will be sent in September, reporting on the core-group discussions on the role of mfc, the mid course assessment of the Bhopal interventions and the focus of the next annual meet.

Views and opinions expressed in the bulletin are those of the authors and not necessarily of the organisation.

Annual subscription — Inland Rs. 15-00

Foreign ; Sea Mail — US $ 4 for all countries
Air Mail : Asia — US $ 6; Africa & Europe — US $ 9; Canada & USA — US $ 11

Edited by Ravi Narayan, 326, Vth Main, Ist Block, Koramangala, Bangalore-560 034

Printed by Thelma Narayan at Pauline Printing Press, 44, Ulsoor Road, Bangalore-560 042

Published by Thelma Narayan for medico friend circle, 326, Vth Main, Ist Block, Koramangala, Bangalore-560 034

Typed Manuscript sent
to Press
Aug - Sept 1985

THE BHOPAL DISASTER AFTERMATH:
an epidemiological and
medico-social investigation

A summary of the report

medico friend circle

September 1985

A summary of the Epidemiological and Medico-social investigation conducted by a team from the medico friend circle, in Bhopal, 18-25 March 1985

medico friend circle
organization and bulletin office
326 V Main I Block
Koramangala, Bangalore 560034

Contributory Price: Rs.2.00

(A detailed report of the study including background, objectives, materials and methods, observations and results, discussion, recommendations, important appendices including proformas and references and reading list is also available on request from the address mentioned above. Price Rs.6.00)

THE BHOPAL DISASTER: ITS AFTERMATH

The disaster that took place on the dark, wintry night of 2/3 December 1984 in Bhopal is the worst man made environmental accident in recorded history. The shocking, official estimates of 2500 human deaths, an equal number of dead cattle and the physical and mental disablement of over two lakhs people, by a mixture of toxic gases including Isocyanate (MIC), do not adequately express the tragedy that has occurred.

The relief efforts, initiated immediately, were handicapped and hampered by the lack of authentic information on the nature of the gases released; by the unwillingness of the Union Carbide to release information and by the lack of relevant information among the State and Central authorities.

The doctors at the Hamidia Hospital, Bhopal, where hundreds of the victims rushed, were faced with an acute emergency which they never anticipated, of whose exact nature they had no inkling, and for the treatment of which they had no ready sources of information.

Since the nature of the toxic gases released into the atmosphere had not been made public either by the Union Carbide or by the Centre (which sent high level technical experts to Bhopal), this had to be a conjecture based on reason and visible evidence.

Soon, two theories emerged to account for the varied symptomatology and stunning mortality of the victims. The

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development and testing of these theories, had they been done properly, would undoubtedly have added immensely to scientific knowledge. What is more important is that it would have relieved the sufferings of thousands of people. The local realities have, however, revealed the power struggles in the medical community and how it ignores in the process, the victims; the lack of human concern leading to withholding of probable proper treatment; the indifference of our medicaland scientific community to communicate with our largely illiterate but not unintelligent masses.

The Two Theories

The protagonists of the first theory, the 'pulmonary' theory believe that isocyanates of which MIC is one, damages only those tissues with which they come into direct contact and cannot be carried by blood to internal tissues and organs. Thus MIC can damage only the lungs, eyes and skin and this explains the predominant involvement of the eyes and lungs in the Bhopal victims. They also believe that symptoms, if any, related to other systems must be due to hypoxia caused by lung damage. This theory is strongly supported by a dominant faction in the Gandhi Medical College, Bhopal. They believe that early deaths were due to carbon monoxide poisoning--one of the constituents of the released gases. They adamantly refuse to examine any alternative theory.

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The ICMR summaries of research undertaken and press releases available to us were inadequate and sketchy. We decided that we would go primarily by the broad range of symptomatology with which the patients in the community were presenting. We supplemented this bya thorough physical examination and undertook hemoglobin estimations and lung function tests. A criticism against this approach of reliance mainly on symptoms could be that it lacks objectivity. However, we believe that a thorough study of symptoms is a perfectly valid method of study as has been accepted in a whole range of medical conditions like chronic bronchitis, ischaemic heart disease, arthritis etc.

The study population

Two slums were selected for the study: (i) J P Nagar situated in the close vicinity of the Union Carbide factory and the worst affected by the gas leak. (ii) Anna Nagar, 10 km away with the least exposure, which served as the control. There was no area which was similar to JP Nagar in socio-economic and environmental characteristics and yet escaped exposure and, therefore, Anna Nagar with the least exposure was the best control that could be chosen.

Rapport was established with the people by explaining to them our objectives and making it very explicity that we were

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not there to offer any financial compensation, medical treatment etc. The slum dwellers were given a hand out in Hindi explaining the role of mfc and a commitment was made that the salient findings of our study and our recommendations would be made available to them.

Sample Selection

The families for the study were selected by random sampling. Only subjects above 10 years of age were selected. Those less than ten years were excluded in view of their probable inability to report symptoms correctly. All details were entered in a pre-designed proforma. In addition, lung function tests were done by standard procedures using a portable spirometer by a doctor fully familiar with measuring these under field conditions.

Observations

The two slum populations were similar in age and sex composition, in the number of smokers and of people with long standing respiratory problems like asthma, Tuberculosis etc. The JP Nagar residents who were the more affected, were slightly better off economically but this is no significance in so far as morbidity rates in JP Nagar are concerned. (For details of actual figures, see our Report).

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The subjects described a broad range of symptoms. Each symptom was described in such graphic detail that it was obviously based on the patient's own experience and could not be malingering or wild imaginations as some are apt to allege. Since these symptoms could arise due to different causes and since the residents of Anna Nagar, the controls, were also exposed to the gas, albeit to a small extent, the latter also reported those symptoms. However, JP Nagar residents had statistically highly significant incidence of these symptoms.

The commonest symptom was breathlessness on accustomed exertion. In addition, they complained of cough, chest pain, blurred vision, head ache, fatigue, loss of memory for recent events, abdonimal pain, nausea, watering of eyes and impotence. It is important to note that this survey was conducted more than three months after the disaster, and still the victims suffered with so many affects. Moreover every individual in the JP Nagar sample reported atleast one serious symptom but many in the Anna Nagar sample did not report any such. Probably the most crucial finding of significance was that 35% of the patients had gastrointestinal central nervous system and eye symptoms but no lung findings which favours very greatly the possibility of a system poisoning rather than secondary effects of lung damage.

Women in the reproductive age group reported menstrual irregularities such as shortened menstrual cycles, altered pattern

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of discharge, pain during menstruation and excessive white discharge. These symptoms were compared not only between the two populations, but also with respect to the pattern in the same group before the gas disaster.

Nearly half of the nursing mothers in JP Nagar reported lactation failure.

Salient Findings

(expressed in percentage)

Number of cases are shown in bracket

Sl No	Symptom	J P Nagar	Anna Nagar	P Value
1	Breathless on usual exertion	87.16 (129)	35.50 (49)	0.001
2	Chest Pain/tightness	50.0 (74)	26.08 (36)	0.001
3	Weakness in extremeties	65.54 (97)	36.95 (51)	0.001
4	Fatigue	81.08 (120)	39.85 (55)	0.001
5	Anorexia	66.21 (98)	28.26 (39)	0.001
6	Nausea	58.10 (86)	16.66 (23)	0.001
7	Abdominal pain	53.37 (79)	25.39 (35)	0.001
8	Flatulence	68.91 (102)	25.36 (35)	0.001
9	Blurred vision/ photophobic	77.02 (114)	38.40 (53)	0.001
10	Abnormal distant vision	42.0	21.88	0.001

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Salient findings contd....

Sl No	Symptoms	JP Nagar	Anna Nagar	P Value
11	Loss of recent memory	45.27 (67)	11.59 (16)	0.001
12	Ingling & numbness	54.72 (81)	20.28 (28)	0.001
13	Headache	66.89 (99)	42.02 (58)	0.001
14	Muscle ache	72.92 (108)	36.23 (50)	0.001
15	Anxiety/depression	43.92 (65)	10.14 (14)	0.001
16	Impotence	8.10 (12)	0.72 (01)	0.05
17	Hemoglobin (M) (meaningm%)	14.68 (1.79)*	12.70 (1.35)*	0.01
18	Hemoglobin (F) (mean gm%)	12.7 (1.46)*	10.79 (1.34)*	0.001

* Standard deviations

8% of the men reported impotence.

The number of pregnant women in the sample is too small and we intend to study pregnancy outcome separately.

Many residents had symptoms of anxiety, and some had frank depression. Many had loss of memory for recent events.

Mean pulse rates and respiratory rates were not significantly different in both sexes in JP Nagar and Anna Nagar. Mean hemoglobin concentrations in both males and females were significantly higher in JP Nagar than in Anna Nagar.

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The mean values of lung function tests were lower in JP Nagar as compared to Anna Nagar particularly in the age group 15-44 and 45-60. The pattern was primarily restrictive.

An important findings of grave significance is that 65% of the working persons in JP Nagar experienced a drop in income from 20% to 100% as opposed to 9% in Anna Nagar. This reflects the way in which physical/mental disability of the people has affected working capacities.

The causative factor

The presence of such varied symptoms suggests the involvement of more organs and body systems than the lungs alone. These cannot be explained by the pulmonary theory alone even though pulmonary lesions can cause peripheral hypoxia and hence muscular fatigue and so on. On the other hand, the cyanide theory can better explain the varied and apprently unconnected symptomatology. However, the ICMR has not tested the hypothesis vigorously. It has studied only the seriously ill, hospitalised patients and concentrated mainly on the lung symptoms. They do not say whether the non-pulmonary symptoms (symptoms not related to lungs) were also relieved by NaTS and curiously has not made its findings public. One, therefore, may also question whether the cyanide theory is fully valid.

It must be stressed here that the mfc is not rejecting the cyanide theory. It is only to point out that the country's main medical research body has failed to be rigorously scientific in testing its own hypothesis.

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Sodium thiosulphate therapy

We have already explained how sodium thiosulphate (NaTS) will clear cyanide radicals from the body. If the cyanide theory has been established, even as one of two causative factors the victims should receive NaTS treatment. Some of the local doctors availed themselv s of this, after the cyanide theory was proposed.

The ICMR at a meeting held on 4 Feb 85, issued guidelines for NaTS treatment. The medical group of Bhopal, which was opposing the treatment, was also present at the meetings, according to the minutes. Yet they opposed the treatment with the argument that they are not convinced its efficacy. The question is not of a doctor's convictions. A doctor's choice of treatment cannot also be arbitrary. The question is whether there is scientific evidence in favour of NaTS therapy and whether there is equally strong, if not stronger, evidence against the use of NaTS in this situation.

NaTS with its specific action is a better therapeutic agent than the non-specific remedies that are being used for the lung symptoms. A dominant section of the doctors of Bhopal are thus guilty of delaying treatment and by not revealing the findings of its clinical trial, the ICMR too has to accept part of the blame for the continuing suffering of the victims.

After a few weeks of controversy the NaTS therapy has now been accepted but mass detoxification is still being strongly opposed.

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The trial with NaTS is not the only study launched by the ICMR. It has sponsored many other studies on the Bhopal victims, but they lack an integrated approach. Thus lungs, eyes etc., are being examined independent of each other, by different investigators and the ICMR is unwittingly lending support to the first theory, namely, that MIC gas damages only tissues with which it comes into direct contact.

What exactly happened to the gas victims?

So many months after the disastrous gas leak, one still does not know what exactly happened to those who inhaled the gases and are still surviving. This is not because all attempts to unravel the myster, have failed but because an integrated approach had not been taken to do so. Months after the disaster, tens of thousands of the survivers are still suffering from debilitating symptoms which prevent them from going back to work.

The medical community and the officildom have been adhoc in their efforts to render adequate succour to these hapless victims. A powerful medical lobby in Bhopal with unscientific bigotry have opposed NaTS, a treatment, with good potential to the patients. They have no convincing argument for their stand. The IMA, the organisation which has authority over the medical profession, has remained totally mute. The doctors as well as the ICMR have concentrated entirely on those who were hospitalised and have not evolved a holistic, community approach to understanding the problem. The ICMR sponsored local studies with the exception

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of the NaTS trials have lacked the rigour and the epidemiological orientation that are necessary in arriving at a meaningful understanding of the problem.

A point of utmost significance is that the victims of the Bhopal gas disaster mostly belong to the lowest strata of the society and not in a position to fight for their rights, be it medical aid or monetary compensation. It is, therefore, not very surprising that the government and its organisationshave shown marginal interest in the after effects. It also reveals a lack of interest among our scientific community in investigating an environmental disaster of an unprecedented nature. On the other hand, one can observe the striking contrast with which all attempts were made to retrieve the Black Box of Kanishka, whose mid-air explosion resulted in the death of only 326 persons but needless to remind of the upper socio-economic class.

Recommendations

Research

1. The research and follow up studies should shift focus from hospital/dispensary based studies of seriously ill patients to family/community based ambulatory patients.
2. Well designed clinical trials should be further initiated using sodium thiosulphate as a therapeutic and epiedemiological tool to further establish the significant role it could play in mass therapy.

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Care,Surveillance and Rehabilitation

3. Psycho social assessment and consequentcounselling and rehabilitation are urgently required.

4. Mass treatment with sodium thiosulphate should be initiated maintaining good medical records.

5. A surveillance programme should be undertaken to assess risks to pregnant mothers, unborn babies and new born babies. There should also be close monitoring of the gynaecological problems of women.

6. It is necessary to have a long term surveillance of lung function in view of the postulated damage to lungs and resultant lung fibrosis. Similarly eyes should be examined regularly.

7. A comprehensive listing of all gas disaster victims is a long overdue task necessary for mass treatment, compensation and rehabilitation. This must be done immediately.

Communications

8. There is urgent need for evolving a continuing education strategy for allhealth personnel including doctors working in both governmental and non-governmental centres. These could be through newsletters, handouts and informal group meetings. The areas identified are: (i) sodium thiosulphate therapy; (ii) identification and management of psycho-social stress; (iii) risks to mothers and unborn foetus and need

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for surveillance; (iv) family planning advice till completion of detoxification; (v) role of respiratory physiotherapy; (vi) management of lactation failure; (vii) caution against overdrugging; (viii) need for open minded surveillance of high risk groups; (ix) importance of medical records.

9. There is also urgent need for a dynamic creative non-formal health education of the affected community thrcugh group meetings, posters and pamphlets with information and messages built around their life style, culture and existing socio-economic situation.

   The areas identified are: (i) sodium thiosulphate therapy; (ii) ongoing research programmes and informed consent; (iii) risk to unborn and new born babies; (iv) Family Planning advice; (v) respiratory physiotherapy; (vi) management of lactation failure including low cost weaning foods; (viii) importance of records and regular check ups.

10. Occupational Rehabilitation and compensation.

    In the ultimate analysis care of illness, health education, psychosocial counselling would be inadequate measures if they were not backed by adequate monetary compensation and urgent occupational rehabilitation of the disaster victims. This would have to be imaginatively done keeping their previous occupations and the residual disabilities in mind.

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Coordination

11. The government machinery alone cannot handle such a massive task. The government must adopt a policy of enlising the help of all non-governmental agencies and groups wishing to work in Bhopal. This enlistment must be active and supportive.

and finally

12. It is imperative that the victims as well as the entire country must be provided with all the details of how the accident occurred, of the nature of the chemicals released and of the reasons why the detoxification by sodium thiosulphate has been so badly mismanaged.

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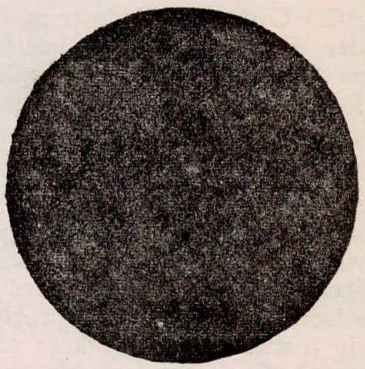

STRATEGIES FOR ENVIRONMENTAL HEALTH ACTION

Dhruv Mankad*

A) INTRODUCTION

The term environmental health has a wide scope, encompassing the relationship between health and habitat, air, water, work place and so on.

Although the theme has been discussed since long, the Bhopal tragedy has brought it into sharp focus. Milder versions of Bhopal have been occuring frequently but the actions taken have been in the form of spontaneous protests by local people in the affected area. Many times, investigative journalists have brought such issues to light e.g. plight of villagers around the ACC cement factory at Sevaliya in Gujarat or the Grasim episode. Later, after some local action, interest has died down. It is only after Bhopal that planned action at an all India level is taking place.

There was a time when capitalistic industrial development encroached upon the lives of the workers only — both at the workplace and in the homes which were not very far away from the factories. But the ever expanding, blind industrial development process during the present phase of capitalism, has spread its tentacles over the lives of all but the highly privileged few, both in urban as well as rural areas. Thus Occupational Health has been subsumed by Environmental Health and the effects of the nature of industrial development on health is no longer a concern of the workers only. Though, the analysis of the problem and the solutions offered, would differ from class to class. But, any such movement would certainly pose certain basic questions regarding the rate and the nature of present industrial growth.

B) STRATEGIES ADOPTED BY THE PEOPLE

People have always reacted spontaneously against encroachments by alien elements on their ways of life. A brief overview of strategies used may help in formulating future strategies.

1) The working class, looked upon as merely a tool in the production process, has always been the first one to bear the brunt of the effects of a new technology.

i) One of the most successful health movements of workers was the Black Lung Movement of coal miners of the USA. Loy Rego, writing in The Socialist Health Review 1:3 puts down the reasons for its success as—

a) the workers strength vis-a-vis the mine owners, for coal is a key item.

b) public sympathy.

c) capacity of the workers to shut down mines.

All this was possible because of the mass nature of the movement as reflected by the fact that many folk songs were written on the work lines.

ii) Even when the position of the working class was weak, partially successful actions have been initiated. For instance, a newspaper report in a local daily in Gujarat regarding the plight of workers in the slate-pencil industry, spurred a social worker to file a writ petition in the Gujarat High Court. The report filed by the Committee appointed by the HC forced the State Labour Department to make surprise checks which controlled some of the problems of lime dust.

* A note for discussion at the MFC-annual Meet, Patiala 25-29 July 1985.

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2) Growth of industries in the rural areas under the guise of decentralization has meant a direct threat to the rural people as well as to agriculture. Farmers too, have successfully fought this encroachment.

i) In Sevaliya in Gujarat, around 14,000 farmers were affected by cement dust from the ACC cement factory. After several years of memoranda-giving and lobbying, they adopted a strategy of no-tax campaign and gheraoed the management of the factory. As a result, a precipitator was immediately installed. The workers of the factory were sympathetic to the farmer's demands but were afraid that they would lose their jobs if they joined the struggle and therefore kept out of it.

ii) The famous case of the Chipko movement of Garhwal is well known. The women of Chamoli and other villagers in Garhwal, in a unique fashion, protested against the senseless destruction of forests by contractors by embracing the trees. In lesser known incidents, women have adopted novel ways to protest against cutting of trees. In 1978, women of Bhuyander villages in the Chamoli region, stole the axes of men from nearby villages who had come to cut the trees and refused to return them till they agreed to go back.

3) As pointed out earlier, the anarchic capitalist development of industries now threaten to destroy the lives of ordinary citizens mainly of those living in and around cities.

Citizens too, have adopted various strategies to combat this menace:

i) A Citizens Anti Pollution Committee was formed in 1975 in Goa against the air and water pollution by the Zuari Agro Chemical Industries. It took out a morcha in protest, but to no avail. Later, three political parties supported the Committee and a threat was given by the All India Port and Dock Workers' Federation to boycott unloading of raw materials for the Birla factories at various ports. The company had to bow down and it paid compensation to farmers and provided clean drinking water facilities to the affected villages. A water treatment plant was also installed.

ii) At Mavoor in Kerala, Gwalior Rayon discharged effluents into the once clear Chaliyar River, beginning from 1948. Fish died, skin infections spread. In 1963 people protested but promises given were forgotten. The protests persisted during 1965, 1967, 1968, and 1973. Finally in 1978-79, Kerala Shastriya Sahitya Parishad brought out a report which concluded that the problem persisted because of the callousness of the factory management to employ the available know how of effluent treatment. In 1979, in a massive agitation, people broke down a company erected bund to protect its own water intake. Thus, it was forced to lay a pipe line to dump the effluent in a far away brackish water-stretch.

iii) Citizens of Ward 12 in Ratlam had moved a local trial court to direct the Municipal Council to construct proper drainage for the locality. The State High Court affirmed the trial court's order. The Municipal Council approached the Supreme Court, who turned down the plea and directed the Council to carry out the work. In his judgement, Justice V. R. Krishna Iyer observed that the citizens could "use the law and call the bluff of the municipal body's bovine indifference to its basic obligations."

C) ALL THESE INSTANCES SHOW CERTAIN COMMON PATTERNS :

1) Mass actions are almost always successful, even when only partially. They also have the advantage of the heightened environmental health concern being passed down the generations and across geographical areas as evinced by the Black Lung Movement and the Chipko Movement.

2) Actions against industries by the citizens are more likely to succeed if the workers of the industry concerned as well as other allied industries are directly involved. This is shown in the case of Zuari Agro Chemicals. On the other hand, workers are more likely to succeed in their struggle for better work environment if they acquire the sympathetic participation of all the affected people as is seen in the Black Lung Movement.

3) While dealing with Government bureaucracy and Industry executives, mere rhetoric and agitation is not adequate. Sometimes information made public wields power. For this it becomes important that scientists are involved.

4) An educated population having the support of scientific information might be able to carry out a sustained struggle for better environment as is seen in the case of Gwalior Rayon, Mavoor. In contrast to this in another Birla owned factory at Amlai the movement of local villagers only petered out after the management gave some flimsy promises. In the former case, the people admit that support of KSSP was vital for the movement.

5) Women have a direct stake in the protection of forests. They are more easily mobilised for such actions than men, who sometimes are in favour of contractors in order to protect their jobs. Chipko and other movements in the Chamoli region point to such a situation.

D) STRATEGIES FOR ACTION

From the on going account, it is clear that it is possible to select one or more from several strategies used, to make Environmental Health Action sustainable and successful.

1) Information Gathering and Disseminating :

Done in a planned, conscious manner or in an unplanned, unconscious and experiential manner, this is the first and vital step in the right

direction. It helps to make people concerned conscious of the problem and breaks the ice for the people to speak out.

2) Lobbying etc : First, lobbying could also serve the above purpose. The existing democratic institutions should be utilised for this. Lobbying among legislators and political parties is a useful strategy for gaining support from 'within'. Although there is always the possibility of opportunist politics entering the movement in this way, if one guards against it consciously and if the decision making is democratic enough, it could be combated.

3) Publicity and public opinion building :

Due to widespread experience of environmental piracy by various industries, people are becoming sensitive to environmental issues as also are the government bodies, bureaucracy and the executive. Wide publicity in the existing media-newspapers and magazines has its impact. With the tradition of public interest litigation picking up in our judicial process, even newspaper reports are now being converted into writ petitions by various High Courts and the Supreme Court.

4) Legal Action: Action can be initiated against environmental offenders under the Prevention of Pollution Acts, Factories Acts and other Acts governing the worker management relationships, Municipalities Acts (as in the Ratlam case) and finally as writ petitions in the State High Courts and the Supreme Court invoking the Fundamental Rights and the Directive Principles enshrined in our Constitution. Though the efficacy of such actions is limited if nothing else, they serve the purpose of highlighting the issue. This strategy is particularly useful for citizen's actions and the unorganised section of workers who have little strength vis-a-vis the industry and the state.

5) Direct Actions: Whether the aggrieved are workers, farmers or ordinary citizens, men or women, this form of protest works best if properly organised and properly carried out. The success depends upon the strength and ability of the aggrieved to be able to hit the concerned at the place where it hurts most. It could take the form of a strike action in a key industry (as in the Black Lung Movement), prevention of movement of key raw materials and finished products (as in the Gwalior Rayon Case), no tax campaigns (as in ACC Sevaliya case), or simply creating a bad image of the offending industry's high selling product.

6) Certain problem areas : While surveying environmental 'ill health' and actions against it, one comes up against certain tangles defying pat solutions:

1) It is commonly observed that if agerieved citizens plan action against an offending industry, the workers and their Trade Unions are either disinterested or actively against such movements for the fear of losing jobs, in case the industry is forced to close down.

In such a case, it is imperative on the part of the aggrieved party to explain to the workers their problems and also to include in their demands, the demands of compensation and alternative employment for the workers in case the industry is closed down partially or wholly. This may ensure also the involvement of workers.

2) It is a common belief that lack of safety measures, non-implementation of safety rules and compensation laws in case of accidents or occupational health hazards are highly prevalent in the unorganised industries. Under the guise of decentralization this sector has mushroomed during the past few years.

But, given its nature, the workers have little strength to fight it. They can do so only at the risk of unemployment or even losing their lives. While the stronger, more organised workers enjoy a better work environment.

i) First, one needs to examine this belief.

a) Mine workers would be considered as organised workers. A survey of 11 coal mines totalling 9643 workers showed the prevalence rate of all categories of pneumoconiosis as 10.8%. A survey of 7,653 underground miners with 5 or more years of service in the Kolar Gold fields revealed the incidence of silicosis to be as high as 43.8%.

b) The accident rate in coal mines during 1977 was 0.47 fatal accidents and 4.33 seriously injured persons per 1000 persons employed. Textile workers are also an organised section of the working class. Injuries reported for 1978 in textile factories were 54.32% of total reported injuries in the industries during the year. While it employs on an average 26.62% of total number of workers employed.

This shows that the quality of work environment for the organised working class is also not good. That for the unorganised working class would certainly be deplorable.

ii) Even then, it is true that unorganised workers have very low strength vis-a-vis their managements and the State. Therefore, they are unable to initiate actions on their own. They need greater outside support and help than does the organised working class.

iii) Now, the question arises, as to whether in the existing situation in India where the environmental health movement is in its infancy, it is better to support a stronger section where chances of success are high or to take up the cause of those

(Continued on page 8)

National Tuberculosis Programme — A dialogue. . . .

It is not possible to discuss the entire article, published in mfc bulletin No. 105, as it would mean discussing rationale of the programme in great detail. However, we would like to point out a few inconsistencies. The rationale of the programme is already adequately documented and for additional reading the author may resort to K. Toman's book "Tuberculosis Case finding and Chemotherapy; Questions & Answers" — a WHO Publication.

1. a) Intercepting Transmission is not a mirage

The only sure diagnostic tool for tuberculosis is bacteriological examination, which has high degree of sensitivity and specificity. Other tools like x-ray or tuberculin are less specific and variable from place to place depending on the users experience and training. It is generally known and adequately documented that about 50% to 60% of the x-ray positive bacteriologically negative patients are not having active TB. It is, therefore unethical to close the diagnostic process on the basis of x-ray reading and treat a patient as TB when he could be suffering from a serious non-TB condition. As regards use of tuberculin testing as a diagnostic tool, we may not need to comment much.

Thus it could be seen that when one wants to treat 'Tuberculosis,' he has to be reasonably certain of the diagnosis which the doctor can only be with the help of bacteriology. So we feel the best services to the chest symptomatics, that has been provided to these people is the extension of sputum diagnostic services throughout the length and breadth of this country. To us it appears almost revolutionary extension of scientific finding.

The quote of the article picked up from Dr. D. Banerji's article does not find any place in the article but rather contradicts his statement. What is ailing the programme is the fact that even today 80% of felt need patients are turned away without subjecting to the most scientific way of case-finding. Indeed it is tuberculosis patients who themselves showed the way to integration of services to General Health Services. There is, in addition, sound administrative justification for dealing with all the health problems of a community as an integrated whole, demanding an integrated approach. Even as early as 1960 it was foreseen that extension of TB services to the community will be furthered with development of infrastructure of general health services eg. through multipurpose worker or community health guide. So today atleast fortnightly or monthly visit to the patient's home can be made through this extension.

1. b) "Never in the history of human TB, a reduction in transmission has been brought by a specific medical intervention."

Medical literature is full of instances where it has been achieved by medical intervention. For author's information I am quoting only one example of Eskimo population around the Arctic circle in whom the annual rate of infection was 25% (highest ever known) but after the introduction of a very intensive programme of diagnosis and treatment among the Eskimos, the rate of new cases diminished to the levels observed in some European countries eg. France. Thus the rate of incidence of disease and the risk of infection decreased by 20% per year. Mass BCG campaigns were not used (Rouillon et al Tubercle (1976), 57, 275-299).

2 Author's personal experience

While we do not disagree with the author that his experiences in two DTCs must have been unfortunate, we feel that if he keeps the overall perspective of the health programmes in view, he will choose to change his opinion even with the same experiences on DTP. The solutions thus does not lie in attempting to remove inadequacies in NTP alone but rather in the entire health services system.

3. Chemotherapy

The author wants costly effective drug regimens to be made available in the DTP. There is no disagreement on this. But the system which delivers these regimens must be adequately strong for the regimens to be effective and regimens must have higher acceptability. Researches are still being carried out to find out what could be the problems of delivery to be encountered. However, an operational study conducted by Dr. Baily showed that Isoniazid + Thioacetazone regimen (82% Trial efficacy) achieved 60% sputum conversion by 56% drug regularity while Biweekly Streptomycin + Isoniazid (94% Trial efficacy) achieved 68% sputum conversion due to poor regularity of 31%. Short-course Chemotherapy regimens with 100% trial efficacy have an intensive phase of 2 months with 4 drugs to be given preferably under supervision. So acceptability of short course drug regimen is a big question mark. Besides this, the author must remember that under a "vertical malaria programme" even a five days radical treatment cannot be effectively delivered to the population. A six or a nine monthly regimen is a very different matter altogether. The point is — do the people conform more with a six monthly regimen compared to a 12 monthly or 18 monthly regimen. This is a crucial question, cost comes later. There are other questions as well eg. availability of drugs, adverse reactions due to drugs, their management. Hence before unleashing this treatment measure on a wide scale over the entire country, it requires to be studied. On a pilot basis the new Short-course drug regimens are being tried. We hope our problems are solved soon and we are able to extend the benefit of our findings for general use.

In Dr. Sen's presentation, cost has been made out to be the only reason. But the reason is something else. It is the ability to deliver the measure which requires more emphasis.

Dr. (Mrs) P. Jagota Senior Medical Officer
NTI, Bangalore - 3.

The reply

Dr. Jagota's reply to my article is a disappointment. I do not claim to be an expert on tuberculosis and I would have been happy to have been proved wrong in the points I had made, through scientific reasoning. However, her whole accent is on defending the system at all costs.

To take her points one by one:

1. a. Relative merits of sputum smear and X-ray as diagnostic tools: It has never been our contention that patients should indiscriminately be started on tuberculosis treatment on the basis of an X-ray shadow alone. The contradiction exists within the NTP. Examination of the records of any District Tuberculosis Centre (DTC) will show that a large proportion of cases under treatment are 'sputum negative X-ray positive' and their entire treatment consists simply in a monthly doling out of INH/TH. Does the NTP seriously believe that these patients have tuberculosis or does it not? If it does, then they should receive safer and more effective treatment. If it does not, then these patients should come off treatment.

If fact no physicians of any integrity would treat patients on the basis of X-ray findings alone Sputum negative X-ray positive patients are (properly) diagnosed to have tuberculosis on the basis of a series of clinical observations and therapeutic trials to exclude non-tuberculosis disease. Perhaps it is only a vertically oriented Government programme like the NTP that can afford to be so careless with its clients.

Incidentally, it is interesting to find Dr. Jagota talking about horizontal integration. She could not have read the second paragraph of the article too closely. However, as long as integration remains merely an administrative concept, devoid of social and political content, it will be ineffective.

1.b) Dr. Jagota claims that medical literature is full of instances where reduction in transmission has been achieved by medical intervention. This is a revolutionary claim, and will interest well known epidemiologists like Mckeown and Navarro greatly. However, to back it up, she should try to produce some-what more solid evidence than her example about 'Eskimos around the arctic circle'. It is perhaps a measure of the futility of the NTI that they should think that this kind of an example could be extrapolated to the Indian situation.

Coming now to 'author's personal experience' we agree whole heartedly that the solution does not lie in attempting to remove inadequacies in the NTP alone. However, it is only by analysing the short comings of the NTP that we can move forward towards a more rational and humane policy for tuberculosis. And certainly the present lamentable condition of the DTC's is not accidental, but a product of the entire strategy for tuberculosis, which is in turn part of our health policy.

3. With regard to the question of chemotherapy, we can deal with the question of efficacy and compliance later. Before that, we must answer two questions.

a) To the safety of thiacetazone adequately demonstrated, expecially considering that other alternatives are available.

Please refer to Toman—page 103.

"Thiacetazone in doses of 150 mg. daily given in a single dose has about the same toxicity as PAS (other drugs have less-B.S) its side effects including rashes, jaundice and bone-marrow depression. Gastrointestinal upsets seem to be somewhat more frequent with thiacetazone, especially in Asians. Moreover, cutaneous reactions appear to be more serious than with other drugs. Thus exfoliative dermatitis or Stevens—Johnson syndrome may occur if the drug is not stopped."

See also Toman page 120, where a detailed study on thiacetazone toxicity is reported. "The investigation suggested that thiacetazone might be too toxic for large scale use in the population of Singapore, whether Chinese, Malay, or Indian".

May we know what the NTI has done to monitor drug toxicity in the field?

b) Why has the Government released second—line TB drugs in the open market and at the same time prohibited their use in the NTP (upto district level)?

Although these questions have been raised in the article Dr. Jagota does not address them.

As for the problem of acceptability of regimes, it is my view that all questions of patient compliance are answerable in terms of the effort that has been made to fit programme design and implementation to the social milieu in which the programmes are executed. In other words, the customer is always right. Today 'patient compliance' views the patient as a passive consumer and measures the extent to which he is able to adopt the norms of an extraneous system. A truer view of patient compliance would look at the dynamic interaction that takes place at field level between the patient and the treatment system. To say that a programme has 'low acceptability' is simply to beg the question.

Dr. Jagota says that 'researches are still being carried out to find out what could be the problem of delivery to be encountered'. The efficiency of ethambutol against human tuberculosis has been known since 1961, of rifampicin since 1968. What has been done all these years?

Binayak Sen, Dalli Rajhara

BANNED PESTICIDES

Pesticide use in India has multiplied 20 times between 1960 and 1980 and it is estimated that the nearly 100,000 tonnes of pesticides which will be consumed in 1984-85 will help the country save slightly over 10 percent of foodgrains production. India's hunger for pesticides can be estimated from the fact that although indigenous production has grown at the rapid rate of 14 percent in the eighties —43000 tonnes in 1980-81—imports exploded seven times, in terms of value, in three short years from 1978 to 1980. By 1989- 0, pesticide consumption is expected to average 120,000 tonnes. The agricultural sector accounts for two thirds of consumption and five states—Punjab, Gujarat, Andhra Pradesh, Tamil Nadu and Maharashtra—use over 50 per cent of that.

In terms of tonnage, atleast 70 percent of all pesticides consumed on Indian farms are banned or severely restricted in Western countries and identified by the WHO as excessively toxic or hazardous. The proportion is even higher in the case of pesticides used in public health programmes such as malaria eradication. For instance, DDT, banned many years ago in several countries because it leaves intolerably high residues in soil water, food and the human body and is suspected to be a carcinogenic, is used liberally in India. Current annual consumption of DDT is 3500 tonnes in agriculture used over an area exceeding 2).5 million hectares and 4000 tonnes in public health.

Another danger substance is BHC, two and a half times as toxic as DDT, banned in European Economic Community countries, suspended and cancelled in the US, and also suspected carcinogen, but which covers 8 percent of the country's net sown area; estimated consumption in 1982: 33000 tonnes. Methyl parathion 20 times more toxic than DDT is also banned in the West, but 3000 tonnes is consumed every year in India, over 12 million hectares, the highest coverage for any pesticide. Heptachlor, three times more toxic than DDT, banned in the US and withdrawn from the UK, is still consumed in India: 150 tonnes annually. DBCP (dibromochloropropane), banned in the US for producing infertility and stomach cancer, is used in India on wheat and other crops. Herbicide 2, 4-D is a basic ingredient of 'Agent Orange', the defoliant used with brutal effect in Vietnam. India has an installed manufacturing capacity of 1135 tonnes for this herbicide, and an annual coverage of 3.33 lakh hectares.

India's insecticide regulators have approved some of the most toxic pesticides like Phosvel, Dieldrin and Chlordane. In fact EPN, an insecticide that has been banned in other parts of the world, has been listed by the UN as not approved for registration by India; it is, however, in the list of approved pesticides for 1983. Lindane (severely restricted in the US), Aldicarb (categorised as extremely hazardous by WHO), carbofuran, monocrotophos, oxydemetonmethyl 1, DDVP (all categorised as highly hazardous by WHO) are used in the country today.

India has an Insecticide Act, which empowers authorities to monitor the registration, packing, labelling, import, manufacture, sale and use of pesticides. Before a pesticide is registered, the Central Insecticides Board scrutinises data on the acute, long term toxicity and the antidote. But it ensures no safety measures beyond the mandatory danger label. In addition, the world's leading exporter of pesticides, the United States—16.5 percent of total exports and the EEC—5.15 percent of exports—exercise little or no control over the export of banned pesticides. In 1976, for instance, some 30 percent of US exports were of products whose use has been banned in the US.

The effect of this indiscriminate use of pesticides is as expected. According to Praful Bidwai, writing in "The Times of India", India may account for a third or more of all the 500,000 cases of pesticide poisoning estimated by WHO to occur every year in the underdeveloped countries. Individual instances of pesticide poisoning are rarely reported for tracing it to a pesticide is a long process. The worst affected are the agricultural and the anti malaria workers who spray and apply pesticides. At the Indian Science Congress in 1985, Devika Nag and UK Misra of the King George Medical College, Lucknow, said that workers who sprayed these agrochemicals reported visual impairment, dislike of bright light and night blindness. Nag added that exposure to these pesticides led to mental disturbances, anxiety, insomnia and depression. There is evidence to show that areas of high pesticide use also have a high incidence of paralysis.

No one is secure. A recent WHO study, which analysed cereals, pulses, milk, eggs and meat samples from across the country found that 50 percent of the samples contained pesticide residues and in more than 30 percent of the samples, the residues were far in excess of the tolerance limit. Studies done by the Indian Agricultural Research Institute, Delhi, show that pesticide residues in vegetables coming to Delhi markets are 20 times the permissible limit. Samples of bottled milk in Maharashtra were found to contain 4.8 parts per million (ppm) to 6.3 ppm of DDT and 1.9 ppm to 6.3 ppm of dieldrin in about 70 per cent of the samples analysed. The permissible limit for the two compounds in milk is 0.66 ppm. A study by GS Dhariwal and RL Kalra, of the Punjab Agricultural University found that all samples of milk from around Ludhiana contained DDT and 73 per cent had residues more than the tolerance limit. Drunk by a

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three month old child every day, would result in a DDT intake nine times higher than that acceptable. In fact DDT and BHC residues were found to be present in all 75 samples of human milk collected from Punjab. The babies were drinking 21 times the accepted daily intake of DDT and BHC from their mother's milk.

Bhopal has brought to light another pesticide hazard, the raw materials and intermediates manufactured and stored at the plants. Very little is known about these processes or the toxicity of the chemicals involved. The Economic Times recently reported that a leading pesticide unit located at Jogeshwari in Bombay which manufactures ethylene dibromide, a highly toxic pesticide included in the UN list of banned products and described by the National Cancer Institute in the US "as the most potent cancer causing substance found in the animal test programme' is now putting up a plant to manufacture glyphosphate. They intended to use chloromethylphosphonic acid (CPA) in the process; CPA is a chemical used in chemical warfare.

Another hazard is the possibility of misuse of such chemicals by the manufacturers. In June and October 1975, Hindustan Ciba Geigy Ltd tested the safety of its Nuvacron pesticide on more than 40 Indian volunteers aged between 13 and 57. All of them stood around while an aircraft loaded with the pesticide solution sprayed them with it over four days. This use of humans as guinea pigs was reportedly approved by WHO and had the sanction of the Indian Insectidide Act which requires that aerial spraying measurements be done under practical conditions to prove the safety of the chemical.

Indiscriminate use of pesticides leads to diminishing returns. A recent FAO study found that in 1980, 432 species of arthropods were resistant to atleast one, and often several insecticides, an increase from 25 in 1954. In Gujarat, cotton farmers spray their fields 20 to 30 times more often than before with more toxic and expensive pesticides, which today account for over half of cotton cultivation costs. In the Vidarbha region of Maharashtra, expenditure on chemicals has increased 340 percent in the years without any increase in the average yield. In Andhra Pradesh, the state with the highest consumption of pesticides at a staggering 15000 tonnes a year, at least 15 species of pests have become resistant to all commonly used agrochemicals.

In fact, the spectacular spurt in pesticide use has resulted in secondary pest outbreaks, because the chemicals have killed off natural enemies of pests like birds, spiders and worms. Such outbreaks are sometimes more destructive than the primary pestilence and much more difficult to control.

Source :

Banned Pesticides, Sunita Narain: The State of India's Environment—1984-85, The Second Citizens' Report *

* This report which was released last month announced in mfcb 116-7 is a comprehensive reference book on the State of India's land, water, forests, dams, atmosphere, habitat, people, health; energy and living resources. It also includes two chapters on agents of change and the politics of environment. The health chapter covers four important areas —

Hazardous Products

The Bhopal Disaster

Occupational Hazards

Mosquito-borne Diseases

A must for all those concerned about environment and health.

News from Bhopal

A preliminary outline of a pilot model of a comprehensive health care programme for the gas victims has been drawn up by Smarajit Jana, Anant Phadke, Mira Sadgopal and others, and is being circulated for wider comment. It is hoped that NGO's will adopt this model and implement it and dialogue with the government to adopt it on a wider scale.

* * *

The Jana Swasthya Kendra has restarted the administration of sodium thiosulphate from 9th September and is considering the possibility of organizing an independent rigorous double blind clinical trial along with the estimation of urinary thiocyanate levels. A pamphlet written by Anant Phadke on the Why's and How's of sodium thiosulphate will be published shortly.

Child care activities which include a random sample survey of childhood morbidity, a pictorial health exhibition on child care to be shown in the bastis, and immunization programmes are being planned.

* * *

The Relief Commissioner of Bhopal, Dr. Ishwar Das reported that (i) sub acute syndromes of MIC toxicity have now become evident in those who survived the exposure; (ii) though the main symptoms related to the respiratory tract, symptoms involving other organs were also being observed; (iii) about 2500 women have delivered since the gas tragedy and both the number of still births and malformed babies were alarmingly high. Eighteen women had delivered malformed babies and the number of still births had doubled; (iv) those suffering from lung disorders would not be able to

undertake any physical labour again and would have to take medical treatment for another 10 years or more; (v) visual acuity of survivors has been badly affected and many of them cannot do without spectacles. (source: THE HINDU, 18 September 1985).

* * *

A health education pamphlet in Hindi on the effects of gas exposure and the treatment required has been produced by Anant Phadke and will be published in collaboration with Eklavya, Bhopal. A Hindi translation of the mfc Bhopal study report will also be published by Eklavya shortly.

* * * *

A study on the effect of the toxic gases on pregnant women in Bhopal was undertaken by a team of over thirty volunteers from different voluntary organizations and institutions including medico friend circle, Action India, Sabla Sangh, Ankur, Saheli, Jagori, Prayas, Mahila Mukti Morcha Sevapuri, Sahiyar, Nari Atyachar Virodhi Manch and St. John's Medical College. The survey was done from 22 to 29 September 1985 and was coordinated by C. Sathyamala of mfc.

* * *

A workshop on Relief and Rehabilitation of gas victims was organized on 28-29 September 1985 by the Madhya Pradesh Vigyan Sabha, the Delhi Science Forum and the Kerala Sastra Sahitya Parishad.

(Continued from page 3)

workers whose needs are greater but chances of total success are low.

The answer could be in affirmative to both in part. It would be prudent to aim for total success by supporting the organised and enlightened sections of workers possessing some leverage. On the other hand low key actions like publicity, lobbying and legal actions would ensure partial successes for the weaker unorganised section of the working class.

F) ROLE OF GROUPS LIKE MFC : Being what it is, MFC can be looked upon chiefly as a resource group. It could provide technical help on its own or by referring people to experts/resource centres known to it.

1) **Carrying out Studies :** Any movement strong or weak, spontaneous or planned would need a solid information base if it is to have a lasting impact. MFC could undertake studies in the field of the impact of environmental degradation on health.

2) **Publicising the issue :** MFC members could write in the popular press, in medical journals etc. about environmental health issues thus publicising it and lending it credibility.

3) **Direct medical intervention :** As in Bhopal, under extraordinary circumstances in case of an environmental disaster, MFC could intervene medically by providing medical relief and long term rehablitation as a part of an ongoing people's movement.

From the Editors desk. . . .

The next annual meeting of the medico friend circle will be held in the Bombay-Pune region in the last week of January 1986 (the exact venue will be announced soon). The theme of the meeting will be **Issues in Environmental Health — a case study of pesticides.**

The Bhopal disaster has been the stimulus for selection of this topic but we do not plan to discuss the acute problems of the Bhopal gas disaster victims. We shall focus on wider environmental health issues and problems in India using pesticides as an illustrative case study.

As preparation for this meeting, we have included in this bulletin Dhruv Mankad's article on Strategies for Environmental Action which was prepared for the Patiala meeting and also a review of the pesticide problem from the recently released "The State of India's Environment 1984-85—a Citizens Report."

A special issue on all aspects of the pesticide problem is being planned for next month. All readers who have come across relevant and thought provoking material on this topic are requested to send us references, xerox copies or small articles/ notes immediately.

Further details about programme, background papers and plan of discussions will be announced shortly.

Views and opinions expressed in the bulletin are those of the authors and not necessarily of the organisation.

Annual subscription — Inland Rs. 15-00

Foreign ; Sea Mail — US $ 4 for all countries
Air Mail : Asia — US $ 6; Africa & Europe — US $ 9; Canada & USA — US $ 11

Edited by Ravi Narayan, 326, Vth Main, Ist Block, Koramangala, Bangalore-560 034

Printed by Thelma Narayan at Pauline Printing Press, 44, Ulsoor Road, Bangalore-560 042

Published by Thelma Narayan for medico friend circle, 326, Vth Main, Ist Block, Koramangala, Bangalore-560 034