12.3

NEW FILE: WORKSHOP ON AIR POLLUTION

Dear Mahalakshmi,
This has reference to the discussions I had with you requiring your help in organizing a meeting on Airpollution and asthama. Enclosed is a draft received from Sagar Dhara. Pl take action to send notice to invite people for a preliminary meeting on the 26th. You can either develop a letter head using the logos sent by Sagara. Ensure that the letter includes KSPCB.
Any question you can call Sagar.
Thanks
Sharatchandra

Begin forwarded message:

22 Oct 2007

Dear ...

I wish to invite you or a representative from your organization for a meeting at 3 pm on Friday, 26th Oct at ……. to discuss and plan for a forthcoming workshop on air pollution and environmental health—children's asthma. The workshop will be held on 22-23rd Jan 2008 in Bangalooru with 100-125 invited participants. The draft announcement of the workshop is attached.

The workshop will be different from other workshops as it will not only explore the subject through presentations made by people with experience in the fields of air pollution management, health care and community interventions, but will provide more than half the workshop time for breakout sessions which will allow the workshop participants to work out intervention plans to mitigate air pollution, improve health care for air pollution related health effects and do community interventions to help communities to mitigate they risk they face.

The meeting agenda will be:

1. Workshop dates
2. Workshop venue
3. Workshop flyer
4. Steering Committee formation
5. Workshop methodology
6. Workshop agenda (draft)
7. Workshop speakers (suggestions)
8. Workshop participants (suggestions)

As previous experience in running such workshops exists, many of the agenda items can be covered quite quickly. The Mumbai workshop report and other material will be distributed at the meeting.

Thanks in advance for your time.

Sincerely,

RSK
7/11

Workshop on air pollution and environmental health—children's asthma

Bangalooru, 22-23 January 2008

Air pollution and its related impacts on human health has become visibly severe. Over 300 million people suffer from asthma worldwide (WHO), and the number is rising. The human and economic burden associated with asthma surpasses that of HIV/AIDS and tuberculosis combined. In India, air pollution is estimated to cause, at the very minimum, 100,000 excess deaths and 25 million excesses illnesses per year.

To mitigate this impact quickly, air pollution control and health care interventions must be supplemented with an effective community-based intervention programme aimed at involving risk bearers participating in solving their problems. This workshop will allow its participants to make air pollution control, health care and community intervention plans for Bangalore; and encourage government, professional and civil society organizations, and individuals to commit to taking specific responsibility to implement the intervention plans. It is hoped that a committee will be formed to followup on the workshop's recommendations. Childhood asthma is a good indicator of the prevailing problem, hence has been chosen as the focal theme. The first workshop of this kind was conducted successfully with 80 Indian and foreign participants in Mumbai in June 2005. More such workshops are planned for other cities later.

The workshop will discuss:

- ***Air pollution and health effects and estimation of air pollution-related injury***
- ***Air pollution management interventions to reduce air pollution exposures***
- ***Health care interventions to mitigate asthma***
- ***Community interventions to help people mitigate air pollution-related health risks***

The workshop will attempt to produce an action plan to:

- ***Improve understanding of asthma and its relationship to air pollution***
- ***Train asthma patients and communities to recognize air pollution related health effects and improve asthma management***
- ***Improve management of air pollution and its related health effects***
- ***Develop approaches to help minimize exposure to air pollution***
- ***Encourage coalition building between affected communities and those working on issues related to air pollution control and its health effects***
- ***Create partnerships between government agencies and community-based organizations***
- ***Encourage participants and other agencies to commit to taking specific responsibilities to implement the workshop's recommendations***

Participants: Asthma patients and networks, community health workers, professionals—government and non-government—working in the fields of air pollution control, environmental health, and communicators

Organizer: Cerana Foundation, D-101 Highrise Apts, Lower Tank Bund Rd, Hyderabad 500 080. Telefax: 40 2753 6128. Email: **cranafdn@rediffmail.com**

Sponsors: UNEP, Karnataka State Pollution Control Board, …….

Registration request form

Instructions for registration request: This workshop requires no registration fee. If you are interested in participating in the workshop, please fill the form below and email to ceranafdn@rediffmail.com (give the attachment file your last name, eg, if your last name is Gupta, your registration request form sent as an attachment file should be given the name gupta.doc or gupta.txt), or mail a hardcopy to **Cerana Foundation, D-101 Highrise Apts, Lower Tank Bund Rd, Hyderabad AP 500 080**. Please send your form early, but no later than to reach us by 15 Dec 2007. **Only registered participants may attend the workshop.** If your arrival and departure information is not known now, please send it to us immediately after receiving our acceptance of your registration request, which we will do by 10 Jan 2008.

Name: Mr/Ms/Dr*

Organization:

Mailing address:

Tel No: **Fax No:** **Email:**

Discipline: Environmental science/engineering/ Health/Law/ Community organizer/ Media/ Other* (please specify)

Specialization (eg, air pollution monitoring, pulmonologist, environmental law, etc):

Are you interested in joining a tour of "high pollution & asthma prevalence" areas on 24th Jan? Y/N*

If you are not a Bangalooru resident, please provide information regarding your arrival and departure

Arrival mode: Air/ Train/ Bus*. **Arr dt:** June. **Expected arr time:**

Arriving from: **Flt/Train name & #:**

Arriving airport/ station/ bus stand:

Departure mode: Air/ Train/ Bus*. **Dep dt:** June. **Expected dep time:**

Departing to: **Flt/Train name & #:**

Departing airport/ station/ bus stand:

Will you participate on both days or one day only*. If for one day, will it be 22nd or 23rd*.

Do you have any special diet restrictions?

** Please strike off what is not relevant*

list for Air pollu Conference workshop 7/11/07 12.3

Annexure : 1

1st List of Participants for the workshop.

Possible participants are listed below.

Please do add on more names, insert suggestions, remarks for them.

Any additional information, like people whom you know personally who can be included esp the steering committee are welcome.

Medical Fraternity:

- Community Health Cell (CHC) , Bangalore, Contact : Thelma :9341257911/080-2553064 (Res)
  Society For Community Health Awareness, Research and Action, (SOCHARA)/ Community Health Cell,
  367, Srinivasa Nilaya, Jakkasandra, 1st main, 1st Block, Koramangala, Bangalore. Telephone- 91-80-255315, Email: sochara@vsnl.com
  Website: www.sochara.org
-

UNION's:/ASSOCIATIONS

- Government Workers Union : Contact: Mohan Mani
- Trade union's Bangalore Based
- Auto Rickshaw Union's
- Petrol Bunk workers' union, organisation
- Indian Medical Association: Bangalore Chapter — Ramesh Billimogga.
- Karnataka Association for Community Health: Dr Girish → 93412 26277
- National Institute for Occupational Health (NIOH) : Bangalore regional office: Dr Rajmohan
- Stone crushers /Quarry workers union

IAP →

NGO's

- Public Affairs Centre sheela
- **CHC: Society For Community Health Awareness, Research and Action, (SOCHARA)**
  Community Health Cell,
  367, Srinivasa Nilaya, Jakkasandra, 1st main, 1st Block, Koramangala, Bangalore. Telephone- 91-80-255315 Email: sochara@vsnl.com
  Website: www.sochara.org

- Civic (Vinay Baindnur)/Almitra
- **FEDINA No. 154, Anjaneya Temple Street Domlur Village, Bangalore 560 071 India Contact: Duarte Barreto**

- **Quarry Workers & Rural Integrated Development Society (Q.W.R.I.D.S.) No. 63. Little Rose Villa, K.S.F.C. Layout, Oil Mill Road, St.Thomas Town Post, Bangalore – 560084.**

- **MYRADA, No 2, Service Road, Domlur Layout, Bangalore – 560 071 Email: myrada@vsnl.com Ph: 91-80-25353166**

-
- Maya
- Saathi
- Jana Sahayog Rajendran: water pollution study
- Rajiv Gandhi
- Indira Gandhi Institute for Child Health : Dr Asha Benakappa, Bangalore Medical College
- Child Right's Trust
- Alternative Law Forum
- Jana Jagriti Samiti, Nandikur
- Cooligarige Nivarane Sangha :Contact : madhusudan/kknns/ pakriswamy
- NGO's like QWRIDS, working with quarry workers and their welfare
- CMCA : Children's Movement for Civic Awareness (CMCA) joint initiative of the two non government organizations (NGOs) - Public Affairs Centre (PAC) & Swabhimana. CMCA is a commitment to nurture and foster active citizenship in children. Launched in 14 schools of Bangalore as a small initiative in the year 2000, to foster civic and environmental consciousness among children, CMCA has instituted Civic Clubs in over 180 schools in Bangalore, Hubli Dharwad, Mumbai and Bidar. #346, 3rd Cross, 7th A Main, Koramangala 4th block, Bangalore - 560 034. Ph : +91-80-25[illegible]3584; Telefax: +91-80-41105161
  Email cmcaexpressions@yahoo.co.in
  Copyright © Children's Movement for Civic Awareness

- Janagraha : 198, Nandidurg Road (near the AIRTEL Office), Jayamahal, Bangalore – 560046 Phone: 3330668, 3542381/82. E-mail: janaagraha@vsnl.com

- Traffic police Welfare Groups.

- Social Scientists : Iiit inst of information tech : balaji social scientist/bhoomi egovernance:

-

Government

- Arvind Jahnu Secretary, DoIT, Karnataka
- Corporation
- BBMP

Women's voice : office of Ruth Manorama 22129568 25098254 Mob: 9844057734

- Planning organisation
- Traffic Department

Delhi Based/All India

- Indian Association for Air Pollution ControL, Delhi, (Sagar will initiate the invite)
- MoEF
- CPCB, Sengupta in Delhi will be informed, Shukla from Bangalore office to be invited, Balaji in Bangalore office is interested in joining the workshop.

Hospitals:

- **Manipal Group of Hospitals**

Department of Respiratory Medicine at Manipal Hospital is equipped with spirometry and other facilities for the diagnosis and management of asthma.
Contacts: Dr Isaac Mathew/Dr Padma Sundaramm
more information:
Ruchi Vishwanath / Bhuvaneshwari Krishnamoorthi
Good Relations India Pvt Ltd.
Mob: 99804 22440 / 99808 10115

- Bangalore Children's Hospital
- Narayana Hrudayala
- Hosmat
- Dr Prema
- Dr Omprakash → St Martha's Hospital.
- Dr Parameshwar : Mob:9845022689
- St John's : George D'souza/

Press:

Magazines:

Sahana charan hindu:
ROHC:Dr Rajmohan Air Pollution traffic
NIAS: sociologist/
gen raghunath dorabji tata institute- microbiologist/-
Max Martin (India Today)
CSE,

Papers: Deccan Herald, The times of India, Asian Age,
Kannada: Kannada Prabha, Prajavani, Eveningers,

Ammu Joseph

Sideshows :
Vinod Eshwar : Trees poster presentation

NRHM, Mission Director - Dr. Madangopal 9845589999

Institute of Public Health. Dr. Devadasan / SJ Chander.

Dr. Veda →

JANANI { APSA -
SPAD -

Director of RCH - Dr. Srinivasa →

Dr. B.K. Srinivasa →
Retd Dean JIPMER
Consultant - RGUHS.

RGI of Chest Diseases → Dr. Shashidar Baggi

Dr. Prithvish, MS Ramaih Medical College → 9901042731
[auto drivers]

FRLHT.

12.3

Community Health cell

From: Sagar Dhara [sagdhara@gmail.com]
Sent: Sunday, November 11, 2007 9:21 PM
To: Thelma Narain; Thelma Narain; Ravi Narian; Premdas
Cc: Mahalakshmi Parthasarathy
Subject: Fwd: Asthma workshop meeting, 19th Nov

12 Nov 2007

Dear Thelma and Ravi, CHC:

I wish to invite you or a representative from your organization for a meeting at 3 pm on Monday, 12 th Nov at the Karnataka State Pollution Control Board, Conference Room, 5th Floor, Parisara Bhavan, 49 Church Street (parallel to MG Road), Bangalooru 560 001 (Tel: 80-25581383, 25589112, 25586520) to discuss and plan for a forthcoming workshop on air pollution and environmental health—children's asthma. The workshop will be held on 22-23rd Jan 2008 in Bangalooru with 100-125 invited participants. The draft announcement of the workshop is attached.

The workshop will be different from other workshops as it will not only discuss the subject through presentations made by people with experience in the fields of air pollution management, asthma management and community interventions, but will provide about half the workshop time for breakout sessions which will allow the workshop participants to work out intervention plans to mitigate air pollution, improve health care for air pollution related health effects and do community interventions to help communities to mitigate the risk they face, and to take specific responsibility for implementing these intervention plans.

The meeting agenda will be:

1. Workshop venue
2. Workshop flyer
3. Steering Committee formation
4. Workshop methodology
5. Workshop agenda (draft)
6. Workshop speakers (suggestions)
7. Workshop participants (suggestions)

As previous experience in running such workshops exists, many of the agenda items can be covered quite quickly. The Mumbai workshop report and other background material will be distributed at the meeting.

For any further information prior to the meeting, please feel free to contact me (40 2753 6128, 94404 01421) or Mahalaxmi (80 2678 9637, 98455 75665).

I look forward to seeing you at the meeting.

Sincerely,

Sagar Dhara

Ps: please copy all emails to me and Mahalaxmi.

Workshop on air pollution and environmental health—children's asthma

12-Nov-07

Bangalooru, 22-23 January 2008

Air pollution and its related impacts on human health has become visibly severe. Over 300 million people suffer from asthma worldwide (WHO), and the number is rising. The human and economic burden associated with asthma surpasses that of HIV/AIDS and tuberculosis combined. In India, air pollution is estimated to cause, at the very minimum, 100,000 excess deaths and 25 million excesses illnesses per year.

To mitigate this impact quickly, air pollution control and health care interventions must be supplemented with an effective community-based intervention programme aimed at involving risk bearers participating in solving their problems. This workshop will allow its participants to make air pollution control, health care and community intervention plans for Bangalore; and encourage government, professional and civil society organizations, and individuals to commit to taking specific responsibility to implement the intervention plans. It is hoped that a committee will be formed to followup on the workshop's recommendations. Childhood asthma is a good indicator of the prevailing problem, hence has been chosen as the focal theme. The first workshop of this kind was conducted successfully with 80 Indian and foreign participants in Mumbai in June 2005. More such workshops are planned for other cities later.

The workshop will discuss:

- ***Air pollution and health effects and estimation of air pollution-related injury***
- ***Air pollution management interventions to reduce air pollution exposures***
- ***Health care interventions to mitigate asthma***
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The workshop will attempt to produce an action plan to:

- ***Improve understanding of asthma and its relationship to air pollution***
- ***Train asthma patients and communities to recognize air pollution related health effects and improve asthma management***
- ***Improve management of air pollution and its related health effects***
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- ***Encourage coalition building between affected communities and those working on issues related to air pollution control and its health effects***
- ***Create partnerships between government agencies and community-based organizations***
- ***Encourage participants and other agencies to commit to taking specific responsibilities to implement the workshop's recommendations***

Participants: Asthma patients and networks, community health workers, professionals—government and non-government—working in the fields of air pollution control, environmental health, and communicators

Organizer: Cerana Foundation, D-101 Highrise Apts, Lower Tank Bund Rd, Hyderabad 500 080.
Telefax: 40 2753 6128. Email: **cranafdn@rediffmail.com**

Sponsors: **UNEP, Karnataka State Pollution Control Board, ...**

12-Nov-07

Minutes of 19th Nov 2007 meeting

Participants:

1) Mohan Mani : workersblr@yahoo.co.in
2) Dr R.Sukanya, CHC: sukan_r@rediffmail.com
3) QWARIDS: J. Manoharan: qwarids@vsnl.net
4) Bangalore Medical College and Research Institute: Dr Premalatha: premalatha53@hotmail.com
5) B.Venkatesh, Member Secretary, KSPCB; kspcb@kar.nic.in
6) Mr Syed Khaja, Regional Officer KSPCB, Hindustani@hotmail.com,
7) Mahalakshmi. Parthasarathy
8) Sagar Dhara

The meeting agenda discussed:

1. Workshop venue: The in house KSPCB auditorium was visited by the participants and generally agreed that it was appropriate for the workshop, which intends to have a number of breakout sessions.

2. Workshop flyer

The name for the workshop was discussed and "Workshop on Environmental Health – Asthma " Bangalore was preferred over specifically drawing attention to "Children's Asthma", since we are targeting the adults in the high risk categories like traffic constables etc. This was to be agreed upon during the 24th Nov meeting after considering other opinions.

3. Steering Committee formation

People who were present for the meeting were to be included and the list to be finalised on the 24th meeting.

4. Workshop methodology

Workshop was conceived to provide the action plans to participants and concerned citizens to improve air quality in the city of Bangalore. The breakout sessions will provide ample space for participants to interact and put forth their views on the subject of air pollution management, asthma management and the necessary community intervention. The individual plans will be then synthesized to present a larger picture.

5. Workshop agenda (draft)

The sessions were listed by Sagar (need to be added), we need to fit in sessions to focus on case studies and to formulate action plans targeting certain sections of people e.g. garment workers/traffic police etc who are at a higher risk. We feel that it will be good if we get more views and clarity on this subject hence the need for 24th Nov 2007, Saturday meeting.

6. Workshop speakers (suggestions)

It was decided that the speakers can speak in the language of their choice. The speakers in one session can include a person who can highlight the issue and the others can throw better light on the possible interventions. This was thought to be effective esp. if the workshop plans to focus on various "high risk" groups and prepare relevant action plans tailor made for their situation.

7. Workshop participants (suggestions)

More suggestions are welcome.

Minutes of 24th Nov 2007 meeting

Participants:

9) *Bangalore Medical College and Research Institute: Dr Premalatha: premalatha53@hotmail.com*
10) *Ms Lakshmi. B Janasahayog – 080-22128565*
11) *Malathi Saroj: Voluntary Health Association of Karnataka vhak@bgl.vsnl.net.in/prajnamali@yahoo.com. Ph: 9343537458/9448489411*
12) *Dr Nagabhushana ,Professor of Pediatrics, Dr B.R Ambedkar Medical College Vice President Respiratory Chapter, Indian Academy of Pediatrics, Karnataka State Branch.P nagabhushana_s@rediffmail.com/respicon2005@yahoo.co.in*
13) *Dr B. Ravichandran Research Officer, Regional Occupational Health Centre, Bangalore Medical College Campus, 9448015382, ravichandran65@yahoo.co,*
14) *Mahalakshmi. Parthasarathy*

The meeting agenda discussed:

1. Workshop flyer

"Workshop on Environmental Health – Asthma" Bangalore was preferred over specifically drawing attention to "Children's Asthma". It was felt that there could be a session in the case studies which focuses on children.

Flyer can have information pertaining to Asthma from Dr Parmesh's study. Further it was suggested that the points to be discussed in the flyer needs to include community based intervention plans in India specifically Karnataka. The last point about partner city approach was thought to be unrelated with regards to this workshop.

2. Steering Committee formation

People who were present for the meeting were to be included.

3. Workshop methodology

- Some suggestions of case studies for which action plans need to be prepared include: Traffic Police, Women and Children who stay indoors, School Children, Pourkarmikas of BMP as they deal with Garbage segregation, Garment Workers as they work in difficult conditions, Auto drivers unions (as ROHC and Samarthan trust (one of the invitees) are involved with them for studies and awareness generation in a different context)
- It was suggested that Indian Association for Occupational Health also has to be involved in getting more clarity.
- On Indoor air pollution : Cigarette smoking, emissions in software tech park offices (TERI study) and cooking fuel emissions needs to be addressed. In this context research done on smoke free *chulhas* by Shell foundation were mentioned.
- A reinforcement session for "training community interventionists" for recognition of the asthma symptoms and better air pollution management was perceived to be important.

4.. Workshop agenda (draft)

Dr Nagabhushana has short length videos of Asthmatics talking about living with it, he offered to play them at the workshop. The group thought that these can be a good starting point for the workshops.
There are other videos on Indoor air pollution one of it shows a "Model of a Asthma free house" which can be used for training sessions eventually.

5. Workshop speakers (suggestions)

- ROHC can present the findings from its Study of air quality in bangalore under the National Environmental Helath Profile study.
- Dr Parmesh clinical study on asthma in school going children.
- Air pollution management by better traffic management : somebody from the traffic dept.

6. Workshop participants (suggestions)

Some suggestions include: Dept of Labour, ESI hospitals (two tier system: Hospital and Dispensaries), Medical colleges in Bangalore (6 -7 in number), St John's dept of community medicine.

Dr P.A Mahesh from JSS institute (Suggested by Dr Ravichandran: is doing a study on causative agents of Indoor air pollution)

8. Workshop Dates:

Regarding the workshop dates: As there is a national meet of Indian Academy of Pediatrics in Bhubaneshwar many doctors who have agreed to take part in the workshop will be out of station till the 22nnd morning. So they were wondering whether there is a possibility of rescheduling it by a day or two ?

9. Co-sponsors:

- Dr Nagabhushana has agreed to Talk to Indian Medical Association, Indian Academy of Pediatrics (Karnataka Branch), Indian Academy of Pediatrics Respiratory Chapter. I need to officially write to them requesting for the same.
- Dr Premalatha has said that she will talk to Dr Premaleela from Directorate of Health and family welfare.
- CHC needs to officially communicate it to us in writing but they have been sounded on it.
- VHAK representative has said that she will too discuss and get back officially.
- Janasahayog who work in 80 slums in Bangalore have said that they will officially agree after discussing it with other people in their organization.

Minutes of 8th Dec 2007 meeting

Participants:

15) *Sowbhaghya E.G./Christopher: Garment Workers Union – Karnataka ®*
No 324, Sri Krishna Nilaya, Mayura Nagara, 10th cross, Andrahalli Main road, Peenya – 2nd stage, Bangalore – 91, Ph: 28367354/9845950390
Email: garment_workers@yahoo.com

16) *Thomas Thanapaul: Consultant QWRIDS*

17) *Sagar Dhara*

18) *Mahalakshmi. Parthasarathy*

The following decisions were reached:

1. Workshop flyer

- The title will be "Workshop on Environmental Health –Intervention programmes for mitigating air pollution related health risks, Bengalooru.
- Flyer will retain the first para from the Bombay workshop and the 2nd para will be data specific to Bangalore and the 3rd para will have a mention about high risk groups.
- The final version will be produced by Sagar after incorporating the Bangalore specific data in the 2nd and the 3rd para.
- 1000 copies of the English version will be printed at Hyderabad and 2000 copies of the translated Kannada version will be printed at Bangalore.

2. Workshop methodology

- The focus was breakout sessions: It was decided that the breakout sessions will broadly be divided into those affected by; Vehicular Pollution, Indoor air pollution and at workplaces.
- The vehicular pollution will cover the general populace the traffic police, and the auto rickshaw drivers
- The workplaces include: 1) garment workers 2) Quarry workers 3) IT /BPO sector
- The indoor air-pollution can include the women who are exposed to smoke. CHC suggested that cigarette smoking and anti tobacco campaign can also be explored.
- Suggestions for chairpersons for the plenaries are required to be sent by me.
- Sagar felt that the human perception to risk is a factor which needs to be emphasized and understood in order to get effective results.

Suggestions of Names of speakers/Topics ……….

Workshop on environmental health:

Intervention programmes for mitigating air pollution-related health risks

Bengalooru, 22-23 January 2008

22 Jan **Workshop day 1,** Auditorium, 5th Flr, Karnataka State Pollution Control Board, Parisara Bhavan, 49 Church Street, Bengalooru 560 001

~~8.30~~-9.30 -10.15 **Registration & networking**

9.30-10.30 Plenary Session 1: Inaugural session

His Excellency, The Governor, Karnataka State will inaugurate the workshop
Presiding H C Sharatchandra
Welcome Address Sagar Dhara, Director, Cerana Foundation Welcome Address
Keynote address: Surendra Shrestha, Director, Asia-Pacific Region, UNEP
Mem Secy Venkatesh KSPCB, Vote of thanks

11.30 **~~10.45-12.45~~ Plenary session 2: Air pollution-related health risks** (1) Learning from other experience

Chair:

Speaker 1: The air pollution problem in Bengalooru 15 (1) Bangladesh H risk mitigation
Speaker 2: Air pollution-related health impacts in Bengalooru (2) Renuka Srinivasan TERI
Speaker 3: Community health programmes in Bengalooru (3) Nityanand - Bucket brigade
Speaker 4: Experiences from other cities 5 (4) Tompleniy → SK Gupta (2)
(5) Holistic

Discussion - 20 min.

(6) Sagar Dh. – Equity
(7) SEA – UNEP

13.30-15.30 Plenary session 3: Responses to air pollution-related health risks

Chair: (2) Air Poll H risks responses

Speaker 1: Air quality management programme in Bengalooru a) KSPCB
Speaker 2: Asthma surveillance and management programme in Bengalooru b) High risk groups - exposure -
Speaker 3: Experiences from other cities (c) Paramesh – asthma

Speaker 4: (d) CH intervention. Indoor workplace
Discussion

Prof Srihari IIT Chennai ↓ adv to Govt of Karnataka

15.45-16.00 Briefing on how breakout sessions are to be conducted and their deliverables

16.00-17.30 Breakout session 1: Review of existing risk mitigation plans and preparing additional plans that can be implemented by workshop participants

Facilitators for the three breakout sessions George D Souza.

NIAS - MRT

Uma Nesi MZen →
M1 – Air quality standards
AP KS Hospital Hyd
NH – Dev Shetty

23 Jan **Workshop day 2, Auditorium, 5th Flr, Karnataka State Pollution Control Board, Parisara Bhavan, 49 Church Street, Bengalooru 560 001**

9.00-11.00 Plenary session 4: Learning from other experiences

Chair:

Speaker 1:
Speaker 2:
Speaker 3:
Speaker 4:

Response to Air pollu -
(1).
(2). Air quality B Jack
(3). Traffic mangent
(4). Arthur S — G Dsouza.
(5). GWIRDs
(6) Curative Srinath Reddy
vs
Preventive
Air poll ↔ Asthma → Frank Murray

11.15-12.45 Breakout session 2: Phasing and costing the plans

Facilitators

13.30-15.00 Breakout session 3: Taking responsibility

Facilitators

15.00-15.30 Tea break and group representatives of each breakout group to synthesize the 3 plans

15.30-16.30 Plenary session 5: Presentation of plans, general discussion and forming ad hoc coordination committee

Chair: Mr R Rajamani

16.30-17.00 Closing session: Conclusions

Chair: Mr R Rajamani

community health cell

From: Asthma Workshop [asthmaworkshop@gmail.com]
Sent: Wednesday, December 19, 2007 5:06 PM
Subject: Invite:Workshop on environmental health, 22-23 January 2008

Dear friend,

On behalf of Karnataka State Pollution Control Board, I have the pleasure of inviting you for the Workshop on environmental health—Intervention programmes for mitigating air pollution-related health risks, to be held in Bengalooru on 22-23 January 2008. The workshop is being organized by Cerana Foundation is association with KSPCB as co-organizer.

The workshop will bring together various stakeholders—air pollution sufferers and their networks, community health workers, regulators, town planners, health care professionals, the media and others to:

a) Formulate an action plan, in addition to those that exist, to tackle the issue of air pollution-related health risks, and to take individual and organizational responsibility to implement the plan, and

b) Encourage coalitions and partnerships and form a network to help implement this plan.

If you are interested in attending the workshop, please fill and return the attached registration form by 31st Dec 2007. The addresses and contacts are given in the form.

If you require assistance for travel and stay in Bengalooru, please let us know immediately.

With warm wishes,

Sincerely,

Mahalakshmi Parthasarathy

(KSPCB - Workshop – Secretariat

Workshop on Environmental Health:

Intervention programmes for mitigating air pollution related health risks

22-23 January 2008

Auditorium, Karnataka State Pollution Control Board, 3rd Floor, Parisara Bhavan, 49 Church Street, **Bengalooru 560 001**

The concept

This workshop is part of an environmental health workshop series initiated two years ago with a view to make risk bearers the key players in mitigating air pollution related health risks. In India, air pollution is estimated to cause, at the very minimum, 100,000 excess deaths and 25 million excesses illnesses every year. To effectively mitigate health risks of air pollution, air quality management and asthma (and other air pollution-related diseases) management programme must be supplemented with an effective community intervention programme.

Why Bengalooru

Bengalooru has the dubious distinction of being the asthma capital of India. Studies estimate that 10% of Bengalooru's 60 lakh population and over 50% of its children below 18 years suffer from air pollution related ailments. Environmental changes consequent to unplanned growth of the city through industrial development, increasing population and vehicular pollution are responsible for this. Nearly 1,500 new vehicles are registered in the city every day.

The workshop will focus on formulating specific action plans for high-risk groups that are susceptible to pollution by vehicular exhaust and through exposure to pollutants at home and at their workplaces. Other than children, these include traffic police, women, old people, quarry workers, industrial workers, long - distance commuters and just about everybody with significant exposure to air pollution.

Participants

Asthma and other air pollution affected persons, government and non-government and professional organizations, and individuals working in the fields of: air quality management, chest diseases, environmental health, community health, public health awareness programmes, and concerned citizens.

Organizers

Cerana Foundation, D 101 Highrise Apts, Lower Tank Bund Rd, Hyderabad 500 080. Telefax: 91 40 2753 6128 *in association with* **Karnataka State Pollution Control Board**, Attn: Mahalakshmi Parthasarathy, 302, 33/34/35, Amara Canopy Apts, 6th Cross, BTM 2nd Stage, Bengalooru 560 076. Tel: 91 80 2678 9637, 0 98455 75665 Email for workshop correspondence: asthmaworkshop@gmail.com

Sponsors

United Nations Environment Programme
A complete list of co-sponsors will be available at the workshop

Workshop format

- *Plenary Sessions:* To understand (through presentations) issues related to air pollution and its health risks in Bengalooru, and the current efforts being made to tackle them

- *Breakout Sessions:* To enable workshop participants to review existing air quality-related risk mitigation plans, and formulate additional plans (in small-group discussions) that they can commit to implementing as individuals or organizations

- *Informal Interactions:* To encourage the formation of coalitions and partnerships amongst workshop participants to execute implementation of formulated plans

Plan premise

Plans prepared by the participants must

- Pertain to *specific indoor conditions, workspaces, and ambient environments of their choice*
- Lay emphasis on *high-risk groups*
- Consist of three components; *interventions with risk bearers, health effects management and air quality management*
- Focus on children's asthma where relevant

Expected outcome

The workshop will:

- *Encourage the creation of a voluntary multidisciplinary task force of various stakeholders*
- *Provide information on low-cost interventions*
- *Raise public awareness of air pollution-related health risks*
- *Help in influencing public policy in air pollution related health risks*

Registration Request Form

The workshop requires no registration fee but ***only registered participants may attend the workshop.*** If you are interested in participating in the workshop, k**indly note the following requirements:**

Please fill the form below and email to **asthmaworkshop@gmail.com**
The attachment file containing your registration request must give your last name, eg, if your last name is Gupta, the attachment file must be titled gupta.doc or gupta.txt.

In case you wish to register through post, please mail a hardcopy of the filled form to
Cerana Foundation, D-101 Highrise Apts, Lower Tank Bund Rd, Hyderabad, AP, 500 080.
OR
Mahalakshmi Parthasarathy, KSPCB Workshop Secretariat, 33/34/35, Amara Canopy Apartment, Apt No 302, 6th Cross, BTM 2nd Stage, Bengalooru 560 076

Your forms must reach us no later than 31st Dec 2007. The workshop secretariat will confirm your registration by 10th January 2008. If you are unable to provide information regarding your arrival and departure at this point, please do so immediately on receipt of our confirmation.

Name: Mr/Ms/Dr*

Organization:

Mailing address:

Tel No: **Fax No:** **Email:**

Discipline: Environmental science/Engineering/ Health/Law/ Community organizer/ Media/ Environmental activism/ Other* (please specify)

Specialization (eg, air pollution monitoring, pulmonologist, environmental law, etc):

If you are not a Bengalooru resident, please provide information regarding your arrival and departure

Arrival mode: Air/ Train/ Bus*. **Arr dt:** **Expected arr time:**

Arriving from: **Flt/Train name & #:**

Arriving airport/ station/ bus stand:

Departure mode: Air/ Train/ Bus*. **Dep dt:** **Expected dep time:**

Departing to: **Flt/Train name & #:**

Departing airport/ station/ bus stand:

Will you participate on both days* **If for one day, will it be 22nd or 23rd***

Do you have any special diet restrictions?

* *Please strike off what is not applicable*

-Can local air pollution be mitigated without controlling global warming and moving without equity in consumption and emissions? S Dhara, Cerana Foundation (I will only speak if we are short of speakers in this session) decide on 27th .....
- Learning from South-east Asian initiatives in tackling air pollution related health risks; Mylvakanam Iyngararasan, UNEP.../long range transportation of pollutants...
Discussion

23 Jan

9.00-9.30 **Briefing on how breakout sessions are to be conducted and their deliverables**

9.30-11.00 **Breakout session 1: Review of existing risk mitigation plans and preparing additional plans that can be implemented by workshop participants**

Facilitators for the three breakout sessions

11.00-11.15 **Tea**

11.15-13.15 **Breakout session 2: Phasing and costing the plans**

Facilitators

13.15-14.00 **Lunch**

14.00-15.00 **Plenary session 4: Panel discussion: What do we need to do to win the war against air pollution in Bengaluru?**

Moderator: Dunu Roy/suggestions....

Suggested names for the panel: Paritosh Tyagi, S K Gupta, Mohan Mani, Combater, Leo Sultana, Vidya Dinker, Industry Association Representative, Sanjay Biswas, Nandan Nilekini or Narayana Murthy, Balakrishna Shetty, Ram Guha, Sharad Lele, M V Ramana, Yelappa Reddy ..... (max 6 persons, preferably with different views and experiences so that the discussion is lively and the panel can arrive at some consensus for some minimum set of recommendations)
Or
Panel discussion....
1 person from the traffic department + 1 from the KSPCB+ + 1 FROM BBMP+1 from industrial associations like NASSCOM /CII+ I from the IT industry itself (Nilekani if he has already agreed to be a part of it)+ 1 from the media /association+2 from NGO's working on Civic/Environmental issues CMCA/Janagraha- Ramesh Ramanathan/Samuel Paul PAC?) to discuss about the commitments relevant from their sector in combating air pollution...

14.00-15.00 **Synthesizing the various plans by breakout session group leaders**

15.00-15.15 Tea

15.15-16.15 **Plenary session 5: Presentation of plans, general discussion and forming ad hoc coordination committee**

Chair: Mr R Rajamani

16.15-16.45 Closing session: Conclusions

Chair: Mr R Rajamani

Comments on the workshop and how this process should be taken forward:
A participant
Member of ad hoc committee formed in the workshop
Representatives of each breakout session
BBMP
Arvind Janu
Sharatchandra or someone from KSPCB
Comments: Mylvakanam Iyngararasan, UNEP
Vote of thanks: T Vijayendra, Cerana Foundation

Notes on breakout sessions: The ideal group size for each breakout session is 10-15 persons. So, we can have about 6-7 groups. Keeping in mind the workshop's objectives, the Steering Committee wishes to have the participants prepare implementable plans for high risk groups in spaces that they are active in, ie, indoor spaces, workspaces (office and factory) and ambient spaces (on roads—traffic policemen, autorickshaw drivers, children commuting to school). We have 4 spaces—ambient (vehicular pollution exposure), indoor, factories and offices. Three plans should be made for each space—air quality management, asthma management, community intervention. However, asthma management is the same (more or less) for all spaces, so we need only one beakout group to discuss that issue. All the spaces then require breakout groups for air quality management and community management. However, air quality in ambient spaces is regulated by the PCBs, factory spaces by the Factories Inspectorate and indoor and office spaces are unregulated. Factories and offices have unions, whereas ambient and indoor spaces do not. Considering these factors, I suggest the following breakout sessions:

Breakout session 1—Asthma management for all spaces
Breakout session 2—Ambient air quality management
Breakout session 3—Factory air quality management
Breakout session 4—Air quality management in unregulated spaces (indoors and office)
Breakout session 5—Community intervention for factories and offices
Breakout session 6—Community intervention for ambient and indoor spaces

If we had only 60 participants on the 2nd day, that would make 10 persons per group. Anything more than that number would increase the average number in each breakout group.

community health cell

From: Asthma Workshop [asthmaworkshop@gmail.com]

Sent: Wednesday, December 19, 2007 5:30 PM

To: chc@sochara.org; cmcaexpressions@yahoo.co.in; qwarids@vsnl.net; premalata53@hotmail.com; pramodkulkarni@vsnl.net; prajnamali@yahoo.com; prabhu@samarthan.in; sukan_r@rediffmail.com; janasahayog@gmail.com; vhak@bgl.vsnl.net.in; garment_workers@yahoo.com; girishnrao@yahoo.com; vadesha@gmail.com; dhenuka@teri.res.in

Subject: Request for co-sponsorship for the air pollution and Environmental Health workshop....

Dear

As we discussed on the phone, please send a letter on thez letterhead of your organisation addressed to "Cerana Foundation D-101 High rise Apartments, Lower Tank Bund Road, Hyderabad -500080", stating that your organization will co-sponsor the Bangalore w/shop. You can mention that as a co-sponsor one does not bear any financial or organizational liabilities for this workshop. Please do include your logo if you have one.

You can send a hard copy of the letter to me at; Mahalakshmi Parthasarathy, Workshop Secretariat, Amara Canopy Apartment, 33/34/35, Apt 302, 6 th cross, BTM – 2nd stage, Bangalore -560076.

Warm Regards

Mahalakshmi

Draft

Workshop on environmental health:

Intervention programmes for mitigating air pollution-related health risks

Bengaluru, 22-23 January 2008

KSPCB Auditorium, ~~5~~th Flr, Karnataka State Pollution Control Board, Parisara Bhavan, 49, Church Street, Bengaluru 560 001

Day 1

9.00-10.15 Registration & networking

10.30-11.15 Inaugural session

His Excellency, The Governor, Karnataka State, will inaugurate the workshop by lighting a lamp
R Rajamani, Facilitator
Sagar Dhara, Director, Cerana Foundation, Welcome address
H C Sharatchandra, Chairman, KSPCB
Surendra Shrestha, Director, Asia-Pacific Region, UNEP, Keynote address
Venkatesh, KSPCB, Vote of thanks

Note: If Sengupta and Meena Gupta come, they will have to be accommodated in the inaugural session. We also have to decide when the Governor will speak

11.15-11.30 Tea

Note: Each plenary session may have a maximum of 5 speakers @15 min each, with a 30 min discussion at the end. A list of speakers and their topics has been suggested and a final selection has to be made from the list. We had earlier agreed that Bengaluru will contribute 3 speakers to sessions 2 & 3, and the remaining speakers in these sessions will be from outside. For session 1, the speakers may largely be from outside Bengaluru, though I would strongly recommend that someone from Bengaluru who has used yoga be included in this session. These are only guidelines and should not become sticking issues, as this is one point on a long road, and everyone will get a chance to make her/his point. Suggestions for speakers and their topics are given below.

11.30-13.15 Plenary session 1: Air pollution-related health risks

Chair:

The air pollution in Bengalooru: Simha*
Air pollution-related illnesses in Bengalooru: Parmesh*
Community health intervention programmes in Bengalooru: Ravi Narain*, CHC
Air pollution and morbidity in Bengaluru, ~~Uma~~, ~~Emzen~~
Have the setting of air standards helped in mitigation air pollution related health risks? H K Parwana*, Punjab PCB
~~Air pollution and~~ cardiovascular ~~risk, Devi Shetty, Narayana Hrudayala~~ya

Shift to 2

x Sandla - NAMA, Labour Net, construction workers.
TERI - indoor air poll. Dr Renuka

discussed during planning meeting on 27th Dec at KSPCB
2/1/08

Air Pollution and eye injury, A S Venkatachalam, Hyderabad

Discussion

13.15-14.00 **Lunch**

14.00-15.45 **Plenary session 3: Responses to air pollution-related health risks**

Chair:

Air quality monitoring and regulation in Bengaluru: Current and future programmes, Sharat*
Planning for good air quality in Bengaluru, ~~Neerja Kumari~~
Traffic management in Bengaluru, M N Sreehari
Asthma surveillance and management programme in Bengaluru: George D'Souza*
The plight of a silicosis-affected quarry worker and why the system has failed him: Thomas, QARRIDS
Why has curative medicine taken precedence over preventive medicine in air pollution-related health effects: Thelma Narain, CHC
~~How good is the correlation between air pollution and asthma? Frank Murray~~
Experience of using yoga/ holistic medicine for managing repiratory illnesses,
Discussion

15.45-16.00 **Tea**

16.00-17.45 **Plenary session 3: Learning from other experiences**

Chair:

The Bangladesh air pollution related health risk mitigation experience: Hashmi*, Ministry of Environment, Bangladesh
The bucket brigade: Nityanand,
Can town planning be done differently to minimize air pollution related health risks? S K Gupta, Envirotech or someone else
Can local air pollution be mitigated without controlling global warming and without equity in consumption and emissions? S Dhara, Cerana Foundation (I will only speak if we are short of speakers in this session)
Learning from South-east Asian initiatives in tackling air pollution related health risks; Mylvakanam Iyngararasan*, UNEP

23 Jan

9.00-9.30 **Briefing on how breakout sessions are to be conducted and their deliverables**

9.30-11.00 **Breakout session 1: Review of existing risk mitigation plans and preparing additional plans that can be implemented by workshop participants:** Gap analysis, identifying critical elements that if put into place can help reduce air pollution related health risks, what is required to put these elements into place in light of the impediments for putting them into place.

Facilitators for the three breakout sessions

11.00-11.15 **Tea**

11.15-13.15 **Breakout session 2: Phasing and costing the plans:** Prioritising the elements required to be put into place, who will put them into place, what cooperation is required from other agencies, timelines and costs for putting these elements into place, action plan.

Facilitators

13.15-14.00 **Lunch**

14.00-15.00 **Plenary session 4: Panel discussion: What do we need to do to win the war against air pollution in Bengaluru?**

Moderator: Dunu Roy

Suggested names for the panel: KSPCB, Bengaluru Planning Dept, P K Mohanty, Jamasahyog, Dominic Misquith, Moham Mani or some NGO (max 6 persons, preferably with different views and experiences so that the discussion is lively and the panel can arrive at some consensus for some minimum set of recommendations)

14.00-15.00 **Synthesizing the various plans by breakout session group representatives**

15.00-15.15 Tea

15.15-16.15 **Plenary session 5: Presentation of plans, general discussion and forming ad hoc coordination committee**

Chair: Mr R Rajamani

16.15-16.45 **Closing session: Conclusions**

Chair: Mr R Rajamani

Comments on the workshop and how this process should be taken forward:
A participant
Member of ad hoc committee formed in the workshop
Representatives of each breakout session
BMMP
Arvind Janu
Sharatchandra or someone from KSPCB
Comments: Mylvakanam Iyngararasan, UNEP
Vote of thanks: T Vijayendra, Cerana Foundation

Notes on breakout sessions: The ideal group size for each breakout session is 10-15 persons. So, we can have about 6-7 groups. Keeping in mind the workshop's objectives, the Steering Committee wishes to have the participants prepare implementable plans for high risk groups in spaces that they are active in, ie, indoor spaces, workspaces (office and factory) and ambient spaces (on roads—traffic policemen, autorickshaw drivers, children commuting to school). We have 4 spaces—ambient (vehicular pollution exposure), indoor, factories and offices. Three plans should be made for each space—air quality management, asthma management, community intervention. However, asthma management is the same (more or less) for all spaces, so we need only one beakout group to discuss that issue. All the spaces then require breakout groups for air quality management and community management. However, air quality in ambient spaces is regulated by the PCBs, factory spaces by the Factories Inspectorate and indoor and office spaces are unregulated. Factories and offices have unions, whereas ambient and indoor spaces do not. Considering these factors, I suggest the following breakout sessions:

Breakout session 1—Asthma management for all spaces
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Breakout session 3—Factory air quality management
Breakout session 4—Air quality management in unregulated spaces (indoors and office)
Breakout session 5—Community intervention for factories and offices
Breakout session 6—Community intervention for ambient and indoor spaces

If we had only 60 participants on the 2nd day, that would make 10 persons per group. Anything more than that number would increase the average number in each breakout group.

Agenda for the Workshop on environmental health: *Intervention programmes for mitigating air pollution-related health risks*
Bengalooru, 22-23 January 2008

KSPCB Auditorium, 5th Flr, Karnataka State Pollution Control Board, Parisara Bhavan, 49, Church Street, Bengalooru 560 001

Day 1

9.00-10.00 **Registration & networking**

10.00-10.45 **Inaugural session**

Mr Sagar Dhara, *Cerana Foundation*, Welcome address
Dr H C Sharatchandra, *KSPCB*, Presidential remarks
Mr Surendra Shrestha, *UNEP*, Keynote address
Mr R Rajamani, *Retired civil servant, MoEF*, Facilitator's remarks
Mr B Venkatesh, *KSPCB*, Vote of thanks

10.45-11.00 **Tea**

11.00-13.00 **Plenary session 1: Air pollution-related health risks**

Chair: Dr Jayaram G K, *ILID*

Mr Mylvakanam Iyngararasan, *UNEP*, Learning from South-east Asian experiences in tackling air pollution related health risks
Dr H Parmesh, *Lakeside Hospital*, Air pollution-related illnesses in Bengalooru
Dr Sukanya Rangamani, *CHC*, Communities Health and air pollution—Community action to mitigate environmental health risks
Dr B Nagappa, *KSPCB*, Ambient air pollution in Bengalooru
Ms Dhenuka Srinivasan, *TERI*, Indoor air pollution

Discussion

13.00-13.45 **Lunch**

13.45-15.45 **Plenary session 2: Current responses and challenges to air pollution-related health risks**

Chair: Dr Mahesh Babu R, *Consulting physician*

Mr Anand Rao, *BMTC*, Traffic planning for better air quality in Bengaluru
Mr M D N Simha, *KSPCB*, Air quality monitoring and regulation in Bengaluru: Current and future programmes
Dr George D'Souza, *St John's Hospital*, Surveillance of asthma and other lung diseases
Testimonies of affected persons: Quarry worker, Garbage worker, Garment worker,
Ms Jayashree, *QWRIDS*, Has the system been able to respond to the plight of *"aam admi" who is affected by air pollution?*

Discussion

15.45-16.00 **Tea**

16.00-17.30 **Plenary session 3: Other experiences and broader issues**

Chair: Mr Paritosh Tyagi, *Retired civil servant, CPCB*

Dr A Venkatachalam, *Consulting ophthalmic surgeon*, Air pollution and ocular complications
Prof S Shivkumar, *M S Ramaiah Institute of Technology* Planning towns to minimize air pollution related health risks
Dr Rajendra Prasad, *Indian Association of Air Pollution Control,* Have air quality standards helped in mitigating air pollution related health risks?
Mr Sagar Dhara, *Cerana Foundation*, Local & global air pollution—2 sides of the same coin that can only be tackled only together and only through equity in carbon emissions

Discussion

23 Jan

9.00-9.30 **Briefing on how breakout sessions deliverables and methodology**

9.30-11.15 **Breakout session 1: Review of existing risk mitigation plans (if relevant), preparing additional plans that can be implemented by workshop participants:** Gap analysis, identifying critical elements that if put into place can help reduce air pollution related health risks, what is required to put these elements into place in light of the impediments for putting them into place.

Breakout session 1—Asthma management for all spaces, Facilitators: Dr Athar Qureshi, *Physician and community health worker*
Breakout session 2—Ambient air quality management, Facilitator: Mr Paritosh Tyagi, *Retired civil servant*, CPCB, Dr Vinay Vishwanath, *CHC*
Breakout session 3—Factory air quality management, Facilitators: Mr S K Gupta, *Indian Association of Air Pollution Control*
Breakout session 4—Air quality management in unregulated spaces (indoors & office): Facilitators: Dr Vinay Kumar, *Software consultant, environmentalist and organic farmer*, Mr S J Chander, *Institute of Public Health*
Breakout session 5—Community intervention for factories and offices, Facilitators: Mr Cyril Fernandes, *Worker, trade unionist and environmental activist*, Dr Sukanya Rangamani, *CHC*
Breakout session 6—Community intervention for ambient and indoor spaces, Facilitators: Ms Priya Patel, *Community health specialist*, Dr E Premdas, *CHC*

The correct breakout sessions, their members, facilitators and each session's mandate will be circulated on the 23rd morning.

11.15-11.30 **Tea**

11.30-13.15 **Breakout session 2: Phasing and costing the plans:** Prioritising the elements required to be put into place, who will put them into place, what cooperation is required from other agencies, timelines and costs for putting these elements into place, action plan.

Breakout session 1—Asthma management for all spaces, Facilitators: Dr Athar Qureshi, *Physician and community health worker*
Breakout session 2—Ambient air quality management, Facilitator: Mr Paritosh Tyagi, *Retired civil servant*, CPCB, Dr Vinay Vishwanath, *CHC*
Breakout session 3—Factory air quality management, Facilitators: Mr S K Gupta, *Indian Association of Air Pollution Control*

Notes for breakout sessions

Deliverables: Formulation of specific intervention programmes by each breakout session

The programme can be as diverse as lobbying with government to get specific things done, eg, banning private transport in the inner city during certain hours, improving public transport; workshop participants doing public awareness programmes, setting up community self-help groups for identification and management of asthma, tree planting, doing continuing medical education amongst health workers on asthma management, setting up partnerships, etc.

The single most important criteria is that the programmes formulated in the breakout sessions must be implementable by workshop participants, and the workshop participants should take responsibility to implement them.

Formulating the intervention programmes

The first day of the workshop provides inputs for the participants to prepare their intervention programmes. All breakout sessions are scheduled for the second day. The breakout sessions initially suggested were:

Breakout session 1—Asthma management for all spaces, Facilitators: Athar Qureshi, Physician and community health worker
Breakout session 2—Ambient air quality management, Facilitator: Paritosh Tyagi, Retired civil servant, CPCB
Breakout session 3—Factory air quality management, Facilitators: S K Gupta, Indian Association of Air Pollution Control
Breakout session 4– -Air quality management in unregulated spaces (indoors & office): Facilitators: Vinay Kumar, Software consultant, environmentalist and organic farmer
Breakout session 5—Community intervention for factories and offices, Facilitators: Cyril Fernandes, Worker, trade unionist and environmental activist
Breakout session 6—Community intervention for ambient and indoor spaces, Facilitators: Priya Patel, Community health specialist

This will be reviewed on the 22nd evening and the final plan for the number of breakout sessions and the topic for each break session and their facilitators, and who would be in which breakout session will be announced on the 23rd morning. The groups in each breakout will be mixed. Health workers will be put not just in Breakout session 1, but in all other breakout sessions as these sessions require their inputs. This will hold for people from other backgrounds as well. You may however, indicate in writing to the organizers which breakout session you would prefer to join.

Step 1: Review of existing air pollution related health risk programmes

Air pollution related health risk mitigation programmes include programmes such as: a) Reduce pollution emissions, eg, engineering controls, eg, use of unleaded gasoline, low sulphur diesel, greater use of public transport and lesser use of private transport, b) Facilitating better dispersion of pollutants, eg, redesigning habitats, better traffic control, c) Reduce human exposure to pollutants, eg, Use of respiratory protection devices by workers working in dusty areas, d) Increasing public awareness

In the next step, is to spell out the present status of each issue for which a future vision has been listed. The intervention programme prepared in the Mumbai workshop, provided to you at the time of registration, will give you some idea of how this is done.

Step 2.3 Desired action

In this step, the action required to go from the present status to the vision should be detailed out to the extent possible. This may, for example, include the action steps required to make the leap from the present status to the visioned state, the phases and timeline for them, who amongst the partners would take the responsibility for implementing the action steps, who would they choose as their partners, who would be the target groups of the action.

Action Steps
Phases
Timeline
Resp partners/ coalition
Tg

You may add to these sub-heads. But please remember, if the ad hoc committee is formed (as we desire), you will have more time to work out greater details later. Right now, what is important to do is to produce a credible plan that the workshop participants take ownership off and take responsibility for implementing.

It may be a good idea if the action plan elements are kept simple and do-able by the workshop participants.

Step 3 Prioritizing the action plan by multi-voting

In the last step, ideas from Step 1 and 2 are ranked by a process of multi-voting, where participants vote for one or more vision idea. The number of votes that each idea gets will determine its priority.

Step 4: Integrating and harmonizing the plans

Each breakout session should elect a representative who can integrate and harmonize the output of his/her breakout session and with those of other breakout sessions in a discussion with other breakout session representatives. This exercise can be done during lunch and when the panel discussion takes place post-lunch on 23rd January.

The output of each breakout session will then be presented by its representative in Plenary session 5.

Step 5: Forming an ad hoc committee and a convener to do followup work on the workshop deliverables

In Plenary session 5, the intervention programmes formulated in the breakout sessions will be presented and discussed. To followup on the implementation of the deliverables, the participants may form an ad hoc committee from amongst themselves. Alternatively, select a convener and fix a meeting date for a followup meeting, when a committee may be formed.

about recognizing asthma, e) Setting up asthma help centres, e) Community health outreach programmes for asthma, etc.

Various government and non-government organizations have plans to mitigate air pollution related health risks. If any such plans for Bengalooru, eg, the Task Force on Air Quality Management for Bengalooru is available to you, you may choose to review it. However, any review that you do and conclusions that you arrive at must be implementable by you. For example, if you wish to offer critical comments on the town development plans, you must have the commitment and the wherewithal to reach your comments to policy makers and the town planners, and be taken seriously. You review may make you add to existing plans, eg, how to improve or increase health care outreach programmes presently being undertaken by certain hospitals, or linking such programmes being undertaken by several organizations. Again, you suggestions should be such that you, collectively, are willing to take responsibility for the intervention plans you suggest.

If you do not have access to existing plans, please do not spend time trying to review plans from cursory knowledge of such plans gleaned from newspapers. Please remember that an attempt will be made in this workshop to form an ad hoc committee to take the programmes formulated forward. Such reviews can always be done by that committee later, after studying existing plans.

Step 2: Suggest supplemental programmes to reduce air pollution related health risks

The supplemental plans for air pollution related health risk mitigation must be in addition to those that already exist. For example, as far as our knowledge goes, there are no community health outreach programmes for asthmatics. Such programmes may include training community health workers to identify asthmatics, particularly in low income and high risk groups, training asthmatics to recognize their triggers, setting up systems to handle asthma emergencies, developing an asthma network consisting of all stakeholders in Bengalooru city, using FM radio stations to do interactive programmes with parents of asthmatic children, working with school children using diffusive samplers to monitor pollution levels in community neighbourhoods, training communities to minimize indoor and outdoor air pollution, training workers on the law pertaining to shopfloor toxins, etc.

The programmes must be practical and implementable by the workshop participants. The way to arrive to arrive at these ideas are suggested below:

Step 2.1 Visioning

Individuals in each breakout session may spell out their vision of the specific improvements they wis' made in future for the issue they were dealing with. All ideas will be written on slips and posted on a board, without too much comment from other members of the breakout session. Ideas will then be clubbed by major heads, eg, public participation, technology shifts, asthma surveillance systems, advocacy, etc. Ideas that did not fall into any major head may be temporarily put into a "temporary parking lot", to be dealt with later. Vision ideas may also classified as—short-term, medium-term and long-term. Only such ideas that the participants expect that they can implement should be worked upon further; these will be primarily short and medium term plans.

Step 2.2 Present status

Agenda for the Workshop on environmental health: *Intervention programmes for mitigating air pollution-related health risks* Bengalooru, 22-23 January 2008

KSPCB Auditorium, 5th Flr, Karnataka State Pollution Control Board, Parisara Bhavan, 49, Church Street, Bengalooru 560 001

Day 1

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Mr Surendra Shrestha, *UNEP*, Keynote address
Mr R Rajamani, *Retired civil servant, MoEF,* Facilitator's remarks
Mr B Venkatesh, *KSPCB*, Vote of thanks

10.45-11.00 **Tea**

11.00-13.00 **Plenary session 1: Air pollution-related health risks**

Chair: Dr Jayaram G K, *ILID*

Mr Mylvakanam Iyngararasan, *UNEP*, Learning from South-east Asian experiences in tackling air pollution related health risks
Dr H Parmesh, *Lakeside Hospital*, Air pollution-related illnesses in Bengalooru
Dr Sukanya Rangamani, *CHC*, Communities Health and air pollution—Community action to mitigate environmental health risks
Dr B Nagappa, *KSPCB*, Ambient air pollution in Bengalooru
Ms Dhenuka Srinivasan, *TERI*, Indoor air pollution

Discussion

13.00-13.45 **Lunch**

13.45-15.45 **Plenary session 2: Current responses and challenges to air pollution-related health risks**

Chair: Dr Mahesh Babu R, *Consulting physician*

Mr Anand Rao, *BMTC*, Traffic planning for better air quality in Bengaluru
Mr M D N Simha, *KSPCB*, Air quality monitoring and regulation in Bengaluru: Current and future programmes
Dr George D'Souza, *St John's Hospital*, Surveillance of asthma and other lung diseases
Testimonies of affected persons: Quarry worker, Garbage worker, Garment worker,
Ms Jayashree, *QWRIDS*, Has the system been able to respond to the plight of *"aam admi" who is affected by air pollution?*

Discussion

15.45-16.00 **Tea**

16.00-17.30 **Plenary session 3: Other experiences and broader issues**

Chair: Mr Paritosh Tyagi, *Retired civil servant, CPCB*

Dr A Venkatachalam, *Consulting ophthalmic surgeon*, Air pollution and ocular complications
Prof S Shivkumar, *M S Ramaiah Institute of Technology* Planning towns to minimize air pollution related health risks
Dr Rajendra Prasad, *Indian Association of Air Pollution Control,* Have air quality standards helped in mitigating air pollution related health risks?
Mr Sagar Dhara, *Cerana Foundation*, Local & global air pollution—2 sides of the same coin that can only be tackled only together and only through equity in carbon emissions

Discussion

23 Jan

9.00-9.30 **Briefing on how breakout sessions deliverables and methodology**

9.30-11.15 **Breakout session 1: Review of existing risk mitigation plans (if relevant), preparing additional plans that can be implemented by workshop participants:** Gap analysis, identifying critical elements that if put into place can help reduce air pollution related health risks, what is required to put these elements into place in light of the impediments for putting them into place.

Breakout session 1—Asthma management for all spaces, Facilitators: Dr Athar Qureshi, *Physician and community health worker*
Breakout session 2—Ambient air quality management, Facilitator: Mr Paritosh Tyagi, *Retired civil servant*, CPCB, Dr Vinay Vishwanath, *CHC*
Breakout session 3—Factory air quality management, Facilitators: Mr S K Gupta, *Indian Association of Air Pollution Control*
Breakout session 4—Air quality management in unregulated spaces (indoors & office): Facilitators: Dr Vinay Kumar, *Software consultant, environmentalist and organic farmer*, Mr S J Chander, *Institute of Public Health*
Breakout session 5—Community intervention for factories and offices, Facilitators: Mr Cyril Fernandes, *Worker, trade unionist and environmental activist*, Dr Sukanya Rangamani, *CHC*
Breakout session 6—Community intervention for ambient and indoor spaces, Facilitators: Ms Priya Patel, *Community health specialist*, Dr E Premdas, *CHC*

The correct breakout sessions, their members, facilitators and each session's mandate will be circulated on the 23rd morning.

11.15-11.30 **Tea**

11.30-13.15 **Breakout session 2: Phasing and costing the plans:** Prioritising the elements required to be put into place, who will put them into place, what cooperation is required from other agencies, timelines and costs for putting these elements into place, action plan.

Breakout session 1—Asthma management for all spaces, Facilitators: Dr Athar Qureshi, *Physician and community health worker*
Breakout session 2—Ambient air quality management, Facilitator: Mr Paritosh Tyagi, *Retired civil servant*, CPCB, Dr Vinay Vishwanath, *CHC*
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Breakout session 6—Community intervention for ambient and indoor spaces, Facilitators: Ms Priya Patel, *Community health specialist*, Dr E Premdas, *CHC*

13.15-14.00 **Lunch**

14.00-15.00 **Plenary session 4: Panel discussion: What do we need to do to win the war against air pollution in Bengaluru?**

Moderator: Mr S K Gupta, *Indian Association of Air Pollution Control*

Panel: Mr H Srinivasiah, *Factories Inspectorate, Government of Karnataka*
Mr Arvind Jannu, *Department of Environment and Ecology, Government of Karnataka*
Mr P H Rane, *Traffic Department, Bengalooru Police*
Mr Govinda Raj, *Bruhat Bangalooru Mahanagara Palike*
Dr Jagdish Chinappa, *Indian Association of Pediatrics*
Mr V N Subba Rao, *Karnataka Media Academy*

13.15-15.00 **Synthesizing the various plans by breakout session group representatives** (who may sit separately through a working lunch and during the panel discussion time)

15.00-15.15 **Tea**

15.15-16.15 **Plenary session 5: Presentation of plans, general discussion and forming ad hoc coordination committee to continue work in Bengaluru**

Chair: Mr R Rajamani, *Retired civil servant, MoEF*

Brief presentations by representatives from each breakout sessions

Discussion

16.15-16.45 **Closing session: Conclusions**

Chair: Mr R Rajamani, *Retired civil servant, MoEF*

Comments on the workshop and how this process should be taken forward:
Convener, *Ad hoc committee formed in the workshop*
Dr Neerja Rajkumar, *Air Quality Management Task Force for Bengalooru, Government of Karnataka*
Mr Mylvakanam Iyngararasan, *UNEP*
Dr H C Sharatchandra, *KSPCB*
Mr T Vijayendra, *Cerana Foundation*, Vote of thanks,

13 Nov 2007

Dear

I wish to invite you or a representative from your organization on behalf of Karnataka State Pollution Control Board for a meeting at **3 pm on Monday, 19th Nov 2007** at the Karnataka State Pollution Control Board, Conference Room, 5th Floor, Parisara Bhavan, 49 Church Street (parallel to MG Road), Bengalooru - 560 001 (Tel: 80-25581383, 25589112, 25586520) to discuss and plan for a forthcoming workshop on air pollution and environmental health—children's asthma. The workshop is to be held on 22-23rd Jan 2008 in Bengalooru with 100-125 invited participants. The draft announcement of the workshop is attached.

The workshop will be distinctive from other workshops as it will not only discuss the subject through presentations made by people with experience in the fields of air pollution management, asthma management and community interventions, but will provide about half the workshop time for breakout sessions which will allow the workshop participants to work out intervention plans to mitigate air pollution, improve health care for air pollution related health effects and do community interventions to help communities to mitigate the risk they face, and to take specific responsibility for implementing these intervention plans. It is envisaged that the workshop will help in congeal a core group at Bangalore from the areas mentioned above to carry forward the interventions that are essential to mitigate air pollution.

The meeting agenda will be:

1. Workshop venue
2. Workshop flyer
3. Steering Committee formation
4. Workshop methodology
5. Workshop agenda (draft)
6. Workshop speakers (suggestions)
7. Workshop participants (suggestions)

As previous experience in running such workshops exists, many of the agenda items can be covered quite quickly. The Mumbai workshop report and other background material will be distributed at the meeting.

For any further information prior to the meeting, please feel free to contact me at:
Mahalakshmi - Mob: 98455 75665/ 080-26789637.

I look forward to seeing you at the meeting.

Sincerely,

Air pollution – main problem - burning of fossil fuels.

1) Air quality Management,
2) Asthma intervention → Protocols
3) Community interventions. – to prevent emergencies.

His own understanding - air pollution is the major culprit.

UNEP/CERANA → no commitment for follow-up.

MoE
CPSCB
IAAPC
KSPCB.

1) organization - voluntarily
2) commitment to take it forward.

Planing of

Smoking
Living condn.
pollution while travelling.

Garment workers → TB..
↘ Can cloth use.

Delhi
CNG

PM10↑

"Taskforce in Blore"

Action plan for specific groups – → Quarry workers
→ Garment "

Asia Pacific Director of UNEP.

Plenary 1 - 2hrs - What is the problem? 20 min. ← Air quality
Asth "
Co. intn.

What is being done → 20 min. ← AQ
Why is not being done? Any
CInt.
Authority - Afacific Exp.

Bout 1 → AQ
Asth M.

2 → Phase out plan, Implmn. responsibility.

Plenary 3 - What more can be done? experiences.

Mahalakshmi Parthasarathy
Ps: please copy all emails to me and Sagar Dhara

Workshop on air pollution and environmental health—children's asthma

Bangalooru, 22-23 January 2008

Air pollution and its related impacts on human health has become visibly severe. Over 300 million people suffer from asthma worldwide (WHO), and the number is rising. The human and economic burden associated with asthma surpasses that of HIV/AIDS and tuberculosis combined. In India, air pollution is estimated to cause, at the very minimum, 100,000 excess deaths and 25 million excesses illnesses per year.

To mitigate this impact quickly, air pollution control and health care interventions must be supplemented with an effective community-based intervention programme aimed at involving risk bearers participating in solving their problems. This workshop will allow its participants to make air pollution control, health care and community intervention plans for Bangalore; and encourage government, professional and civil society organizations, and individuals to commit to taking specific responsibility to implement the intervention plans. It is hoped that a committee will be formed to followup on the workshop's recommendations. Childhood asthma is a good indicator of the prevailing problem, hence has been chosen as the focal theme. The first workshop of this kind was conducted successfully with 80 Indian and foreign participants in Mumbai in June 2005. More such workshops are planned for other cities later.

The workshop will discuss:

- ***Air pollution and health effects and estimation of air pollution-related injury***
- ***Air pollution management interventions to reduce air pollution exposures***
- ***Health care interventions to mitigate asthma***
- ***Community interventions to help people mitigate air pollution-related health risks***

Health care approach to Asthma.

The workshop will attempt to produce an action plan to:

- ***Improve understanding of asthma and its relationship to air pollution***
- ***Train asthma patients and communities to recognize air pollution related health effects and improve asthma management***
- ***Improve management of air pollution and its related health effects***

- ***Develop approaches to help minimize exposure to air pollution***
- ***Encourage coalition building between affected communities and those working on issues related to air pollution control and its health effects***
- ***Create partnerships between government agencies and community-based organizations***
- ***Encourage participants and other agencies to commit to taking specific responsibilities to implement the workshop's recommendations***

Participants: Asthma patients and networks, community health workers, professionals—government and non-government—working in the fields of air pollution control, environmental health, and communicators

Organizer: Cerana Foundation, D-101 Highrise Apts, Lower Tank Bund Rd, Hyderabad 500 080. Telefax: 40 2753 6128. Email: **cranafdn@rediffmail.com**

Sponsors: UNEP, Karnataka State Pollution Control Board.

Name: Mr/Ms/Dr* Dr.Vinay Viswanatha, Mr.E.Premdas,Dr.R.Sukanya,Ms.Jayasree

Organization: Community Health Cell

Mailing address: 359 (Old No. 367), Srinivasa Nilaya,
Jakkasandra, I Main, I Block, Koramangala, Bangalore- 560034

Tel No: 91 - 80 - 25531518 **Fax No:** 25525372 **Email: chc@sochara.org**

Discipline: Environmental science/Engineering/ Health/Law/ Community organizer/ Media/ Environmental activism/ Other* (please specify)

Specialization (eg, air pollution monitoring, pulmonologist, environmental law, etc):

If you are not a Bengalooru resident, please provide information regarding your arrival and departure

Arrival mode: Air/ Train/ Bus*. **Arr dt:** **Expected arr time:**

Arriving from: **Flt/Train name & #:**

Arriving airport/ station/ bus stand:

Departure mode: Air/ Train/ Bus*. **Dep dt:** **Expected dep time:**

Departing to: **Flt/Train name & #:**

Departing airport/ station/ bus stand:

Will you participate on both days* If for one day, will it be 22nd or 23rd* : Both days - 2 ; 23rd - 2 or 3 persons

Do you have any special diet restrictions?

** **Please** strike off what is not applicable*

Notes on the breakout sessions from the Mumbai workshop

Breakout session 1

Air quality management interventions: Gap analysis, identifying critical elements that, if put into place, can help reduce asthma incidence, what is required to put these elements into place and what are the impediments for putting them into place.

Asthma management interventions: Gap analysis, identifying critical elements that if put into place can help reduce asthma incidence, what is required to put these elements into place and what are the impediments for putting them into place, who will put them into place, what cooperation is required from other agencies, timelines and costs for putting these elements into place.

Community interventions: Gap analysis, identifying critical elements that if put into place can help reduce asthma incidence, what is required to put these elements into place and what are the impediments for putting them into place, who will put them into place, what cooperation is required from other agencies, timelines and costs for putting these elements into place.

Breakout session 2

Air quality management interventions: Prioritising the elements required to be put into place, who will put them into place, what cooperation is required from other agencies, timelines and costs for putting these elements into place, action plan.

Asthma management interventions: Prioritising the elements required to be put into place, who will put them into place, what cooperation is required from other agencies, timelines and costs for putting these elements into place, action plan.

Community interventions: Prioritising the elements required to be put into place, who will put them into place, what cooperation is required from other agencies, timelines and costs for putting these elements into place, action plan.

Breakout session methodology

The sequential steps followed in preparing the action plan are given below:

Visioning: Individuals spelt out their vision of the specific improvements they wish made in future for the issue they were dealing with. Vision ideas were clubbed by major heads. Ideas that did not fall into any major head were temporarily put into a "parking lot", to be dealt with later. Vision ideas were also classified as—short-term, medium-term and long-term.

Present status: In the next step, each group spelt out the present status of each issue.

Desired action: In the third step, each group worked out the action that is required to go from the present status to the vision they had spelt out.

Multi-voting: In the last step, vision ideas were ranked by a process of multi-voting.

Groups

Workshop participants were divided into three groups to prepare action plans. Trained persons facilitated the discussion in each group. Ground rules were followed for smooth functioning of the groups. The members of each group are listed below.

Action plan 1: Air quality management

Action plan for the air quality management suggested interventions in the following areas: Planning air quality management, public participation, emission control, transport sector and technology shifts.

Air quality management: *Planning of air quality management*

Present status	Action required	Vision
• Many pristine environments not identified, therefore unprotected	• Identify ecologically sensitive areas (ESAs), and notify them	• ESAs, eg, Western Ghats, identified and notified; pristine environments protected
• Areas of high risk associated with poor air quality inadequately identified	• Identify areas with high risk associated with poor air quality, do air quality monitoring, and establishing baseline datums • Assess risk posed by air quality in different areas • Action plan to reduce emissions and improve air quality include elements such as: o Re-zoning of areas to using GIS to reduce risk associated with poor air quality o Set up new licensing standards o Prohibit indiscriminate biomass burning o Establish new infrastructure for the transport sector o Move towards more eco-friendly transport systems and technologies, eg, bicycles and bicycle tracks o Carrying capacity of air sheds should be established before siting air polluting industries and sources o Provide financial help for cleaner technologies and fuels • Fix appropriate management strategies for each area • Monitor effectiveness of action plan	• Reduced risk in areas that previously had high risk associated with poor air quality • Greater emphasis put on preventing asthma than curing it
• Lack of integration between development planning and environmental protection • Over-dependence on command and control methods via the regulatory mechanisms	• Link project funding to environmental sustainability • Rely less on foreign funding • Use Indian funding for environmentally sustainable projects • Prepare & circulate paper on air pollution and health impacts • Draw action plan to make all air pollution policies and plans in consultation with public	• Urban planning and environmental protection are integrated • Strategic environmental planning emphasized over regulatory control

Air quality management: *Public participation*

Present status	Action required	Vision
• Limited awareness about environmental issues	• Include environmental education as part of school syllabus from lower classes • Have more field trips/workshops in environmental education • Create environmental awareness among adults through cultural programmes, workshops, banners, etc • Hold more drawing, painting, quiz competitions on environmental topics for kids • Do more "public rights-based" awareness programmes • Do follow-up programmes after doing awareness programmes	• Increased public (adults and children) awareness on environmental issues • Better public awareness of health implications of indoor and outdoor air pollution
• Public has limited rights to environmental information	• Increase number of air quality monitoring stations and publicize data from these stations • Public information cells must be created in pollution control boards and environmental ministries • Information on air pollution and its impacts should be given to gram panchayats (local self governments)	• Increased public participation in environmental management—as a right, and not as a favour
• Limited people's participation in environmental decision-making	• Citizen's groups to be formed, trained, and given government recognition to monitor air quality • Public participation in public hearing processes should be encouraged and strengthened • Community should be encouraged to participate along with government in efforts to reduce air pollution • Communities should be given control over natural resources • Communities should be encouraged to use their traditional knowledge systems in managing natural resources • Recommendations made in public hearings for facilities requiring environmental clearances should be mandatorily incorporated into the environmental clearance process • Popularize scientific awareness	• Greater public participation in environmental monitoring and management leading to better regulatory compliance and improve public access to information, eg, EIAs being in public domain • People are empowered to monitor air quality, eg, the use of the bucket method, and ensure compliance of environmental laws • Good public participation in public hearings help avoid dirty and hazardous projects • Local communities have total control over environmental regulatory decisions over industries and polluting sources in their areas, including refusal of permissions

Air quality management: *Emission control*

Present status	Action required	Vision
• Violators of environmental laws and regulations get away scot-free, or very lightly • Regulators remain largely unaccountable for present state	• Amend Indian Penal Code (IPC) and environmental laws to bring regulators and violators of environmental laws and regulations under the ambit of IPC • Provide for stiff penalties for polluting and fuel adulteration	• IPC used for non-compliance of environmental laws and regulations • Regulators become accountable to public
• Old high-emission technologies in use	• Assess technologies of proposed projects for emissions • Determine best available technology for all uses • Mandate that only best available technology is to be used • Continuous review of technologies for future application • Government-industry partnership provides assistance to high air polluting small-scale industry to help them comply with standards • Set quotas for air pollution emissions, including for individuals • Industrial licensing should prescribe strict time limits for plant and machinery, so that outdated technologies are phased out • Introduce strict licensing policies for backyard smelters and other small-scale polluting industries • Policy changes brought about to see shift from the use of polluting fuels—petrol, diesel, to cleaner fuels, eg, gas, bio-gas • Encourage the use of low-cost bio-diesel that has low NOx emissions (low O_3) as a carbon-neutral alternative to CNG • Reduce subsidy diesel and diesel-driven vehicles • Improve kitchen ventilation; where possible use exhaust fans	• Cleaner technologies and fuels used to reduce emissions
• Universal yardstick to measure progress made in emission control unavailable	• Develop dose-response equations to air pollutants • Monitor health of workers exposed to pollutants and maintain their health records	• Public health used as a tool for emission control
• High ground level emissions • Roadside soil gets re-entrained	• Green the city	• Biotic control methods for pollution control effectively used

Air quality management: *Transport sector*

Present status	Action required	Vision
• City roads congested and bad at places • High pollution levels caused by vehicular emissions • Inadequate public transport • Long lines for CNG acts as a deterrent to switch over from petrol/diesel	• Improve public transport, including mass transport systems, eg, railways, and encourage their use • Reduce the number of 2-wheelers • Provide segregated bicycle lanes and better footpaths • Do not build malls at crowded junctions • Educate vehicle owners on benefits of timely vehicle servicing • Encourage entry of fuel cell powered vehicles • Admix 10% ethanol in petrol • Make ultra-low sulphur diesel available to trucks and buses • Use of private vehicles may be restricted by law • Make financing of private vehicles difficult • Make toll amounts for single-occupancy cars higher	• Reduction in traffic congestion • Lowering of vehicular emissions

Air quality management: *Technology shifts*

Present status	Action required	Vision
• High emissions and high energy costs due to use of older technologies	• Educate industry and transport owners on new low-emission technologies and their power-saving benefits • Provide clean air technologies to small-scale industries, particularly to lead and zinc recyclers	• Lower emissions and fuel saving through technology shifts
• Supply-side management of dirty fuels causing a lot of pollution	• Provide financial assistance for making fuel shifts • Encourage use of renewable energy and cleaner cookstoves • Emphasize demand-side management through public awareness campaigns	• Shift in energy consumption patterns
• Dirty environments	• Encourage the use of eco-friendly products • Encourage the slogan—Reduce, reuse, recycle • Make eco-labelling of products mandatory • Make doing life-cycle analysis compulsory • Mandate branding products with energy & air pollution burden	• Cleaner environments

Multi-voting: In the multi-voting, the various sectoral interventions received the following votes, indicating their rank order of importance.

Public participation	52
Planning of air quality management	49
Emission control	38
Technology interventions	21
Transport sector	7

Action plan 2: Asthma management

The action plan for asthma management suggested interventions in the following areas: Resource bank, networking, asthma surveillance, education and management, advocacy, education through media and research

Asthma management: *Resource bank of health care providers, patients, NGOs, government and experts*

Present status	Action required					Vision
• No patient counselling centres	• Each asthma unit to be provided with a counsellor					• Asthma counselling centres established, including in schools and colleges
	Target	**Partners**	**Action steps**	**Timeline**	**Implementers**	
	• Asthma patients & families	• Hospital managements • Counsellors	• Contact asthma care units • Create required infrastructure	1-3 yrs	• Government • Hospital managements • Private health sector	
• No community volunteers working specifically for asthma	• Involve and train community workers to work for asthma					• One asthma worker for every thousand population
	Target	**Partners**	**Action steps**	**Timeline**	**Implementers**	
	• Asthma patients & families	• NGOs • Government • Communities	• Train volunteers • Organize meetings • Monitor progress	1 yr	• Government • NGOs	

Asthma management: *Resource bank of health care providers, patients, NGOs, government and experts (contd)*

<table>
<tr><th>Present status</th><th colspan="5">Action required</th><th>Vision</th></tr>
<tr><td rowspan="3">• No known specialized asthma care units</td><td colspan="5">• Set up specialized asthma care unit in each tertiary care hospital</td><td rowspan="3">• Each hospital to have a special asthma unit with specialized counselling unit as have been set up for HIV/AIDS</td></tr>
<tr><td>Target</td><td>Partners</td><td>Action steps</td><td>Timeline</td><td>Implementers</td></tr>
<tr><td>• Asthma patients</td><td>• Government
• NGOs
• Medical practitioners
• Medical colleges</td><td>• Put forth proposal for setting up unit
• Arrange funds (private & public)
• Arrange health care staff for unit
• Publicise unit</td><td>1-3 yrs</td><td>• Government
• Hospital managements
• Private health sector</td></tr>
<tr><td rowspan="3">• No networking among health service providers</td><td colspan="5">• Set up a platform for health service providers to interact</td><td rowspan="3">• Existence of networks of health care providers, hospitals and laboratories tracking each childhood asthma case till treated successfully</td></tr>
<tr><td>Target</td><td>Partners</td><td>Action steps</td><td>Timeline</td><td>Implementers</td></tr>
<tr><td>• Health care providers
• Research personnel
• Experts</td><td>• Health care providers
• NGOs</td><td>• Initiate contact with professionals
• Arrange monthly meets
• Start an asthma journal</td><td>6 mths-1 yr</td><td>• NGOs</td></tr>
<tr><td rowspan="3">• No support group for patients</td><td colspan="5">• Set up a support group for patients</td><td rowspan="3">• Patient network in existence</td></tr>
<tr><td>Target</td><td>Partners</td><td>Action steps</td><td>Timeline</td><td>Implementers</td></tr>
<tr><td>• Patients & families</td><td>• NGOs
• Patients & families
• Health care professionals</td><td>• Contact patients & families
• Form support groups
• Publicize</td><td>6 mths-1 yr</td><td>• NGOs
• Community volunteers</td></tr>
</table>

Asthma management: *Partnering and networking—Asthma coalition/consortium*

<table>
<tr><th>Present status</th><th colspan="5">Action required</th><th>Vision</th></tr>
<tr><td rowspan="2">• No asthma coalition exists in Mumbai
• Exposure measurement infrastructure weak
• Public health programmes poorly funded
• Programmes for preventing asthma lacking</td><td colspan="5">• Take steps to form an asthma coalition</td><td rowspan="2">• International networking among NGOs
• National committee to address asthma at national level by the end of the fifth year
• More government funds and aid are allocated for asthma control
• Day care centres are created for all strata of society
• Youth are involved with the issue</td></tr>
<tr><td>Target</td><td>Partners</td><td>Action steps</td><td>Timeline</td><td>Implementers</td></tr>
<tr><td></td><td>• Patients & families
• NGOs
• Hospitals
• Community volunteers & workers</td><td>• Local officials
• Donors
• Media
• Associations</td><td>• Take the aid of existing partners to form a committee
• Identify key partners
• Organize local meets
• Set up communication between patients & workers
• Discuss preventive measures
• Hold regional (dist, state-level) & national meeting</td><td>1 yr: local meeting
2 yrs: regional meeting
3 yrs: forming national coalition
5 yrs: committees function properly</td><td>• Cerana Foundation may take the initiative, others will follow</td></tr>
</table>

Asthma management: *Surveillance system*

<table>
<tr><th>Present status</th><th colspan="5">Action required</th><th>Vision</th></tr>
<tr><td rowspan="2">• No systematic surveillance currently in place. Some surveillance may exist in pockets</td><td colspan="5">• Develop a comprehensive surveillance system that provides information on incidence and prevalence of asthma in Mumbai</td><td rowspan="2">• Better surveillance of asthma
• Decreased incidence of asthma amongst children
• Increased awareness about asthma</td></tr>
<tr><td>Target</td><td>Partners</td><td>Action steps</td><td>Timeline</td><td>Implementers</td></tr>
<tr><td></td><td>• Patients
• Policy makers
• Health care providers
• Communities</td><td>• Health Dept
• Municipal Corporation
• Hospitals
• Paramedics
• Medical colleges</td><td>• Identify coordinating agency
• Record data
• Coordinating agency to collect, analyze, distribute data
• Set up website</td><td>1-3 yrs</td><td>• Mumbai Municipal Corporation</td></tr>
</table>

Asthma management: *Education and management*

<table>
<tr><th>Present status</th><th>Action required</th><th>Vision</th></tr>
<tr><td>• Preliminary steps being taken by physicians to educate patients and their families</td><td>• Holding regular workshops for general practitioners (physicians) for early diagnosis of asthma
• Holding workshops for patients for them to understand their disease
• Teaching about asthma in community medicine courses
• Holistic approach developed towards asthma
• Holding regular classes for parents of asthmatic children on recognizing asthma and its links to the environment
<table>
<tr><th>Target</th><th>Partners</th><th>Action steps</th><th>Time-line</th><th>Implementers</th></tr>
<tr><td>• Patients
• Families
• Communities
• Schools</td><td>• Specialists
• Associations
• Media
• Community groups
• Clubs
• Institutes—yoga, ayurved</td><td>• Doing continuing medical education (CME) for physicians
• Publishing and distributing literature in hospitals, schools
• Developing a website</td><td>1-3 yrs</td><td>• Medical associations
• Health Department</td></tr>
</table></td><td>• High public awareness about asthma
• Asthma management experts would have reached interior parts of the country
• Develop an understanding of cultural differences between communities</td></tr>
</table>

Asthma management: *Advocacy*

Present status	Action required	Vision
• Government not yet focussed on asthma, hence no pro-active government policy • Not all stakeholders are yet involved with this issue • Though air quality has improved, more needs to be done to improve it	• Public campaigns are conducted to achieve desired end-goals	• Government focuses attention on asthma and commits funds • Government becomes pro-active in developing policies, legislation, regulation for a cleaner and pollution-free indoor and outdoor environments • There is an increased involvement of all stakeholders in this issue

Asthma management: *Education through media*

Present status	Action required	Vision
• Asthma related issues has no exposure in media	• Use media for educating public about asthma and reach deprived groups	• High public awareness about asthma • Asthma management experts would have reached interior parts of the country

Asthma management: *Research*

Present status	Action required	Vision
• Limited research and studies being done	• Encourage studies on asthma and provide the wherewithal for this	• Nutritional aspects of asthma management are better understood • Research on the genetic basis of asthma being done • Preventive measures for asthma attacks are better developed

Multi-voting: In the multi-voting, the various sectoral interventions received the following votes, indicating their rank order of importance.

Education and management	29
Networking	21
Asthma surveillance	19
Resource bank	16
Research	16
Education through media	9
Advocacy	7

Action plan 3: Community intervention

The action plan for the community suggested interventions in the following areas: Education and awareness, collective action/community empowerment, government accountability and changing value systems (enlightenment).

Community intervention: *Education and awareness*

Present status	Action required	Vision
• Lack of community educators for asthma • Myths, misconceptions, ignorance about asthma abound • Environmental education not part of school education • Access to asthma management centres poor • Asthma triggers in the workplace accepted as holding job is more important • Low awareness of asthma issues • Awareness of asthma lower amongst the poor as their education levels are low • Information on impact of pollutants inaccessible • Environment has been included in NCERT books, but not all children use these books • Some cultural factors are impediments for asthmatics to discuss their problem	• Observe communities at risk and their environments, including cause-effect relationships between asthma and air pollution • Take stock of existing knowledge and expertise, educational and medical resources • Develop relationship with communities • Eco-clubs, self-help, youth and women's groups should be used as mediums for education on asthma • Use existing science & environmental awareness programmes to spread awareness about asthma protection • Develop educational material and plans for its dissemination • Introduce yoga classes in communities • Prepare workbooks to help asthmatics understand the risk they face and take steps to protect themselves • Intervention areas—Govandi slums, Chembur, Western and Eastern highways • Assess/evaluate progress & modify it as required	• Current community workers trained to work as asthma workers • Increased asthma awareness in community, including slums and rural areas, through campaigns • Cause-effect relationship between asthma and air pollution is well understood by public • Yoga used in asthma management • Workbooks available to help asthmatics understand the risk they face and take steps to protect themselves • Improved data collection and dissemination

Community intervention—*Government accountability*

Present status	Action required	Vision
• Carbon users are not paying for the pollution they cause • Government departments function in isolation and in an uncoordinated manner • Government departments pass-the-buck, indulge in blame-games, have high inertia • Government policy is currently against community interests • Communities do not have the space to participate in policy formulation • Local communities are not taking adequate responsibility to make government accountable • Individuals in India and the US are not accountable for their daily actions—actions that add up and immensely contribute to environmental degradation—energy consumption, solid waste generation, toxic chemicals release, aerosol propellants, tobacco smoke, etc	• In line with the "polluters pays" principle, policy changes should be brought about to make carbon users (conspicuous consumers) compensate carbon victims (air pollution sufferers) • Regulators should be made to implement what they say in public • Local administrators should be appointed to decentralize government functioning • Local communities should be empowered to draw up local environmental management plans • As sense of ownership of action plan increases, communities should be encouraged to demand that government become more accountable	• Government becomes more accountable for its actions and sensitive to the needs of communities • Government departments work in coordination • Polluters become accountable for the pollution they cause

Community intervention—*Changing value systems*

Present status	Action required	Vision
• People lack concern for others • People keep their homes clean but do not mind polluting neighbourhood • Gap between allopathy and alternate holistic treatment	• Changing value systems is very difficult, but must be done through example and gentle persuasion • Attempts are made to have "Right to life", enshrined in the Indian Constitution as a fundamental right, re-interpreted to mean "Right to know risks being faced"	• Global outlook starts shifting from "gain maximization for a few" to "risk minimization for all"

Community intervention—*Collective action/community empowerment*

Present status	Action required	Vision
◦ Inadequate networking amongst NGOs for taking up community intervention programmes for asthma mitigation ◦ Communities are not empowered to act on this issue ◦ Geographical areas where communities at risk reside makes their empowerment difficult ◦ The politicization of issues in communities poses a barrier for taking up this issue ◦ Asthma patients are not empowered to deal with issue—they do not know their options	• Take steps to make risk-bearers the centre of risk mitigation programme and involve them in investigation programmes • Networking amongst stakeholders to be improved • Create local action groups, self-help groups • Set up a peer counselling system • Discuss environmental issues, including hazards and their solutions in such groups, eg, regarding vehicular emissions, public transport, indoor air quality, ventilation, etc • Public policy issues arising as demands from community discussions need to be articulated to authorities, eg, improvement in public transport system, etc • Local communities should be empowered to participate in making environmental management plans • Government should be asked to take up programmes for asthma mitigation on an emergency basis • Popularize car sharing	◦ Risk bearer become the centre of risk mitigation programmes ◦ Sufferers, community-based groups, women's groups, form community-level planning and implementing bodies and are involved in decision making ◦ Every ward has a community-based group to report on industry and vehicular emissions ◦ Clubs involved in doing community-based work, including doing surveys, checkups

Multi-voting: In the multi-voting, the various sectoral interventions received the following votes, indicating their rank order of importance.

Education and awareness	37.5
Collective action	24.5
Government accountability	24.5
Changing value systems	8.5

Health effects

Athen / Priya.

~~S. Rao~~ VV

Ambient

SKG / Chander

Air quality - indoor / work

P / Vinayk / CF

Com Intv. - Workep / indus

RS / Vinay V / Pryagi

Details of invitees for the 19th Nov 2007 meeting

NAMES OF INVITEES	ADRESS	AREA OF INTEREST	CONFIRMATION FOR 19TH MEETING	REMARKS
NGO's				
1) Society For Community Health Awareness, Research and Action, (SOCHARA)Community Community Health Cell (CHC) Dr Sukanya /Dr Vinay/Dr Thelma/Mr.Premdas	367, Srinivasa Nilaya, Jakkasandra, 1st main, 1st Block, Koramangala, Bangalore. Telephone- 91-80-255315, Email: sochara@vsnl.com Website: www.sochara.org Thelma :9341257911/080-25533064 (Res)	Work extensively on community health	Confirmed; will be attending	Envisage core group to be an important outcome to carry forward the good work in the area.
Public Affairs Centre	Poornima Janardhan D G Programme Consultant Public Affairs Centre, Bangalore. 98457-62757 poornimajanardhan@yahoo.com	Civic issues	Would not be able to attend as has an internal meeting on the same day	Need to be involved as they have been working intensively on civic awareness. Latest campaign for electoral process :vote Bengaluru
Jana sahayog	JANASAHAYOG 40, 8th Cross, 5th Main, Sampangirama nagar, Bangalore-	Work with people in urban slums also have done a water pollution	Confirmed, Mr. Narasimhamurthy and	Can help in better understanding

	560027 Phone & Fax + 91-80-22128565 janasahayog@gmail.com	study	Mr Selva will attend	the impact of air pollution with the prevailing social inequalities and also take the message to the areas they work.
Child Rights Trust	Mr Vasudevan Sharma vadesha@gmail.com 9448472513		has been informed and had said he will revert back.	Part of the child welfare committee, works ostly on policy advocacy related to child rights.
MYRADA	Concerned person No 2, Service Road, Domlur Layout, Bangalore – 560 071 myrada@vsnl.com Ph: 91-80-25353166		Have sent invite /spoken to Arul /yet to revert back	
CMCA : Children's Movement for Civic Awareness	#346, 3rd Cross, 8th A Main, Koramangala 4th block, Bangalore - 560 034. Ph : - 25538584/41105161 cmcaexpressions@yahoo.co.in	(CMCA) joint initiative of the two non government organizations (NGOs) - Public Affairs Centre (PAC) & Swabhimana. with a commitment to nurture and foster active citizenship in children with regards to civic and environmental	Have sent invite and spoken to them over phone/they will try sending someone but they have their monthly volunteer meeting on 19th Nov 2007	Need to be involved as a synergy can bring about the required results to push for a higher environmental /civic consciousness amongst the youngsters.

		consciousness. Has over 180 schools in Bangalore, Hubli Dharwad, Mumbai and Bidar.		
Quarry Workers & Rural Integrated Development Society (Q.W.R.I.D.S.)	No. 63. Little Rose Villa, K.S.F.C Layout, Oil Mill Road, St.Thomas Town Post, Bangalore 560084. qwarids@vsnl.net	Manoharan 988630367	Confirmed/will attend	Work on health issues of Quarry workers and their children
Saathi	pramodkulkarni@vsnl.net 9845456767	Pramod Kulkarni	confirmed	Work with Runaway children
Government				
Department of Ecology and Environment (Karnataka) State	Secretary Office 709, MS Building	Mr Arvind Jahnu Secretary DoEE	confirmed	
Health and Family welfare Department	dirhfw@vsnl.net	Dir Dr Premaleela	Confirmed	
KSPCB	Church street Bangalore	Chairperson/Memeber Secretary	Confirmed	
Doctors				
Dr Girish , Asst Prof Nimhans	Secretary KACH, girishnrao@yahoo.com 9341226277	Have Dr's who have done studies on air pollution in the city	Confirmed to send Dr ' who are familiar with the area.	Their network can be useful.

Dr Prithvish	Dr.S.Pruthvish Professor of Community Medicine and Director – Health Care waste Management Cell, MS Ramaiah Medical College, Bangalore, India Mobile: 9901042731 (o) 23600968 ® 23410005 psreekantaiah@yahoo.com	Has worked with auto driver unions	Cannot attend he will be traveling,	Has given some relevant contacts will be in contact for further information.
Dr Omprakash	5/A, Kumarakrupa Road, High Grounds, Bangalore – 560001 Ph no. 2267428 prasadom@hotmail.com		No confirmation	
Dr Prema Sharathchndra	Victoria Hospital Premalatha53@hotmail.com		Confirmed will attend	Paedaetrics/has given number of relevant contacts
Co-ordination				
Mahalakshmi. P	Environmental Consultant 33/34, Amara Canopy, Apartment 302 6th cross, BTMM – 2nsd stage Bangalore – 560076 9845575665 26789637 pmahalakshmi@yahoo.com	Environmental law/Part of Awareness committee of KSPCB	confirmed	Coordinating the Bangalore part for the workshop on behalf of KSPCB
Sagar Dhara	Environmental Scientist Cerana foundation Hyderabad sagdhara@yahoo.com 09440401421	Research on Environmental issues/supports environmental justice issues	confirmed	Part of Cerana foundation which is implementing the workshop.

Dr. Paramesh.

Mohan Mani (NTUI)
1105A, Sahakaranagar,
Bangalore 560092.
workersblr@yahoo.co.in.
23631222

1) Presenter: Dr.R.Sukanya, Research and Training Associate, Community Health Cell,Bangalore

2) Title: Community health and air pollution- community action to reduce health risks

3) Abstract: This presentation will highlight how communities' health is affected by air pollution and explain why a community approach to reduce health risks is urgently required. Community groups like children, women and persons at workplace are most vulnerable and have varied disease burdens. The factors that increase or decrease such The talk will focus on why and what can public do about strategies to tackle environmental health risks and the role of the public in such intervention strategies will be also be explained. Some examples of community intervention programmes in Bangalore will be showcased.

4) Resume- Dr.R.Sukanya is a team member from Community Health Cell, Bangalore. CHC is part of the global, national and regional people's health movement. CHC supports community health action and advocacy, conducts training in community health for various groups working on health issues and facilitates networking of partner organizations in the campaign for right to health for all.

Community health and Air pollution: Community Action to reduce environmental Health risks

January 22-23,Bangalore

Workshop on Air Pollution: Interventions to reduce environmental health risks

Dr.R.Sukanya
Community Health Cell
Bangalore

Air pollution and health impact

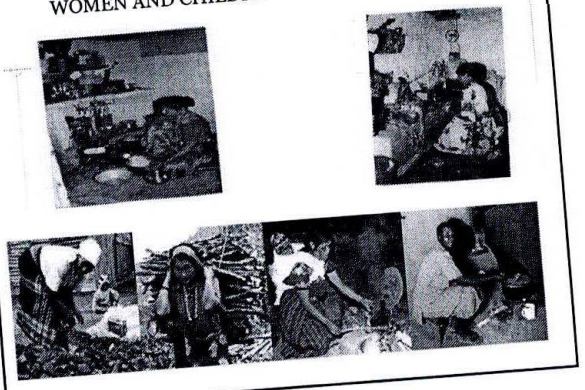
- Clean AIR is being lost-the most precious natural resource for survival of living beings
- Disease burden – Disease,Disability,Death
- Respiratory infections,Lung cancer,Chronic obstructive respiratory disease,reactive airway disease-asthma- MAJOR health problems
- Low birth weight, Congenital anomalies,Cardiovascular disease,other cancers

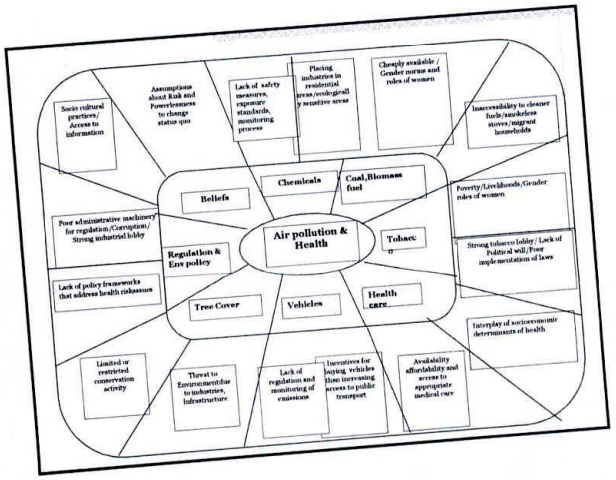
Community health impact

- Disability adjusted life years lost due to Indoor air pollution 5 fold the disease burden due to outdoor air pollution
- Workplace exposures (outdoor and indoor) and disease burden –12% of COPD disease
- Outdoor pollution interacts with other forms of pollution and increases vulnerability
- Tobacco smoke – single important risk factor

DISPROPORTIONATE BURDEN OF DISEASE

WOMEN AND CHILDREN – MOST VULNERABLE





What have we done?

- Air quality monitoring – KSPCB
- TASK FORCE ON AIR QUALITY
- Attempts of civil society – government partnership in infrastructure development or maintenance of green spaces
- Health risk assessment of Air pollution-ROHC
- Implementation of cleaner fuels
- Consortium for tobacco free Karnataka

Consortium for tobacco free Karnataka

- CFTFK is a network of organizations working towards tobacco control in the state,initiated by CHC
- Children, office goers,health professionals, patients and their relatives,general public
- Create awareness about ill effects of tobacco, socioeconomic political aspects of tobacco cultivation and the industry
- Policy work on ban of tobacco
- Networking with community groups

What do we need to do ?

- Complex factors – multiple level of interventions
- Interventions have to be equitable
- Public participation for Community Action
- Access to information
- Community health – economic productivity, social well being- educational attainment

Challenges – Community Action

- Human perception of risk determines response to health risk
- Communities become risk bearers
- Polluting Technology- Has to be eliminated
- Convergence of different communities
- Framework of Equity

Advantages - Community action

- Preventing Disease - ↓ Health care costs
  ↓ Disease burden
- Long term impact on Health
- Most equitable option – benefits across broad groups or populations

Health monitoring in environmental pollution impacted communities

New Delhi,17th February 2008

R.Sukanya
Community Health Cell,Bangalore

Why do we need community health monitoring?

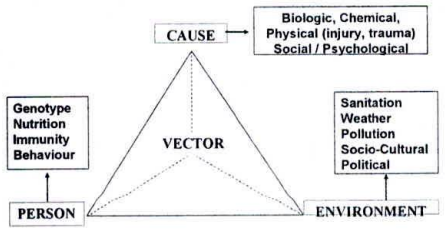
- Only a small percentage of all known chemicals have been fully studied for their human health impact.
- "Absence of proof" of exposure to toxin and health problem is "proof of absence" - WRONG ASSUMPTION
- Exposure to toxins and Health problems – identified late,identified at a severe stage,and cannot be cured.

Exposure - Is it the cause for my health problem?

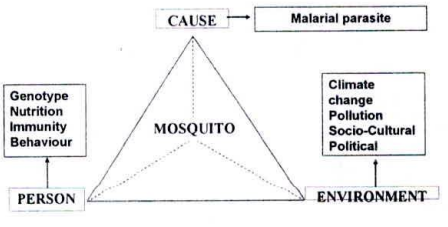
- Acute events –
  Fire/Flare in a Factory – Breathing difficulties
  Effluent discharge contaminating water – Loose stools
  Pesticide poisoning of children in a school near sprayed field- fainting
- More than the usual number of people are affected
- Exposure occurs first , followed by health effects
- Specific chemical – health effect
- Evidence – Physical proof of fire/blackish water;
  Documentary proof of medical certificates

Exposure- Is it the cause for my health problem?

- Past exposure - Current health problem
  (Endosulfan – Children developmental delay)
- Current exposure- Long term health problems
  (Air pollution – Asthma)
- Current exposure- Future health problems
  (VOC's – Cancer)
- Multiple Chemicals – Health Problems ?
- Pollution is common – Problems are also common

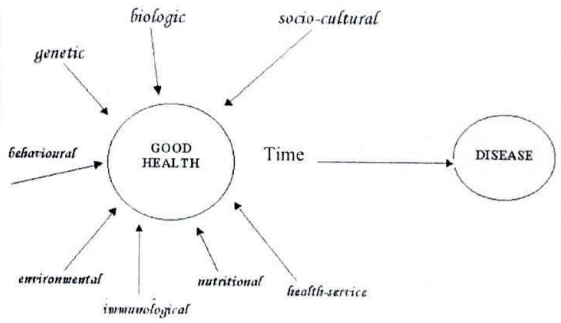


Interaction of Host, Causative Factor and Environment through Time governs disease occurrence.



INCREASE IN MALARIA EPIDEMICS

Causative Factors in Disease



Describe ....

- Person who has directly experienced the illness or adverse event narrates what happened.
- Explains the Sequence of events
- Questions directed to understand what the person perceives as the reason behind the illness.

"....I entered the factory and we could feel a strong smell. Women said it is the smell of pesticide sprayed. They sometimes spray during the weekend. After half an hour of work, I felt nauseous and vomitted. I was then unconscious and woke up to find myself in the Hospital. The doctor asked me whether I had eaten in the morning. I usually do not. Many of us women do not eat in the morning... But the smell was too much."

Describe.....

I keep six honest serving men, (they taught me all I knew).

Their names are what, why, and when and

how and where and who.

- Rudyard Kipling

By time...

Time dimension is an important component of Monitoring.

Time trends (long-term & seasonal) are important to study since Disease rates change overtime.

Study of long-term trend:

- Helps in the prediction of future occurrence of a disease.
- They can be used in Health Policy making.
- They can also be used in evolving Hypothesis on Etiology of disease as in the case of smoking and lung cancer.
- Study of seasonal variations can be helpful in understanding patterns of disease and even increase in risk due to behavioural factors.

By Person.....

- Age, Sex, Race – who are the affected people and why are they more susceptible.
- Marital status, Immune status are subject to change
- Behavioural characteristics like use of tobacco, alcohol, etc.- Interaction of these factors influence general health status
- Conditions of living like socio-economic status, Housing, Access to Health & Medical care, Urban/Rural, etc.

By Place

Gives insight into the geographical extent of the problem

Geographic consistency refers to the congruence of the observed illness episodes and the exposure area. Categories could be:

- Place of Residence
- Place of Employment

The choice would depend on the nature of the problem.

Data on place is better presented pictorially in Maps rather than Tables. A Spot Map of people affected is very useful. It will be useful to make a map of the exposure area (including possible run-off areas and spray drift areas) and mark the households where acute illness episodes and chronic health problems are reported.

Describe…..

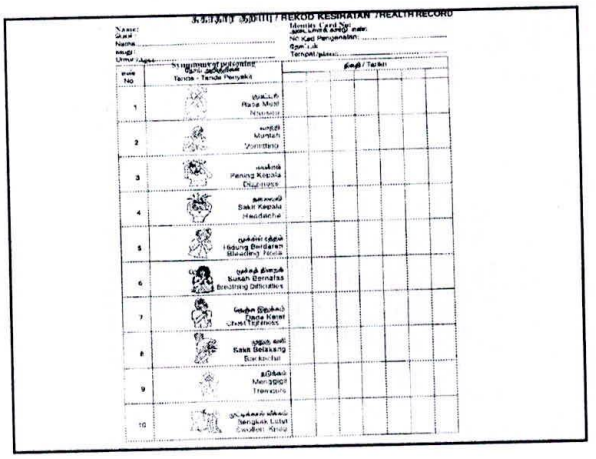
- Extent of the health problem in the population.
- Detailed description of the health problem by population composition, geographic spread and occurrence along the time-dimension.
- Identification of High Risk groups in the population.
- Clues to the causes of disease which can help in developing appropriate hypothesis for testing.

Collect Evidence

Health Problem	Exposure
People's description (notes and tapes)	People's description
Photos / Newspaper reports	Photos/Newspaper reports
Medical records / Lab Tests	Reports from Corporate Companies
Technical papers/reports	Village meetings
Grama Sabha meeting report	Estimate of Environmental contamination – factory records / Modelling
Research study findings	
Doctors' / Health system testimonies	

Collect Evidence

- Must be able to recognize what will constitute evidence in a certain case. This recognition is developed by researching, learning, and experience.
- Testimonies—Documentary—Laboratory
- Questionnaire survey – frequency of a problem
- Body mapping – exploring the type of problems
- Clinical records – definitive diagnosis
- Report Cards – ongoing monitoring



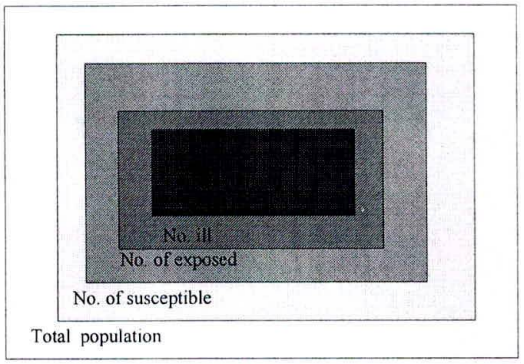
Questionnaire surveys-Cross sectional Surveys

- What are the health problems among children in villages of Cuddalore Sipcot area?
- What are the factors that lead to women having abortions in a mining area ?
- How many men workers are having asthma in the refinery?
- What work process predisposes men to leave their job in a chlorine factory?

Patterns….

- Every Monday morning – women in the cashew processing factory complained of Giddiness,nausea and vomiting. (As spraying occurred in the weekend)
- People living along the stream with pesticide run-off, have more episodes of illnesses, more children from these houses have epilepsy and congenital defects
- Persons working in chlorine cells have reported complaints of tremors.

Patterns….. Comparison



Comparison

- Frequency of health problem – wheeze in workers / non workers; men/ women ; children/ adults
- Frequency of problem – affected community vs. Control community (less exposed)
- Frequency of problem (death)–affected community or workers group vs district population of similar age and sex

Comparison

• Exposure	• Nil / Different exposure
Who are the people ? Age,sex,work	Who are the people ? Age,sex,work
What is the health problem?	What is the health problem?
How many ? 6/30 women are sick	How many ? 1/5 women are sick

Causation

- Exposure → Disease : Temporality
- Dose – response :
  Severe exposure –Severe Disease *also*
  Lesser exposure / No exposure – No disease
- Strength of association
  50 % of exposed are sick / 10 % of unexposed are sick
- Biologic plausibility : Mercury --- Tremor
  Pesticide --- Respiratory paralysis
  Dust-silica- Breathing difficulty

Skills required

- To document
- To mobilize community
- To understand community health
- To network
- To respond to a situation
- To be able to seek truth - learn about toxin,learn about disease

Long term Monitoring

- Describe the Health status of populations
- Determine the "causes" of health problems
- Predict the occurrence of health problems in populations
- Control the occurrence of health problems in the population through prevention / therapy

Limitations of Science

Failure to establish the threshold levels of exposure for common outcomes. (we have only LD 50 levels)

Sample size and statistical significance as a criteria for scientific plausibility .

Toxicity studies in animal models are 5-6 years but in human beings, diseases occur after 20 years, trans generationally.

Single chemical –effect models – In reality, multiple chemical interactions

Limitations of science

Clinical effects mimic common illnesses .Therefore burden of illnesses has never been quantified. Eg. Headache , Nausea, Breathlessness

Follow-up studies among communities are rare.

Experimental trials – Manipulating exposure of potential toxins among human population is unethical.

Timing of exposure is inaccurate,Surrogates of exposure are used.

Expert systems of knowledge – will explore gene interactions, cancer etc. ***As Compared to*** Wise systems- community knowledge of illhealth.

TOWARDS A SYSTEM OF COMMUNITY HEALTH MONITORING

Dr. Rakhal Gaitonde
Community Health Cell & People's Health Movement

Towards a System – Preparatory Phase

- Sensitivity to presence of possible toxin / pollutant.
- Gathering information.
- Identifying partners.
- Identifying key players.
- Putting information together

Towards a System – Monitoring Phase

- Planning a strategy.
- Collecting local information.
- Putting information together, making sense of information.

Towards a System – Post Monitoring Phase

- Dissemination.
- Follow up activity / using the information.

Sensitivity to presence of possible toxin

- Cluster of cases – mainly non- infectious.
  - Cancers, asthma, skin conditions, birth defects, abortions.
- Clusters of unusual symptoms
  - Attacks of breathlessness, itchy patches on the skin, episodes of eyes burning and watering, fainting / feeling faint, irregular menstrual periods etc.
- Presence of industry / industrial complex nearby.
- Visible effluents, gas leaks, sever odours.

Sensitivity to presence of possible toxin Contd....

- Effects on plants.
- Effects on animals – sudden fish kills, deaths, abnormal births.
- Doctors advising people to leave the area to get relief from recurrent illnesses.

Gathering information

- Possible causes of symptoms / diseases / problems in animals.
  - From doctors; Local Vets; Local colleges; Internet; Other environmental groups; Journalists.
- Possible sources of such chemicals.
  - From doctors; Local Vets; Local colleges; Internet; Other environmental groups; Journalists.
- Details about various industries nearby (and upstream where appropriate)

Gathering information contd...

- Details about laws, rules and norms.
  - Good manufacturing practices, effluent treatment, government monitoring bodies, threshold levels that are relevant to local courts.
- Similar problems in communities in other areas living near similar industry.
  - Environment groups, health groups, internet, journalists

Identifying partners

- Doctor / para-medical professional.
- Environmental group / activist.
- Local academic institution.
- Local medical college hospital.
- Legal cell.
- Media partners.
- Environmental / Chemical labs.

Identifying key players

- Local self-government structure / representatives.
- District authorities.
- Pollution control authorities.
- Public health care system.
- Industry representatives.
- Workers unions.
- Representatives of groups in local communities.

Putting information together

- Are there symptoms / diseases that are likely to be caused by toxins / pollutants?
- Are these toxins products / by-products of a nearby (or upstream) industry?
- What are the legal guidelines for effluent / emission treatment and composition?
- Where and how can these be tested – what samples need to be collected? How?
- Any confirmatory tests?
- Other communities affected? Visit / information.

Planning a strategy

- Defining overall goals of campaign.
- Identifying partners – roles and responsibilities.
- Evolving funding strategy.
- Evolving knowledge strategy.
- Evolving advocacy strategy.
- Evolving a communication strategy (media).
- Define the various components.

Collecting local information

- Environmental sampling.
- Biological sampling.
- Health impacts – survey / surveillance.

Collecting local information

- Identify substance / substances that can cause harm. Produced in a factory nearby (plausible)
- List known side effects / health impacts of the substances.
- Make sure to include ALL symptoms

Collecting local information

- The symptoms need to be chosen carefully.
- They need to be typical of the toxin.
- Do NOT neglect unusual symptoms.
- Simple questions to rule out other common diseases that can cause similar symptoms.
- Symptoms that are more 'objective' and more 'exclusive' for a given toxin.
- Subtle signs.

Collecting local information

- Other questions:
  - Documenting exposure.
  - Documenting symptoms.
- Logistical:
  - On whom to do the questionnaire.
  - Age group / circumstances.
  - How often.

Collecting local information

- After deciding on the exact symptoms to document.
  - The words to be used in the questionnaire.
  - The meaning and definition of a symptom.
  - The tool – training of the field worker / standardization.

Putting information together

- Making sense of the information collected.
- Using multiple perspectives and paradigms to put this together.

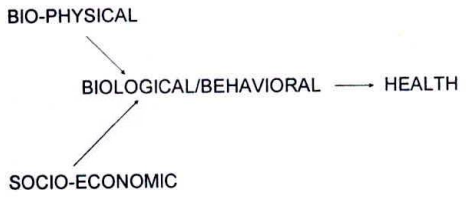
Dissemination

- Within community.
- General media.
- To local self government.
- To district authorities.
- To Pollution control board / Health department
- To industry.
- To larger environment and health movement.
- To academic community.

Follow up activity

- Mitigation / compensation.
- Prevention
- Research
- Rehabilitation
- Policy

Concepts of Health



Concepts of Health

- Health depends upon much more than merely the presence or absence of genes, germs or toxins.
- Theoretically one can discuss three levels of causation.
  - Immediate.
  - Intermediate.
  - Basic.
- No isolated intervention can have a holistic or sustainable effect.

Concept of Community health

- Not just presence of ill people but the proportion of ill people.
  - Presence of illness.
  - Outcome - cure; disability; death.
- Community defined not only geographically.
- Modified by factors affecting people at community level – simply due to reason of belonging to that 'community'.
- Access; Determinants; livelihoods; power & control of resources.

Concepts of Health

- Environment and occupational health struggles need to be seen in this overall view as one of many struggles.
- A common structure causing the various ills and injustices.
- Need to build networks with / lend solidarity to / learn from other struggles.

Concepts of Disease

- Disease – break down of normal functioning of the body / organs eg. *Asthma*
- Symptoms – a problem / discomfort that the person complains of eg. *Breathlessness*
- Sign – something elicited by the trained health worker eg. *Wheeze on auscultation*
- Syndrome – Collection of symptoms eg. *Mad Hatter syndrome*
- Disease – collection of symptoms, signs, biological modifications eg. *Renal Failure*

Functioning of Organs in the body

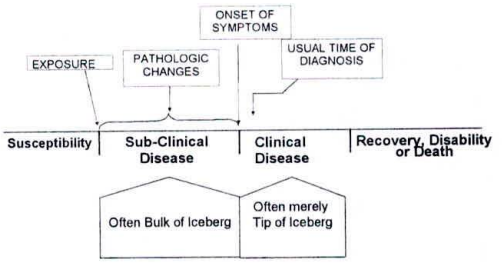
- The numerous organs work to maintain the normal function of the human body eg. Respiratory system – O2; Renal to filter wastes.
- Thus proper functioning is critical to overall health.
- Functioning includes:
  - Physical component.
  - Chemical component.

Inflammatory reaction

- Heat
- Redness
- Swelling
- Pain
- Loss of functioning

Natural History of Disease

Progression of disease through successive stages to recovery, disability or death in the absence of intervention.



Eg. Respiratory system

- Nose / Upper airways / lower airways / lungs.
- Protective component – in addition to usual response – constriction of the airways.
- Physical component – muscles / rib cage / diaphragm.
- Chemical component – air exchange
  - $CO_2 \leftrightarrows O_2$

Respiratory system and toxins

- Huge area for gas exchange – therefore entry of gases – Hydrogen Sulphide; Mercury vapour.
- Toxins can initiate inflammatory process along surfaces – Kerosene, gasoline fumes – Chemical pneumonitis.
- Some toxins can cause the protective mechanisms to hyper-react – eg. Chlorine causing Hyper-reactive airway syndrome.

Organs and disease

- The body will successfully adapt to minor changes.
- Problems will arise either if the challenge is too large or the protective mechanism goes out of control.
- Break down of normal functioning of organs leads to disease – when this crosses a certain threshold it MAY result in symptoms.

Organs and disease an example

- Kidneys.
- Filters the blood its waste products.
- Mercury can damage the cells that filter the blood.
- Leads to increased leakiness – may or may not be associated with disease.

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Organs and disease an example

- Extensive destruction of cells leads to improper functioning and cessation of filtering leading to renal failure and the accumulation of toxins in the blood.
- Symptoms such as itching, puffiness of face.
- Signs such as – raised urea, creatinine, high BP.

Organs and disease

- Thus for a symptom to show itself quite a bit of damage has already occurred, an inflammatory reaction has been kicked of.
- Conversely even if there is damage – it may not show up as bodily symptoms.
- Some times symptoms may be very late manifestations. - eg. In cancers

Organs, disease and symptoms

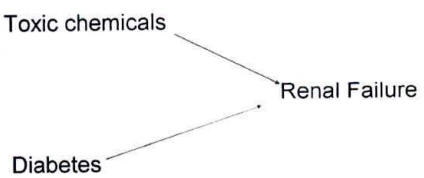
- Many processes can lead to the same symptoms.
- Inflammation.
- Organ dysfunction to symptom path common regardless of reason for initial insult.

Organs, disease and symptoms

Respiratory system:

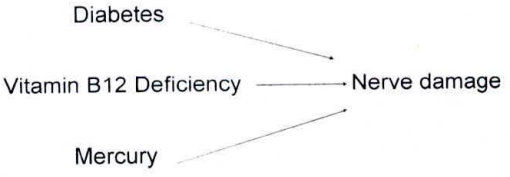
Organs, disease and symptoms

Kidney



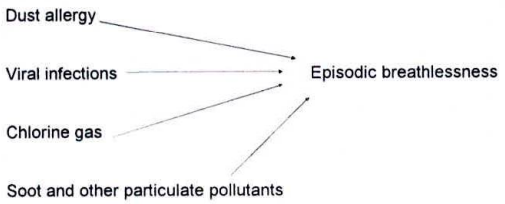
Organs, disease and symptoms

Peripheral nerves



Organs, disease and symptoms

Respiratory system



How to differentiate causes ?

- Individually – may be difficult.
- One needs to describe patterns in communities.
- Example
  - Seasonal breathlessness vs. breathlessness year round

How to differentiate causes?

- One needs to see context; other symptoms; other signs; biological tests.
- Example – numbness of hands and legs – nerves destroyed.
- Diabetes – Increased sugar in blood.
- Vit B12 – Anemia, Vitamin level in the blood.
- Mercury – exposure history, mercury in blood.
- Note both diabetes and Vit B12 deficiency can occur in people with exposure to mercury.

Individual variation

- The sensitivity / threshold / immune system.
- Thus two or more people exposed to the same toxin may react quite differently.
- Eg. Pollen allergy; dust allergy.
- Nutrition
- Mental status
- Underlying illness
- Children

Individual variability

- Thus one needs to look for and recognize patterns.
- One needs to control / take note of individual variability while building up a case.

Toxins

- A substance that disrupts the normal functioning of the organs / cells.
  - Naturally occurring substances found in body.
  - Naturally occurring substances not usually found in the body.
  - Artificial substances.

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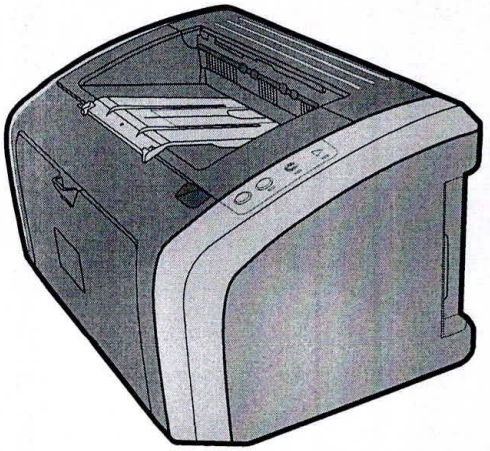

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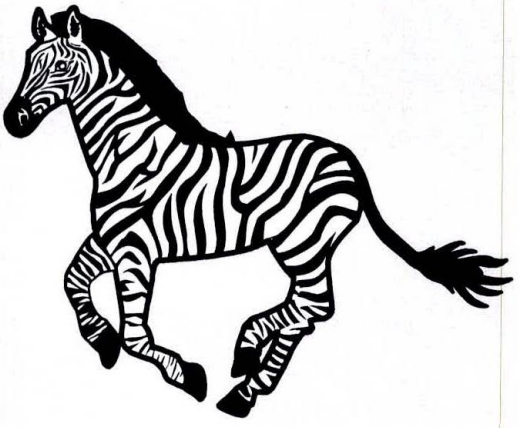

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Routes of entry

- Oral – most dramatic.
- Respiratory
- Skin – not usually thought off but sometimes most crucial.

How do toxins act?

- Chemical reactions of the body affected.
- Break up of genetic material.
- Physical irritation / destruction.
- Endocrine / immune disruption.

Effect of the toxin depends on..

- Dose
- Potency
- Mode of entry
- Individual hypersensitivity
- Underlying factors like nutrition etc.

What does the body do to the toxin?

- Bio- modification
- Makes it more excretable.
- Less toxic .....More toxic.
- Storage and accumulation

Conclusions

- Importance to understand the fully natural history of the diseases being caused by the toxin.
- Important to rule out other common causes that can cause same symptom.
- Importance of individual variability.
- Importance of looking at community distribution.

THANK YOU

Gmail by Google BETA

Sukanya Rangamani <sukanr@gmail.com>

Revised agenda for the Conference - pl ignore the previous ones!

Shweta Narayan <nopvcever@gmail.com> **Thu, Feb 7, 2008 at 4:42 PM**
To: Arul Selvam Kumar <arulcem@yahoo.co.in>, Advocate Barathi <metturpollution@gmail.com>, Lakshmi Premkumar <lakshmepremkumar@gmail.com>, nityanand jayaraman <nity68@gmail.com>, Madhumita <madhu.dutta@gmail.com>, theshramik@yahoo.com, piyush sethia <jungleclub@gmail.com>, rakhal & subha <subharakhal@gmail.com>, Sukanya Rangamani <sukanr@gmail.com>, samataindia <samataindia@gmail.com>, vidyadinker@gmail.com, debjeet2002@gmail.com, maheshpandya@sify.com, prabjit_barn@yahoo.ca, aio@gmx.ch, janhitfoundation@gmail.com, "ecofriends. org" <rakesh@ecofriends.org>, SASANKA DEV <fordisha@cal2.vsnl.net.in>, umendradutt@gmail.com, parimalkumar@yahoo.com, info@mlpc.in, Phoenix <phoenix@mail.primorye.ru>, Natalia Lisitsyna <sakhalinwatch@yandex.ru>, Lauren Allan-Vail <LAllan-Vail@pacificenvironment.org>, Denny Larson <denny@gcmonitor.org>, axabellard@argos-sci.com, dsgamiles@argos-sci.com, Siziwe <siziwe@groundwork.org.za>, Anastasia Otieno <otienoa@reconcile-ea.org>, Moo Mooksuwan <moo_ksuwan@yahoo.com>, arpa wangkiat <arpawangkiat@yahoo.com>, Ruth Breech <ruthbreech@gmail.com>

Dear All,
Here is the final agenda for the conference. We had to make some changes in the program due to the unavailability of some resource persons on some days.

Please feel free to get back to me in case of any clarifications.

regards
Shweta Narayan

==========

International Bucket Brigade & Community Environmental and Health Monitoring Conference

16-19 February 2008

Agenda:

Day 1: 16 February 2008

10.00 am to 10.30 am – Key Note speech – Sandeep Pandey (to confirm)

10.30 am to 11.30 am – General Self introduction of the delegates

11.30 am to 11.45 am – TEA BREAK

11.45 am to 1.45 pm – Presentations from delegates (10 min each)

1.45 pm to 2.45 pm – LUNCH BREAK

2.45 pm to 4.45 pm - Presentations from delegates (10 min each)

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TNTRC team takes this opportunity to thank all the stakeholders in Tsunami Recovery for their excellent cooperation and great support and look forward to enjoying the same with new entity which will be formalized soon.

Thanks and regards,

Nalini Keshavraj

Manager

4.45 pm to 5.00 pm – TEA BREAK

5.00 pm to 6.00 pm Presentations from delegates (10 min each)

REST

7.45 pm – Dinner get together

Day 2: 17 February 2008

7.30 am to 8.30 am – Breakfast

9.00 am to 10.00 am – Basics of Environment and Health – (NITYANAND JAYARAMAN)

10.00 am to 10.15 am - Discussion

10.15 am to 11.15 am - Understanding EIA and Generating Baseline Environmental data, Post Project Monitoring – (LEO SALDHANA)

11.15 am to 11.30 am – TEA BREAK

11.30 am to 12.15 am - Concepts of health – the causation, and the broader determinants of health. define health of community; Concepts of body function / dysfunction / disease / how this is reflected in symptoms and signs / natural history / diagnosis of disease / ~~community based tools for the same.~~ Understanding symptoms; Toxins / types / routes of exposure / what does the body do to the toxin / what does the toxin do to the body - assessment (DR. RAKHAL GAITHONDE)

12.15 pm to 12.30 pm - Discussion

12.30 pm to 1.00 pm – Environmental Pollution and Mental Health – (DR. AJAY KUMAR)

1.00 pm to 1.30 pm - Establishing causation – describing / establishing patterns / comparison – PQRST – tools – body mapping / Risk mapping / hound. studies and long-term monitoring. Limitations of science (the need for long term monitoring/studies and limitations in science would be emphasized during the D/E/C – Pqrst explanation. (DR. SUKANYA)

1.30 pm to 2.30 pm – LUNCH BREAK

2.30 pm to 3.30 pm - Low cost health monitoring Case studies: Bhopal, Punjab, South Africa, Buzee study (Madhu), Rajan Patil

3.30 pm to 3.45 pm – Wrap up of the previous session – (~~DR. SUKANYA~~/ DR. RAKHAL)

3.45 pm to 4.45 pm – Case studies – Group exercise (Scenarios – Stone Crushing units, Refinery, Garbage dumpyards, Chemical industrial areas)

Questions:

1. Information requirements & how will you obtain information about the types of pollutants and the prevalent health problems.
2. What do you want to study and why?
3. How will you study?

4.45 pm to 5.00 pm – TEA BREAK

5.00 pm to 5.30 pm – Group 1 & 2 Feedback

`CHC TEAM
MONTHLY ORGANISER
January 2008

Date	Dr.RN	Dr.TN	Mr.EP	Dr.VV	Dr.SR	Ms.SM	Dr.RG	Mr.AK
01 T	PHM – COCO (SKYPE)	CHE	CHC	CHC	CHC			Team meeting vouchers Alc.
02 W	Leave	CHE	CHC	CHC	CHC		~~Thirukazhukundam~~ Thirukazhukundam	CHC – chennai
03 T	Leave	CHE	CHC	CHC	CHC			Poonamalle Block
04 F	CHE	CHE	CHC/ JAAK planning / HHR consultation	CHC / JAAK Planning / HHR consultation	CHC	JAAK meeting	Kandili Block work shop CMP project	Minjur block
05 S					Workshop on Environmental health - planning		Perambur work shop.	
06 S								
07 M	CHE	CHE	Intern's presentation, Nagaraj meeting	Interns presentation	Intern's presentation			Reports & vouchers
08 T	CHE	CHE	CHC	CHC				Meeting with CAD
09 W	CHE	CHE	SDW	SDW	SDW	SDW	SDW	SDW
10 T	CHE	CHE	SDW	SDW	SDW	SDW	SDW	SDW
11 F		NHSRC-GB meeting, Delhi	CHC	NRHM – AGCA meeting	NRHM-AGCA meeting		AGCA -79 meeting Bangalore	CMP- material
12 S	Achuta Menon Conference in Public Health	AGCA – Workshop			NRHM-AGCA meeting		AGCA -79 meeting Bangalore.	
13 S	Lecture – HRD in PH/ CH ,Trivandrum							
14 M	CHE	CHE	CHC	Hanur – HCCRHP, Dialogue with PH sys			RUWSEC ~~Chennai-CHE~~ Core grp meet	CMP-material

5.30 pm to 5.45 pm - Discussion

5.45 pm to 6.15 pm – Group 3 & 4 Feedback

6.15 pm to 6.30 pm - Discussion

6.30 pm to 6.45 pm – Wrap up for the day.

7.45 pm – Dinner and film screening

Day 3: 18 February 2008

7.30 am to 8.30 am - Breakfast

9.00 am to 10.30 am - Demonstration of the Real Time Monitor for the delegates

10.30 am to 1.30 pm - Visit to ITO traffic junction in Delhi, along with media persons for the Real Time Air Monitoring.

1.30 pm to 2.30 pm – LUNCH BREAK

2.30 pm to 3.30 pm – Low Cost Environmental monitoring – Case studies. (Cuddalore, Mettur, SA, Thailand, Russia*, US)

3.30 pm to 3.45 pm – Wrap Up of the session

3.45 pm to 4.45 pm – Bucket Building and Environmental Monitoring – (DENNY LARSON)

4.45 pm – 5.00 pm – TEA BREAK

5.00 pm to 5.30 pm – Discussion on the previous session

7.45 pm – Dinner/ Film Screening

Day 4: 19 February 2008

9.00 am to 9.30 am – Presentation from CSE - What to Sample? (CHANDRA BHUSHAN)

9.30 am to 10.00 am – Presentation from CSE - How to Sample – (LAB EXPERT - CSE)

What to look for, What you need to know, What information you need to provide.

10.00 to 10.30 – Converting sampling data into campaigns, case studies from CSE – (CHANDRA BHUSHAN)

10.30 am to 11.00 am – Q&A and Discussion

11.00 to 11.15 am – TEA BREAK

11.15 am – 12.15 pm - Sub group exercise of monitoring questions for different environmental scenarios/ case studies – Chemical industries, refineries, Mining, Non Point Source.

12.15 pm to 12.45 pm - Group 1 & 2 Feedback

12.45 pm to 1.00 pm - Discussion

1.00 pm to 1.30 pm – Group 3 & 4 Feedback

1.30 pm to 1.45 pm - Discussion

Dear friends

Greetings from JAA-K

The Right to Health Care campaign is being carried out by many people's organizations and voluntary organisations in various districts since 6th April 2006. As decided in the previous meeting held on 25th June 2006 in Bangalore, the next meeting to discus the following agenda is fixed for

Date : 25th August 2006 at

Venue: Christian Medical Association of India (CMAI)
21 HVS Court, III floor
Cunnigham Road
Bangalore- 560 001
Phone: 22205464
(CMAI is the first building on the right as you enter from Cunnigham road, Entrance is from Queens Road.)

Time: 10 am -4 pm

Agenda

1. Summarization of the discussion so far happened 6th April. (Short list emerging issues of concern)

2. Progress of the campaign so far

a) Report of district meeting
b) Address data base
c) Core group meeting on Wednesdays
d) Budget preparation (for human resource and campaign material)
e) Right to information Act to be use as a tool for the campaign
f) Background information prepared so far and translated.

3. District workshop design

4. Detailed discussion on strategies for taking the campaign forward

5. Any other.

With regards

Chander
For JAA-K

1.45 pm to 2.45 pm – LUNCH BREAK

2.45 pm to 4.45 pm - Emergency Response: Taking samples; Advocacy for better emergency response (fire, health etc); legal recourses for compensation and criminal/regulatory action. (NITYANAND JAYARAMAN)

4.45 pm – WRAP UP/ GOOD BYE

8.00 pm – Leave for Bhopal

Sub: **New office location intimation, staff mail-ids and mobile nos. (for time being).**

Greetings from TNTRC!

We are pleased to inform you that today (6-02-08) we are successfully moving into the new premises located at Ground Floor "Ezhilagam", Chepauk, Chennai 600 005 (the office of Mr.C.V.Sankar ,OSD was located earlier) from our current office at 54/1 Josier street, Nungambakkam, Chennai – 600 034

We would like to inform that the telephone and fax lines and TNTRC proxy server and website would remain disconnected temporarily for a fortnight and we hope to restore them at the earliest. TNTRC staff will be available by mobile or email (personal listed below) until the regular communication is restored.

Please make necessary changes to your records and notify your staff about the new location of TNTRC office and the contact details of the staff.

The mobile numbers and mail-ids for TNTRC staff are as follows:

Dr. Nalini Keshavaraj

Gmail by Google BETA

Sukanya Rangamani <sukanr@gmail.com>

Invitation - Int'l Environmental and Health Monitoring Conference - Delhi, India

Shweta Narayan <nopvcever@gmail.com> **Tue, Jan 8, 2008 at 12:00 PM**
To: Shweta Narayan <nopvcever@gmail.com>

Dear All,

Community Environmental Monitoring (India) a project of New Delhi based The Other Media, and Global Community Monitor (US) is organising an International Bucket Brigade and Environmental and Health Monitoring Conference in India from February 16 th to 19th, 2008. This meeting will bring together on a common platform the community activists from all over the world including different pollution impacted communities of India. The meeting is primarily to share one's experiences, learn from the successes and failures and pool in resources with people and groups fighting environmental pollution and corporate greed. We will also have a team of experts and scientists to provide us with the basics of the community monitoring tools and knowledge that will enable us tackle problems

The conference will be held at Jamia Hamdard, Delhi, located in the South Eastern suburbs of New Delhi. Arrangements for accommodation and food have been made from 15 th to the 19th at Jamia Hamdard campus itself.

We would like to invite you or maximum two members from your organisation/ community who would be interested to the conference. We would request that you arrive at Jamia latest by 16 th morning as the first day of the conference is one of the most important days and would involve sharing of our experiences in our respective areas and would also set the trend for the next three days of discussion.

After the conference we are planning an trip to Bhopal to extend our support and solidarity to the struggle of the survivors of the world's worst industrial disaster. This trip is optional for the participants.

We would be leaving for Bhopal on a night train on 19th and be reaching there on 20th morning. It will be about 9 hour journey. The stay in Bhopal would be for a day or two depending on your further travel/ return plans. Please email us your plans for the Bhopal trip and if you wish to join us for the trip please email your name and age to us so that we can book your tickets to Bhopal. Please keep the trip in mind while booking for your return tickets so that the place from where the ticket is booked is factored in. We would be happy to reimburse second class train fare for all participants.

Please find a draft agenda for the events for your review and comments. We would also request you to please let us know if there is any health or environmental monitoring experiences or case studies that you would like to share with the members at the conference so that we can allot time to your presentations.

Please send in your confirmations as soon as possible.

Regards
Shweta Narayan
India Community Environmental Monitoring
+91 94440 24315
nopvcever@gmail.com

www.sipcotcuddalore.com

==========

Schedule of conference:

15 - Arrive in Delhi - Rest day
16 - Delhi Conf Day – Experience Sharing Day
17 – Day 2 Conference
18 - Day 3 Conference
19 - Delhi Demos – Media demo at traffic junction for benzene levels, Hound demo for media and communities, roundtable with the government and the NGOs working on Air Pollution
OPTIONAL: Group Leaves for Bhopal PM
20 - Toxic Tour in Bhopal
21 – Bhopal/ Delhi

AGENDA:

Day 1 - 16 February – Introduction to the delegates and the background of their communities

9:00 am to 9:30 am – Key Note speech on Air Pollution – Sunita Naraian – CSE
9:30 am to11:15 am – Self introductions and background of the place they come from (10 mins per person)
11:15 am to 11:30 am – Tea Break
11:30 am to 1:30 pm - Self introductions and background of the place they come from (10 mins per person)
1:30 pm to 2:30 pm – Lunch Break
2:30 pm to 4:00 pm – Self introductions and background of the place they come from (10 mins per person)
4:00 pm to 4:15 pm – Tea Break
4:15 pm to 6:30 pm - Self introductions and background of the place they come from (10 mins per person)
6:30 pm to 7:30 pm – Rest
7:30 pm – Dinner
9:00 pm – Film screening from one of the communities (optional for the participants)

DAY 2 - 17 February – Environmental Monitoring – basics, methods, importance, experience from communities

7:30 am to 8:30 am – Breakfast
9 a.m. to 10.30 am – Basics of environment and health – Nity/Rakhal
10:30 am to 10:45 am – Wrap up on importance of monitoring. Four pillars of community monitoring.
ENVIRONMENTAL MONITORING
10:45 am to 11:45 am – Low cost environmental monitoring – Case studies.
11:45 am to 12 noon – Tea Break
12 noon to 12:45 pm – Sub group exercise of monitoring questions for different environmental scenarios/ case studies – Chemical industries, refineries, garbage dump yard, hazardous waste landfills, dust pollution – sponge iron units, mining, stone crushing units, stone quarries.
12:45 pm to 1:45 pm – Discussion on the monitoring questions with the larger group and feedback session.
1:45 pm to 2:30 pm – Lunch Break
2:30 pm to 3:30 pm – Bucket Brigade – Building, using for sampling, interpreting the results, using the results

3:30 pm to 4:00 pm: Discussion
4:00 pm to 4:15 pm – Tea Break
4:15 pm to 6:00 pm – EIA and Generating Baseline Environmental data.
7:30 pm to 8:30 pm – Dinner
9:00 pm – Film Screening (optional)

DAY 3 - 18 February - Health Monitoring – basics, methods, importance, experience from communities

7:30 am to 8:30 am – Breakfast
9:30 am to 10:30 am – Basics of health monitoring – Rakhal
Understanding symptoms, define health of community, assessment, studies and long-term monitoring. Limitations of science
10:30 am to 11:30 am – Low cost health monitoring Case studies: Bhopal , Mettur, Kodi, Punjab, Eloor, Kasargode, International – if any
11:30am to 11:45 am – Tea Break
11:45 am to 12:45 pm - Low cost health monitoring Case studies - Continued
12:45 pm to 1:00 pm: Health as organizing tool – Labour experience
1:00 pm to 1:30 pm – Sub group exercise of monitoring questions for different health scenarios/ case studies – Chemical industries, refineries, garbage dump yard, hazardous waste landfills, mining and quarry areas
1:30 pm to 2:30 pm – Lunch Break
2:30 pm to 3:00 pm – Discussion on the monitoring questions with the larger group and feedback session.
3:00 to 5:00 pm: Emergency Response: Taking samples; Advocacy for better emergency response (fire, health etc); legal recourses for compensation and criminal/regulatory action.
7:30 pm to 8:30 pm - Dinner
9:00 pm – Film Screening (optional)

DAY 4: 19 February – Visit at traffic junction and a coal fired power plant in Delhi for Hound, Press Conference and visit to industrial estate

7:30 am to 8:30 am – Breakfast
9:00 am to 10:30 am – Demonstration of the Real Time Monitor for the delegates
10:30 am – Visit to ITO traffic junction and Indraprasth Power Plant in Delhi, along with media persons for the Real Time Air Monitoring.
1:30 pm to 2:30 pm – Lunch Break
2:30 pm – Roundtable: Center for Science and Environment, Ministry of Environment and Forests, Health Department and Delegates of the conference.
Evening leave for Bhopal

International Bucket Brigade & Community Environmental and Health Monitoring Conference
16-19 February 2008

Agenda:

Day 1: 16 February 2008

Time	Program
10.00 am to 10.30 am	Key Note speech – Nandlal Master (Anti Coke Campaigner)
10.30 am to 11.30 am	General Self introduction of the delegates
11.30 am to 11.45 am	TEA BREAK
11.45 am to 1.45 pm	Presentations from delegates (10 min each)
1.45 pm to 2.45 pm	LUNCH BREAK
2.45 pm to 4.45 pm	Presentations from delegates (10 min each)
4.45 pm to 5.00 pm	TEA BREAK
5.00 pm to 6.00 pm	Presentations from delegates (10 min each)
REST 7.45 pm – Dinner get together	

Day 2: 17 February 2008

Time	Program
7.30 am to 8.30 am	Breakfast
9.00 am to 10.00 am	Basics of Environment and Health – (NITYANAND JAYARAMAN)
10.00 am to 10.15 am	Discussion
10.15 am to 11.15 am	Understanding EIA and Generating Baseline Environmental data, Post Project Monitoring – (LEO SALDHANA)
11.15 am to 11.30 am	TEA BREAK
11.30 am to 12.15 am	Concepts of health – the causation, and the broader determinants of health. Define health of community; Concepts of body function / dysfunction / disease / how this is reflected in symptoms and signs / natural history / diagnosis of disease / community based tools for the same. Understanding symptoms; Toxins / types / routes of exposure / what does the body do to the toxin / what does the toxin do to the body - assessment (DR. RAKHAL GAITHONDE)
12.15 pm to 12.30 pm	Discussion

International Bucket Brigade & Community Environmental and Health Monitoring Conference
16-19 February 2008

12.30 pm to 1.00 pm	Establishing causation – describing / establishing patterns / comparison – PQRST – tools – body mapping / Risk mapping / hound. studies and long-term monitoring. Limitations of science (the need for long term monitoring/studies and limitations in science would be emphasized during the D/E/C – Pqrst explanation. (DR. SUKANYA)
1.00 to 2.00 pm	LUNCH BREAK
2.00 pm to 3.00 pm	Low cost health monitoring Case studies: Bhopal, Punjab, South Africa, Rajan Patil
3.00 pm to 3.15 pm	Wrap up of the previous session – (DR. SUKANYA/ DR. RAKHAL)
3.15 pm to 4.15 pm	Case studies – Group exercise (Scenarios – Stone Crushing units, Refinery, Garbage dumpyards, Chemical industrial areas) Questions: 1. Information requirements & how will you obtain information about the types of pollutants and the prevalent health problems. 2. What do you want to study and why? 3. How will you study?
4.15 pm to 4.30 pm	TEA BREAK
4.30 pm to 5.00 pm	Group 1 & 2 Feedback
5.00 pm to 5.15 pm	Discussion
5.15 pm to 5.45 pm	Group 3 & 4 Feedback
5.45 pm to 6.00 pm	Discussion
6.00 pm to 6.15 pm	Wrap up for the day.
7.45 pm – Dinner and film screening	

Day 3: 18 February 2008

Time	Program
7.30 am to 8.30 am	Breakfast
9.00 am to 10.30 am	Demonstration of the Real Time Monitor for the delegates
10.30 am to 1.30 pm	Visit to ITO traffic junction in Delhi, along with media persons for the Real Time Air Monitoring.
1.30 pm to 2.30 pm	LUNCH BREAK
2.30 pm to 3.30 pm	Low Cost Environmental monitoring – Case studies. (Cuddalore, Mettur, SA, Thailand, Russia*, US)

International Bucket Brigade & Community Environmental and Health Monitoring Conference
16-19 February 2008

3.30 pm to 3.45 pm	Wrap Up of the session
3.45 pm to 4.45 pm	Bucket Building and Environmental Monitoring – (DENNY LARSON)
4.45 pm – 5.00 pm	TEA BREAK
5.00 pm to 5.30 pm	Discussion on the previous session
7.45 pm – Dinner/ Film Screening	

Day 4: 19 February 2008

Time	Program
9.00 am to 9.30 am	Presentation from CSE - What to Sample? (CHANDRA BHUSHAN)
9.30 am to 10.00 am	Presentation from CSE - How to Sample – (LAB EXPERT - CSE) What to look for, What you need to know, What information you need to provide.
10.00 am to 10.30 am	Converting sampling data into campaigns, case studies from CSE – (CHANDRA BHUSHAN)
10.30 am to 11.00 am	Q&A and Discussion
11.00 to 11.15 am	TEA BREAK
11.15 am – 12.15 pm	Sub group exercise of monitoring questions for different environmental scenarios/ case studies – Chemical industries, refineries, Mining, Non Point Source.
12.15 pm to 12.45 pm	Group 1 & 2 Feedback
12.45 pm to 1.00 pm	Discussion
1.00 pm to 1.30 pm	Group 3 & 4 Feedback
1.30 pm to 1.45 pm	Discussion
1.45 pm to 2.45 pm	LUNCH BREAK
2.45 pm to 4.45 pm	Emergency Response: Taking samples; Advocacy for better emergency response (fire, health etc); legal recourses for compensation and criminal/regulatory action. (NITYANAND JAYARAMAN)
4.45 pm	WRAP UP/ GOOD BYE
8.00 pm – Leave for Bhopal	

ODOR PERCEPTION THRESHOLDS VERSUS DANGER LEVELS
OF AIRBORNE GASES AND PARTICULATE MATTER

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Humans are programmed or trained to believe that their senses will protect them from potentially dangerous things. In particular, we tend to believe that "if I can't smell it, it's not bad for me." In fact, this is not true and can lead to erroneous perceptions of air pollution levels in our environment.

A number of substances are commonly emitted by combustion sources, particularly aircraft. Concentrations of aircraft emissions at airports results in substantial levels of pollutants that are carried to neighboring communities, where residents tend to draw conclusions based on their senses of sight and smell. There is often no technical corroboration of these tentative sense-based conclusions if there are no pollutant level monitors, such as employed by the EPA, located in the area. The objective of this report is to quantitatively demonstrate that our noses are insensitive to air pollutant levels that are dangerous to our health and well-being.

We do this by comparing the odor threshold concentrations (the level at which they can be smelled) to the danger level of several substances. Pollution "danger" can be generally defined as 'acute" or "chronic" exposure level related, where acute means a short-term high level while chronic relates to a longer term average exposure that is typically lower than the acute level. In this context, the danger level for the considered substances varies from 1, 8 or 24 hours (acute) to 1-70 years of lifetime average exposure (chronic). [70 years is normally associated with carcinogens (cancer causing).]

On a technical note, both odor thresholds and danger level concentrations for any given substance might be found in the literature or guidelines/regulations (USEPA and the Hazardous Chemical Database, http://ull.chemistry.uakron.edu/erd/index.html used here) in terms of parts-per-million by volume (PPMv) or micrograms per cubic meter of air (µg/m3). The conversion factors between these two are given in Appendix 1.

The actual levels are not so important here, as the focus is on the substance concentration ratio of (Odor Threshold)/(Danger Level) or O/D. That is, if the O/D ratio is exactly 1.0, then we luckily will smell the danger just as it is becoming dangerous. If the O/D ratio is substantially less than 1.0, then we will sense impending danger well before the substance concentrations reach potentially dangerous levels. On the other hand, if the O/D ratio is substantially greater than 1.0, our noses will not inform us of the danger until we are already in the dangerous condition; the greater the ratio the poorer job our sense of smell protects us.

An MSNBC report quote is a relevant stage-setter for the data: "In our town, you can smell jet fuel in the air," said Wietecka (sic), who years ago helped customers and moved jetways as an intern for TWA. "We wake up to the smell of benzene and formaldehyde-based chemicals." [Ref. Appendix 2]

Let's look at those two substances first. From Appendix 1, it is seen that the O/D ratio for benzene is 38,281 while that for formaldehyde is 11,400! This tells us that the fact that the residents seem to be detecting these odors often (as compared to, say, a few hours in a year) means that the situation

is rather chronic and that the EPA danger levels for both of these carcinogenic substances is exceeded by factors greater than 10,000:1!

Another appropriate example is carbon monoxide. Most educated adults know that this is a dangerous substance that causes many deaths each year, primarily due to defective heating systems. Quite relevantly in this case, the O/D ratio is infinitely large because CO is a totally odorless substance i.e. don't count on your nose as a detector. CO poisoning can be either acute (death potential) or chronic (neurological problems, etc.), both resulting from elimination of the oxygen-carrying capability of our blood. Table 1 summarizes this information for additional substances. Note that in all cases the O/D ratio greater than 10 to1!

Table 1

SUBSTANCE	ODOR THRESHOLD	DANGER THRESHOLD	O/D RATIO
Carbon Monoxide	<None>	10,000	Infinite
Ozone	<3888	0.08	48,600
Benzene	4900	0.128	38,281
Formaldehyde	912	0.08	11,400
Acetaldehyde	375	0.5	750
Nitrogen Dioxide	2000	100	20
1,3-Butadiene	4000	0.1	18.5
Sulphur Dioxide	1220	80	15.25

Conclusions

Our nose is a poor detector for ALL of these dangerous pollution substances and should not be counted on as a guide to whether conditions are safe. [In the case of carbon monoxide, the nose is not a detector at all.] Serious chronic (longer term) health problems such as cancer, respiratory illness and heart disease can result if high but non-detectable chemical concentrations persist and corrective steps are not taken.

Conversely, if the odors of any of these substances ARE being detected, it's a sure sign that the levels are probably high enough to cause acute (immediate) health problems e.g. asthmatic or cardiac attacks for at least some of the population and that corrective measures need to be taken immediately.

Officially calibrated pollution monitors should be installed in any suspect area to confirm the exact substance (what we think we smell might actually be something else) and the short/long term concentration levels.

Appendix 1

Derived conversion factor: 1 PPMv = 40.49*formula mass ($\mu g/m^3$)

*CO: 1PPMv=40.49*28.01=1134 $\mu g/m^3$

Odor Threshold: <None> $\mu g/m^3$ Danger level: 10,000 $\mu g/m^3$ O/D Ratio: **Infinite**

[Danger: 8-hour average]

*Ozone (O3): 1PPMv=40.49*48=1944 $\mu g/m^3$

Odor Threshold: <2ppm=3888 $\mu g/m^3$ Danger level: 0.08 $\mu g/m^3$ O/D Ratio: **48,600**
[Danger: 8-hour average]

*Benzene: 1PPMv=40.49*78.11=3163 $\mu g/m^3$

Odor Threshold: 1.55ppm=4900 $\mu g/m^3$ Danger level: 0.128 $\mu g/m^3$ O/D Ratio: **38,281**
[Danger: Carcinogenic, 1E-6 in 70 years average]

*Formaldehyde 1PPMv=40.49*30.03=1216 $\mu g/m^3$

Odor Threshold: 0.75ppm=912 $\mu g/m^3$ Danger level: 0.08 $\mu g/m^3$ O/D Ratio: **11,400**
[Danger: Carcinogenic, 1E-6 in 70 years average.]

*Acetaldehyde 1PPMv=40.49*44.05=1784 $\mu g/m^3$

Odor Threshold: 0.21ppm=375 $\mu g/m^3$ Danger level: 0.5 $\mu g/m^3$ O/D Ratio: **750**
[Danger: Carcinogenic, 1E-6 in 70 years average.]

*NO2: 1PPMv=40.49*46.01=1863 $\mu g/m^3$

Odor Threshold: 1.074ppm=2000 $\mu g/m^3$ Danger level: 100 $\mu g/m^3$ O/D Ratio: **20**
[Danger: annual arithmetic mean]

*1,3-Butadiene: 1PPMv=40.49*54.09=2168 $\mu g/m^3$

Odor Threshold: 1.85ppm=4000 $\mu g/m^3$ Danger level: 0.1 $\mu g/m^3$ O/D Ratio: **18.5**
[Danger: Carcinogenic, 1E-6 in 70 years average.]

*SO2: 1PPMv=40.49*64.1=2595 $\mu g/m^3$

Odor Threshold: 0.47ppm=1220 $\mu g/m^3$ Danger level: 80 $\mu g/m^3$ O/D Ratio: **15.25**
[Danger: annual arithmetic mean]

Gas physics reference (here for conversion factors).
http://www.civil.mtu.edu/~reh/courses/ce251/251_notes_dir/node4.html#SECTION00041300000000000000

Appendix 2

MSNBC report July 2000.

"They weren't smokers, and there was no apparent other cause for their illnesses — except that Park Ridge lies just three miles from O'Hare Airport, one of the busiest air travel hubs on Earth.

Their puzzling condition set Wietecka on a crusade against what he calls the "nasty soup" of chemicals that drifts out from O'Hare — nitrogen oxides, sulfur oxides and hydrocarbons from jets, along with carbon monoxide from ground vehicles.

Wietecka's crusade is a somewhat lonely task: U.S. authorities do not have hard standards for the amount of pollution jets are allowed to spew into the air. And there's no ongoing enforcement system for the standards that do exist. However, the issue is on the agenda as the United Nations' talks on global pollution resume this week in Bonn.

In the meantime, to many residents in quiet Park Ridge, pop. 37,000 and the hometown of Hillary Clinton and Harrison Ford, their bustling neighbor to the west is a major nuisance. "In our town, you can smell jet fuel in the air," said Wietecka, who years ago helped customers and moved

jetways as an intern for TWA. "We wake up to the smell of benzene and formaldehyde-based chemicals.""

Air Pollution Manual

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Sources & Pollutants

Pure air is made of nitrogen, oxygen, water vapour, and some other trace elements. Unpolluted air contains dust and other chemicals such as sulphur and phosphorous from natural weathering and chemical and biological processes. Air is considered to be polluted when any chemical, biological or physical contaminant that "normally" would not be there enters the air. Air pollution can cause respiratory and other health problems, limit visibility and damage buildings and public property through corrosion.

There are many sources of air pollutants in the indoor and outdoor environments. Automobiles are a significant mobile source of air pollution. In addition there are many stationary sources of air pollution -- such as oil refineries, chemical plants, power plants, waste dumps, waste water facilities, medical and municipal waste incinerators, construction and demolition sites, auto body shops, dry cleaners.

Air Pollutants fall into one of two groups – Particulate Matter (PM) and Gases.

1. Particulate Matter: PM 10, dust, heavy metals, lead, soot, other solids

The term particulate matter covers a wide range of finely divided solids that may be dispersed into the air from combustion process, industrial activities or natural sources. PM can come from incinerator stacks, power plants, road traffic, construction etc. It is usually referred to by the largest particle's diameter (a micron = 10 –6 m = 1millionth of a meter). So, PM 10 would refer to PM whose largest particle size does not exceed 10 microns. Mechanically generated dust particles are generally larger and do not stay in the air for too long. Particulates are important in relation to health not only because they persist in atmosphere longer than larger particles, but also they are small enough to be inhaled and to penetrate deep into the respiratory tract. Currently there are National standards for Suspended Particulate Matter (SPM) and Respirable Particulate Matter (RPM).

PM toxicity: articulate pollution generally consists of a mixture of particles of dust, pollen, ash, soot, metals, and various other solid and liquid chemicals found in the atmosphere. The proportions of these components vary widely depending on the source. In and around chemical industries and petrochemical industrial locations, it is generally found that SPM comprises carbon, tray material (hydrocarbons, soluble in organic solvents such as benzene), water-soluble material (such as ammonium sulphate) and insoluble ash (containing small amounts of iron, lead and other wide variety of elements).

So, in addition to the problems caused by physically invading the respiratory system, PM that is loaded with toxic chemicals may also exert a variety of toxic effects defined by the resident chemicals.

2. Gases

Ammonia, chlorine, ozone (smog), NOX, Carbon monoxide, sulphur gases, and volatile organic compounds (VOC) such as benzene, toluene are examples of toxic gases. VOCs are volatile compounds containing carbon and, often, hydrogen. Toxic gases exert a variety of health effects. The terrible tragedy at the Union Carbide factory in Bhopal in 1984 was caused by the release of methyl isocyanate and hydrogen cyanide gases.

National Ambient Air Quality Standards

Particulars	Industrial Air	Residential, Rural and other areas	Sensitive Areas	Implications
Sulphur Dioxide Annual	80 ug/m3 120 ug/m3	60 ug/m3 80 ug/m3	15 ug/m3 30 ug/m3	Exposure to Sulphur Dioxide primarily affects the mucous glands and the lungs. The most common disorders due to the

Average 24 hrs.				exposure are wheezing and breathing problems. Long-term exposure could result in Asthma and Bronchitis.
Oxides of Nitrogen (NO2) Annual Average 24 hrs.	80 ug/m3 120 ug/m3	60 ug/m3 80 ug/m3	15 ug/m3 30 ug/m3	Exposure to Nitrogen Dioxide can cause respiratory ailments, asthma, and it also increases the susceptibility of lungs to infections
Suspended Particulate Matter (SPM) Annual Average 24 hrs.	360 ug/m3 500 ug/m3	140 ug/m3 200 ug/m3	70 ug/m3 100 ug/m3	SPM contains soot, smoke, products of incomplete combustion of organic matter and dust. Such particles are generally larger than 10 microns in diameter and thus are too large to be inhaled beyond the nasal passage. Children are primarily affected by SPM as they are in the habit of breathing through their mouths thus SPM enters their lungs bypassing the nasal clearance mechanism. It causes breathing troubles, wheezing, asthma and bronchitis.
Respirable Particulate Matter (RPM) Annual Average 24 hrs.	120 ug/m3 150 ug/m3	60 ug/m3 100 ug/m3	50 ug/m3 75 ug/m3	Particulate matter less than 10 microns in diameter are respirable particulate matter. These can easily enter the lungs of both adults and children and is known to cause breathing problems and lung disorders.
Lead (Pb) Annual Average 24 hrs.	1.0 ug/m3 1.5 ug/m3	0.75 ug/m3 1.0 ug/m3	0.5 ug/m3 0.75 ug/m3	Lead is a heavy metal found in paints and industrial facilities involved in battery recycling. Lead can enter the human body by inhalation or through lead-contaminated drinking water. Lead interferes with the Central Nervous System and the kidneys. Exposure to even small amounts can cause neurological damages and renal failure in adults. Exposure to lead can affect the thyroid forming ability among the children. Children are particularly susceptible to lead poisoning and health effects due to lead exposure. Lead exposure among children is linked to reduced Intelligence Quotients (IQ) and behavioural abnormalities.
Ammonia (NH3) Annual Average 24 hrs.	0.1 mg/m3 0.4 mg/m3	0.1 mg/m3 0.4 mg/m3	0.1 mg/m3 0.4 mg/m3	Ammonia is one of the most common gases used for industrial purposes. Ammonia causes severe irritation to the eyes, nose, lungs and throat. Symptoms include burning sensation, headache, dizziness, wheezing, shortness of breath and nausea. Over

				exposure could lead to damage in the central nervous system resulting in unconsciousness and convulsions. Intense ammonia exposure can also cause death.
Carbon Monoxide (CO) 8 hrs. 1 hour	5.0 mg/m3 10.0 mg/m3	2.0 mg/m3 4.0 mg/m3	1.0 mg/m3 2.0 mg/m3	Carbon Monoxide is a colourless, odourless, tasteless toxic gas, which is a product of incomplete carbon combustion. CO reduces the oxygen carrying capacity of the blood thus creating a deficiency of oxygen in the organs and tissues. Symptoms of exposure could vary from - headache, weakness, dizziness, nausea and vomiting to coma and death (in case of prolonged and intense exposure). Children and pregnant women are most susceptible to CO toxicity.

#Sensitive areas are locations like hospitals, schools etc.

Other common air pollutants:

Heavy Metals: Heavy metals like lead; cadmium and chromium etc. are the most common contaminants of the air. The most important sources of heavy metals emissions are combustion of fossil fuels and waste.

Lead: See table above

Chromium and Cadmium: They are used in metal alloys and pigments for paints, cement, paper, rubber, and other materials. Low level exposure to these metals can irritate the skin and cause ulceration while long term exposure could cause kidney and liver damage, bone deformation and high blood pressure.

Dioxins and Furans: Dioxins and furans are inevitable byproducts of combustion involving chlorinated material. They are persistent, bioaccumulative and are capable of exerting transgenerational effects. They are known human carcinogens, and their effects target virtually every system in the human body. However, contaminated food rather than inhalation of polluted air is the most significant route of exposure to dioxins and furans.

Sulphur compounds: The primary source of sulphur dioxide is from burning coal; thus major emitters of sulphur dioxide include coal-fired power plants, smelters, and pulp and paper mills. Sulphuric acid aerosol is formed in the atmosphere from oxidation of sulphur dioxide in the presence of moisture. Industries that either use or manufacture the acid can also emit sulphuric acid. Hydrogen sulfide (gas with a characteristic rotten egg odour) is emitted from a variety of industrial processes, including oil refining, wood pulp production and wastewater treatment.
Exposure to sulphur dioxide could lead to lung dysfunction, wheezing and breathing problems, asthma and bronchitis; Hydrogen sulphide can cause irritation of eyes and respiratory system, coma, convulsion, conjunctivitis, eye pain, lacrimation (tears to eyes), photophobia, dizziness, headache, weakness and exhaustion, irritation, insomnia, gastrointestinal disturbances.

Sources of air pollution within the industries:

Stack or vent emissions are often identified as the most significant sources of emissions in a factory. In reality, however, fugitive emissions from storage tanks, cooling tanks, pipe connectors,

valves, equipment leaks, flanges, pumps, compressors, pressure release devices etc are capable of violating the ambient air quality standards and even exceeding the stack emissions.

Documenting Air pollution

Most commonly, air pollution is noticed through a change in the smell of the air one breathes. If it smells different, in all likelihood, the air is not "normal." Although, the nose cannot identify each chemical individually, it is the cheapest tool for monitoring air pollution. Community monitoring of air pollution should, therefore, include chemical odour incident monitoring using the nose as a tool.

Chemical Odour Incident Monitoring:

The sense of smell, hearing, sight and feeling can form the basis for documenting air pollution. International agencies, including the US EPA, and several community groups in South Africa, U.S.A. and the Philippines use chemical odour incident monitoring to document air pollution.

Daily Chemical Odour Monitoring is really quite simple.

- Organise a village meeting, or a meeting of youth or women in the pollution-impacted community;
- Ask them to describe the odours they experience, and list them.
- Ask them to describe some of the immediate health effects or symptoms experienced by them as a result of the odours, and list them.
- Ask them to maintain records of the most intense odours throughout the day, using the questionnaire provided in Annexure 1 below.
- In the event of major incidents – serious emissions or soot deposit from plants etc – a letter may be written to the regulatory authorities enclosing the incident monitoring form.

How to rate the smell: The intensity of the smell can be rated as "high," "low" or "No smell." To get a degree of standardization among the monitors, a simple rule of thumb can be followed. If the odour is overpowering, easily perceptible and/or induces noticeable symptoms, the odour can be rated "high intensity." If the odour is perceptible or just barely so, rate the odour "low intensity." It helps to do a group rating of different smells at different locations in an industrial estate to check the standardization.

The power of the chemical odour incident monitoring, when conducted systematically, lies in its ability to yield trend data to answer questions such as these:

1. Are chemical odours present day-long?
2. Does their intensity vary with the time of day?
3. What kinds of smells are common? Which sources are they associated with?
4. What kinds of immediate health symptoms are associated with each smell?
5. What is the geographical spread of the odours?

What incidents need to be closely monitored?

- Any incident of intense smell, which may or may not have resulted in immediate health effects.
- Any visible sign of air pollution – black smoke, coloured smoke, dust
- Any gas leak or explosion inside the factory or around it, including chemical tanker lorry incidents
- Any unusual hissing sound in the factory, indicating a gas leak
- Any situation of perceptible physical reaction in the absence of smell, noise or any other visible pollution

Laboratory analysis of air toxics:

High Volume Sampling:

A high volume sampler has an air suction machine that pulls the air through a special filter paper. While the sample air is being pulled through, the flow rate can be adjusted and the sample can be taken over a specific period of time. This determines the volume of the sample taken. Any material deposited on the filter paper and is analysed further. High volume sampling gives a quantitative analysis of the pollutants presents in the air.

Buckets Samplers:

Community activists in the United States have developed a well-tested tool called the "*bucket*" to allow communities to sample the air they breathe. The sampler is a plastic bucket with a detachable bag inside it. To sample the air, the valve on the nozzle of the bucket is opened. This operates a pump that sucks in the air and fills up the bag. Once filled, the bag can be detached and couriered to the analytical laboratory.

Several community groups in North America, South Africa and the Philippines are currently successfully using the bucket. The analytical protocols are standardized and allow communities to choose from one or more of several analytical categories that test for different air pollutants with known toxicological profiles.

The advantage of the bucket is that it is a low-cost, but physically and scientifically robust tool, that can be deployed by the community as and when they sense intense air pollution. More importantly, it builds capacity within the community, particularly among the youth, engages them in a meaningful way in the struggle against pollution and strengthens their struggle.

What's the worth of buckets?

The buckets can be used to measure the everyday pollution levels or to respond to accidental releases at the chemical factory in your area. The Buckets take "grab" samples at nose-level and can give you a snapshot of what you are breathing. Buckets have proven to be a valuable tool to keep polluters in line and challenge their baseless claims that emissions are within permissible limits.

The government agencies too are more likely to begin monitoring and publish the results once they know that communities are taking regular samples and monitoring the state of the environment.

Data generated by the bucket gives information about the levels of several gases, some of them with known toxicological properties. The analytical data thus generated combined with regularly maintained chemical odour incident records provides a fair picture of air quality in an area. It would also alert us to the need, if any, for precautionary action to protect health.

Are the results credible?

Grab Sampling is a well-established technique in the environmental monitoring industry. The bucket employs the same principles and techniques as the US Environmental Protection Agency and other industries do to take samples. Indeed, the Bucket was co-developed as a community tool by the US EPA. Bucket samples that were analysed alongside samples taken simultaneously by well-established techniques yielded similar results. Quality assurance and quality control measures provide additional scientific information and increase the credibility of the bucket samples. Currently, Columbia Analytical Services, a US EPA-certified laboratory in California performs the sample analyses. The laboratory is placed among the top 10 laboratories in the U.S.

Are the buckets difficult to use?

The bucket design is well suited for community use. Sturdy and easy to use, the buckets provide a less expensive way of obtaining the comprehensive information relating to toxic gases in the air. This information can help you ask informed questions and express legitimate documented

concerns. The buckets represent sound science, and can provide the data-backing required to corroborate community concerns about pollution and related health effects.

How does the bucket take an air sample?
The plastic bucket serves as a rugged enclosure for a standard "Tedlar" sampling bag and for the equipment needed to fill the bag with outside air. A small vacuum sucks air out of the bucket. When you open the valve attached to the sampling bag, air rushes in to fill the bag. After taking a sample, a trained person, like the bucket coordinator, removes the sampling bag and sends it for analysis. The bucket coordinator puts a new bag and then you are ready to take another sample.

What buckets Do and Do-not Do?
The laboratory can only analyze the bucket sample for gases.

- Buckets cannot measure for PM, including heavy metals, soot, dust, and other solids.
- Buckets cannot measure for toxins that normally attach themselves to particles, such as dioxins.
- Buckets cannot measure for acid rain or radiation.

What pollutants can be tested for using bucket samples?
For testing around chemical plants and oil refineries, two common analytical procedures are requested for, they are – a) VOC's (Volatile Organic compounds) and inorganic gases and b) sulphur compounds.

Volatile Organic Compounds
With bucket samples, the lab can detect many of these compounds at parts per billion (ppb) levels. Some of the measured VOCs include – Benzene, Toluene, 3 types of Xylenes, Methylene Chloride, Tetrachloroethane, Acetone etc.

Sulphur Compounds
Sulphur compounds can also be detected at levels below 1 ppb. Some of the sulphur compounds are – Hydrogen Sulphide, Carbonyl Sulphide, Carbon Disulphide, 7 types of Mercaptans and 5 types of Thiophenes.
Bucket samples are currently being sent to a USEPA-certified laboratory in the US for analyses, because labs in India don't have one essential component required for the analyses.

How are the results interpreted?
Laboratories report the amount of chemicals in the air as a "concentration." Our air is made up of many different gases all mixed together. Nitrogen gas constitutes 70% of air. Other chemicals are present in very small amounts. A concentration describes how much of a certain chemical exists in a given amount of air. Concentration can be expressed as PPM or PPB (parts per million or billion) and mg/m3 or ug/m3 (milli- or micro-grams per meter cubed)

Parts Per Billion:
A chemical present in air at 1ppb concentration represents one molecule of contaminant in 1 billion molecules of air.

ug/m3 Micrograms Per Meter Cubed:
This defines how much a chemical weighs per volume of air. If a chemical contaminant is present at 2 ug/m3, that means that the total weight of that contaminant in a cubic meter or air totals 2 ug or 2 millionth of a gram.

What do all these numbers mean?
The bucket results tell how much of a certain chemical was present at the time of sampling. However, these numbers are meaningless without a reference or benchmark.

Background concentration:
"Background concentration" of a chemical is the normal concentration of the chemical in unpolluted air or normal air. *See the National Ambient Air Quality Standards for more information.*

Health effects: For unpolluted air, chemical contaminants should not be in excess of background levels. These chemicals can exert varying toxic effects on the health of people depending upon the toxicity of chemical contaminants and their concentration in excess of background levels. Very large deviations above background concentration should be closely studied because these chemicals could adversely affect public health. While standards exist for some of the toxic gases measured by the Bucket, it is always preferable to keep all contaminants within background levels of concentration. That is because the toxicity and method of action of many of these poisons is not known. Emerging evidence also indicates that the effects of chemical poisons may magnify if the victim is exposed to a cocktail of poisons.

Some Common VOCs and Their Toxic Effects

Name	Usage	Symptoms and Target Organs
1,1,1-Trichloroethane	Used as a dry cleaning agent, a vapour degreasing agent and as a propellant	Symptoms: irritation of eyes, skin, weakness and exhaustion, restlessness, irregular respiration, muscle fatigue; in animals: liver changes Target organs: eyes, skin, CNS, liver
1,4 – Dichlorobenzene	Used as an air deodorant and as insecticide	Symptoms: irritation of eyes, skin, nose, throat, respiratory system, bronchitis, hypochromic anemia, headache, drowsiness, weakness and exhaustion, dizziness, nausea, incoherence, vomiting, confusion, chemical pneumonia Target organs: eyes, skin, respiratory system, CNS, blood
2 – Butanone	Used as a solvent and in the surface coating industry, in manufacturing synthetic resin	Symptoms Irritation eyes, skin, nose; headache; dizziness; vomiting; dermatitis Target Organs Eyes, skin, respiratory system, central nervous system
Acetone	Used as a solvent, in the production of lubricating oils and as an intermediate in pharmaceuticals and pesticides.	Symptoms Irritation eyes, nose, throat; headache, dizziness, central nervous system depression; dermatitis Target Organs Eyes, skin, respiratory system, central nervous system
Benzene	Constituent in motor fuels, solvent for fats, inks, oils, paints, plastics and rubber. Also use din manufacturing of detergents, pharmaceutical, explosives and dyestuff.	Symptoms Irritation eyes, skin, nose, respiratory system; dizziness; headache, nausea, staggered gait; anorexia, lassitude (weakness, exhaustion); dermatitis; bone marrow depression; [potential occupational carcinogen] Target Organs Eyes, skin, respiratory system, blood, central nervous system, bone marrow Cancer Site [leukemia]
Chlorobenzene	Used in the manufacture of dyestuffs and pesticides	Symptoms Irritation eyes, skin, nose; drowsiness, incoordination; central nervous system depression; in animals: liver, lung, kidney injury

		Target Organs Eyes, skin, respiratory system, central nervous system, liver
Chloroform	Used as a solvent – widely distributed in atmosphere and water	Symptoms Irritation eyes, skin; dizziness, mental dullness, nausea, confusion; headache, lassitude (weakness, exhaustion); anesthesia; enlarged liver; [potential occupational carcinogen] Target Organs Liver, kidneys, heart, eyes, skin, central nervous system
Ethylbenzene	Used as a solvent and in the manufacture of styrene related products	Symptoms Irritation eyes, nose, respiratory system; headache, lassitude (weakness, exhaustion), dizziness, confusion, malaise (vague feeling of discomfort), drowsiness, unsteady gait; narcosis; defatting dermatitis; possible liver injury; reproductive effects Target Organs Eyes, skin, respiratory system, central nervous system, liver, reproductive system
Formaldehyde	Use din particle board, insulation	Symptoms Irritation eyes, nose, throat, respiratory system; lacrimation (discharge of tears); cough; wheezing; [potential occupational carcinogen] Target Organs Eyes, respiratory system Cancer Site [nasal cancer]
m-/p-Xylene and o-Xylene	Used as a solvent, as constituents of paint, lacquers, varnishes, inks, dyes, adhesive, cement, and aviation fluid. Also used in manufacture of perfumes, insect repellent, pharmaceuticals and the leather industry.	Symptoms Irritation eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization; anorexia, nausea, vomiting, abdominal pain; dermatitis Target Organs Eyes, skin, respiratory system, central nervous system, gastrointestinal tract, blood, liver, kidneys
Perchloroethylene	Used in dry cleaning	Symptoms Irritation eyes, skin, nose, throat, respiratory system; nausea; flush face, neck; dizziness, incoordination; headache, drowsiness; skin erythema (skin redness); liver damage; [potential occupational carcinogen Target Organs Eyes, skin, respiratory system, liver, kidneys, central nervous system Cancer Site [in animals: liver tumors]
Styrene	At high temperature becomes a plastic; used in manufacture of resins, polyesters, insulators, and in drug manufacturing	Symptoms Irritation eyes, nose, respiratory system; headache, lassitude (weakness, exhaustion), dizziness, confusion, malaise (vague feeling of discomfort), drowsiness, unsteady gait; narcosis; defatting dermatitis; possible liver injury; reproductive effects Target Organs Eyes, skin, respiratory system, central nervous system, liver, reproductive system
Tetrachloroethylene	Used as a solvent in	Symptoms Irritation eyes, skin, nose, throat

	degreasing and dry cleaning	respiratory system; nausea; flush face, neck; dizziness, incoordination; headache, drowsiness; skin erythema (skin redness); liver damage; [potential occupational carcinogen Target Organs Eyes, skin, respiratory system, liver, kidneys, central nervous system Cancer Site [in animals: liver tumors]
Toluene	Used in manufacture of Benzene, as a solvent for paints and coatings or as a component of car and aviation fuels.	Symptoms Irritation eyes, nose; lassitude (weakness, exhaustion), confusion, euphoria, dizziness, headache; dilated pupils, lacrimation (discharge of tears); anxiety, muscle fatigue, insomnia; paresthesia; dermatitis; liver, kidney damage Target Organs Eyes, skin, respiratory system, central nervous system, liver, kidneys
Trichloroethylene	Used as a solvent in vapour degreasing. Used as an intermediate in production in pesticides, waxes, gums, resins, tars, and paints.	Symptoms Irritation eyes, skin; headache, visual disturbance, lassitude (weakness, exhaustion), dizziness, tremor, drowsiness, nausea, vomiting; dermatitis; cardiac arrhythmias, paresthesia; liver injury; [potential occupational carcinogen] Target Organs Eyes, skin, respiratory system, heart, liver, kidneys, central nervous system Cancer Site [in animals: liver & kidney cancer]

[**Volatile Organic Compounds:** Exposure to VOCs primarily occurs through inhalation, affecting the mucous membranes of eyes, nose, throat and respiratory tract. Prolonged exposures to VOCs are known for causing various types of cancer. These chemicals are also known as endocrine disrupters as they imitate or disrupt the action of naturally occurring hormones in the human body. Whatever little we know about the toxics effects of VOCs, indicates that these chemicals are serious concerns to human health]

Annexure 1

AIR EMISSIONS MONITORING/ REPORTING SHEET

Name of the monitor:
Date of the incident
Address:
Time of the incident

Location of the source of the emission:
Name of the unit
(Please specify if the emissions/ leak was from any particular point of the unit)

Describe the wind flow during the leak:
From the plant – gusty, steady, strong, light, none

What was the usual direction of the wind for the area at that time –

Identify the smell
Rotten eggs
Sour
Acid like
Gasoline/ kerosene/ oil
Ammonia
Nail paint/ paint
Any other

What is the immediate health effect of the leak
makes feel nauseous
gives a headache
eyes burning
throat closing
difficulty in breathing
any other

How does the emission look like:
Smoke
vapour clouds
fire
Explosion
Was there any flare? If yes then what was the colour of the smoke from the flare?

----------Answer the additional questions in case of Accidents ----------

Has the incident been reported to the local authorities?
By whom?

What was the response of the local authorities (visit by officials, action taken against polluter, compensation paid, samples taken etc)

Was there any human injury as a result of the leak/ emissions? If yes, please answer the following:
How many people were affected?

How did they came in contact with the air/ gas?

Was complaint filed with police, PCB? If yes, provide copy of complaint. If not, file complaint with copies to local group and relevant Panchayat.
Please fill out their personal details:
Name
Age
Sex
Occupation
Address

Type of injury

Extent of injury

Date/time of injury

Any medical treatment taken? Describe with name of doctor, doctor's report/prescription etc

Any loss of workdays. If yes, how many?

Has there been any death due to the exposure?
Name
Sex
Age
Address of the deceased.

Describe incident leading to death –
Where was the victim at the time of exposure?

What was the victim doing at the time of exposure?

Was death immediate?

What symptoms?

Cattle Animal Injury/Death
Number of animals affected? Kind of animal

Describe injury, cause of injury.

Was a veterinarian consulted? If yes please attach details of diagnosis, prescription, tests performed?

Was complaint filed with police, PCB? If yes, provide copy of complaint. If not, file complaint with copies to local group and relevant Panchayat.

FACT SHEET ON CHLORINE

Chlorine is a poisonous, greenish-yellow gas with a very irritating smell. It is a very irritating, and dangerous chemical. Usually combined with other chemicals, it is used to disinfect water, and in many other chemical industrial processes

Chlorine gas is not usually found in the environment. If chlorine is spilled into water or onto soil or if it is released from a tank into the air, the chlorine will evaporate very quickly forming a greenish-yellow cloud that is heavier than air and can be carried by the wind several miles from the source, maintaining dangerous concentration of chlorine.
Exposure to chlorine can occur following an accident, such as a leak or spill from a chlorine tank.

Most of the chlorine that enters lakes, streams, or soil evaporates into the air or combines with other chemicals into more stable compounds. Chlorine-containing chemicals that seep through soil down into groundwater can remain unchanged for many years.

HOW ARE PEOPLE EXPOSED TO CHLORINE?

Exposures to chlorine gas are usually due to industrial processes or accidental spills. When chlorine combines with lake or river water, a number of chemicals including chloroform (a carcinogen) can be formed.
Breathing: Most high-level exposure occurs in workplaces where chlorine is used. Breathing in the gas is the most common way for it to enter the body.
Drinking/Eating: Low level exposure can occur when water containing chlorine is used for drinking or for food preparation.
Touching: Small amounts can pass through the skin when people are exposed to chlorine gas, chlorine bleach, etc.

HEALTH EFFECTS

Immediate Effects - The toxic effects of chlorine are primarily due to its corrosive properties. Chlorine causes damage to tissues and destroys cells in the body.

- Chlorine gas is irritating and corrosive to the **eyes**, **skin**, and **respiratory tract**.
- Exposure to chlorine may cause burning of the eyes, nose, and throat; cough as well as constriction and swelling of the lining cells of the airways and lungs can occur.

Respiratory - Inhalation of high concentrations of chlorine gas can rapidly lead to breathing difficulty with airway constriction and accumulation of fluid in the lungs (pulmonary edema). Patients may have immediate onset of rapid breathing, blue discoloration of the skin, or wheezing. Damage to the respiratory system may progress over several hours. Exposure to chlorine can lead to reactive airways dysfunction syndrome (RADS – a respiratory disorder), a chemical irritant-induced type of asthma over the long run.
Children may be more vulnerable to corrosive agents than adults because of the smaller diameter of their airways.

Cardiovascular- After severe exposure, cardiovascular collapse may occur because of the lack of oxygen due to toxic effects in the respiratory system.
Dermal - Chlorine irritates the skin and can cause burning pain, inflammation, and blisters. Exposure to liquefied chlorine can result in frostbite injury.
Ocular – Low concentrations in air can cause burning discomfort, spasmodic blinking or involuntary closing of the eyelids, redness, conjunctivitis, and tearing. Corneal burns may occur at high concentrations.

Chronic Exposure

Chronic exposure to chlorine, usually in the workplace, may cause corrosion of the teeth. Multiple exposures to chlorine have produced flu-like symptoms and a high risk of developing reactive airways dysfunction syndrome (RADS - chemical irritant induced asthma).

Exposure	Symptoms
1-3 ppm	Mild nose (mucous membrane) irritation
5 ppm	Eye irritation
5-15 ppm	Throat irritation, moderate irritation of upper respiratory tract
30 ppm	Immediate chest pain, vomiting, changes in breathing rate, and cough
40-60 ppm	lung injury (toxic pneumonitis) and pulmonary oedema (fluid in the lungs)
430 ppm (for 30 minutes)	Death
1000 ppm	Death within a few minutes

The concentrations listed above are approximate; the effects will depend also on exposure duration. In general, people who suffer from respiratory conditions such as allergies, or who are heavy smokers, tend to experience more severe effects than healthy subjects or nonsmokers.

FIRST-AID

- Remove the patient immediately from the scene of the accident.
- If there is irritation of the eyes, gently irrigate with water.
- If there is breathing difficulty – go immediately to the hospital – the doctor will give oxygen and a nebulizer with medicines to relieve the breathing difficulty.
- If there is collapse – rush urgently to hospital – the doctor will give oxygen and other medicines to resuscitate the patient.
- There is no specific antidote for chlorine poisoning. Treatment noted above is supportive.
- If symptoms persist please see a doctor.

QUESTIONS AND ANSWERS ON CHEMICALS AND HEALTH

– by Dr. Rakhal Gaithonde, Community Health Cell

1. ***Why do I need to know about chemicals?***
   Changing lifestyles and a rapid increase of industries using synthetic materials has led to the use of thousands of chemicals in the manufacturing process. If not handled or disposed properly these chemicals can reach our surroundings and enter our bodies in different ways.

   Many of these chemicals can have adverse effects on the health of humans, animals as well as the environment.

   While ALL humans are invariably exposed to chemicals, those living near industries, waste-dump sites and along water bodies draining these industries are especially at risk. This is especially so in the context of rampant corruption, weak regulatory systems and industries who have a callous attitude towards the health of the poor.

2. ***How do chemicals reach the environment?***
   Chemicals can be of two types – some occur naturally in the environment and others are manufactured.

   Industrial processes can concentrate naturally occurring chemicals – leading to very high levels of these chemicals that can cause adverse effects on health. Examples include mercury, asbestos etc. Industrial processes can also lead to the formation of new / synthetic chemicals – both as products of the process as well as by-products or waste products.

   Both these types chemicals reach the environment and cause adverse health impact as a result of their release by industry into the environment. Some chemicals like pesticides are also poisonous and reach the environment due to human activity.

3. ***How do chemicals reach my body?***
   Chemicals can reach our bodies in many ways. Some chemicals in the air can enter thorough the air we breathe. Chemicals in the soil can enter the water we drink or can contaminate the food we eat. Many of the food products contain varying amounts of chemicals that were applied as pesticides. Many animals eat contaminated plants or drink contaminated water. Chemicals are concentrated in the animal's bodies and can enter ours when we eat them eg. Fish, goats and chicken, milk etc.

   Most chemical contaminants are present in very small quantities and may not be easily identified in food and water without special tests. However many a time even these small quantities are enough to cause harm.

4. ***How does my body respond to these chemicals?***
   The human body is well adapted to digest and convert food into energy. The human body can also detoxify / neutralize / excrete naturally occurring amounts of natural chemicals. The human body however is not very good at excreting or de-toxifying very high concentrations or synthetic chemicals.

   These chemicals when not properly detoxified usually interfere with the normal functioning of the body, leading to adverse health effects.

   Some chemicals are also stored in the body and can thus effect the health many years after it first entered the body.

5. ***What are the effects of chemicals on my body?***
   The effects on the body can be – immediate, long-term or they may affect future generations. Another way of looking at effects are those that start immediately on the body coming in cotact with the chemical, and those that start many years after the chemicals enter the body. Some of the symptoms may be very obvious and severe, while some may be very subtle – however all symptoms and diseases due to chemicals are totally avoidable.

   Symptoms that start immediately on coming in contact with chemicals include episodic breathlessness

and noisy breathing (especially in young children), irritation of the eyes and skin, feeling faint or giddy etc. Symptoms that are long term include neurological problems, cancers, immuno-deficiency, menstrual problems. Those that represent inter-generational effects of chemicals include abortions, abnormal fetuses etc.

6. ***How do I recognize the effects of chemicals on my body?***
Most of the symptoms / health effects of chemicals may resemble symptoms that may occur due to natural causes.

However you can suspect chemicals as a cause if you are in a situation where you are at a high risk for exposure. These would include living near an industry, working in factories that use these dangerous chemicals, living down stream – near water bodies into which effluents from these factories are let out.

In addition one should suspect chemicals when there is an unusually high rate of a particular illness in a community. This can only be recognized when one collects information from the whole village or near by villages and compares it with populations not at similar risk.

7. ***What is the responsibility of the industry?***
The industry as the producer of these chemicals as it makes profit out of these is primarily responsible for the responsible use, proper detoxification and disposal of all chemicals. It is also thus primarily responsible for any health effects that arise out of these chemicals in the communities around the factory or in workers within the factory. These will occur only when the factory ignores the safety rules are regulations and the rules for proper treatment of chemicals during and as by products of the manufacturing process.

The factory also has the moral and legal responsibility to inform the communities around the factories and the workers working within the factory of the possible dangers of the various chemicals being used or let out as effluents.

8. *What is the role of the government?*
The government through its various agencies is responsible for the regulation and monitoring of the factories. These agencies are mandated to check regularly whether the factories are complying with the norms. These agencies are also supposed to act on complaints from citizens regarding irregularities.

The government also ensures that the factories compensate communities adequately if there is any damage, and makes sure that adequate preventive steps are taken to prevent any harmful effects of toxic chemicals.

9. *What does the doctor recommend?*
   - It is important for all communities to assess the risk for effects due to toxic chemicals.
   - If there are any industries near by – make sure you are aware of all the processes and chemicals used.
   - Make sure to find out if the local doctors and the government nurse are aware of the various safety procedures in case of accidents or any illness that can be due to the chemicals used in the factories.
   - If they are unaware – please request them to find out so that they can help you.
   - Raise the issue of any possible suspicious occurrences, illnesses in the gram sabha and with panchayat members – the panchayat is primarily responsible for the development of the area.
   - Raise the issue of any possible suspicious occurrences, illnesses with the district and block level officials.
   - Despite the presence of various norms and regulation and laws and agencies to do this work – unless communities get to together and demand justice these laws and rules are meaningless.

MERCURY AND HEALTH

By Dr. Rakhal Gaithonde, Community Health Cell

Mercury is probably best known as the silver liquid in thermometers. However, it has over 3000 industrial uses. Mercury and its compounds are widely distributed in the environment as a result of both natural and man-made activities. The utility, and the toxicity, of mercury have been known for centuries. New evidence demonstrates that even low levels of mercury exposure may be hazardous.

WHAT IS MERCURY? WHAT ARE ITS PHYSICAL CHARACTERISTICS?

Mercury is a metal. It is liquid at room temperature. If left in the open it will evaporate into fumes. This happens especially in warm climate.

WHERE IS MERCURY FOUND?

Mercury is usually found in combination with other chemicals. While it may be naturally present in some places most of the harmful mercury reaches the environment usually because of industrial processes, these processes include production of thermometers, during the production of PVC, during the production of chlor-alkali etc.. Once in the environment it can be further changed into different products.

HOW DOES MERCURY ENTER MY BODY?

Mercury can enter your body either through direct ingestion (by eating it or substances contaminated by it) or by breathing it in (by breathing in fumes of mercury).

WHAT ARE THE EFFECTS OF MERCURY ON MY HEALTH?

The effects of mercury on health can be divided into immediate and long term effects.

When a person in exposed to large amounts of mercury fumes or the metal itself she / he immediately has the following:

1. Fatigue, fever and chills.
2. Respiratory symptoms such as cough, shortness of breath, tightness and burning pain in the chest and inflammation of the lungs.
3. There may be symptoms in the neurological system like shaking of hands / tremors, sleeplessness, memory loss, headaches and emotional instability.
4. There may also be gastrointestinal symptoms like nausea, vomiting and diarrhea. There will be an associated metallic taste.

When a person is exposed to small amounts of mercury over longer periods of time she / he may develop the following symptoms.

1. The commonest system to be affected is the nervous system – symptoms include unsteadiness, clumsiness, tremor, behavior changes , mood changes, abnormal sensations (*unarchi*)
2. The kidneys can be damaged.
3. An increase in the blood pressure and the heart rate. There have been some studies linking exposure to mercury to increased risk of heart attacks.
4. The effect of mercury on the reproductive system as well as on abortions is not clear – while it has not been proved to be conclusively harmful – it has not been proven to be completely safe either.
5. Some studies have shown that the developing fetus' brain may be damaged if the pregnant mother is exposed to mercury.
6. There has been no clear link between mercury and cancer.

HOW DO I DETECT / SUSPECT MERCURY'S EFFECTS?

When you develop any of the above symptoms – especially if you know of factories using mercury near your place of residence it is wise to check with your doctor. Mercury can be detected in your blood and urine – but these tests are not widely found and may be accessible only in large medical centers. It is important thus to prevent all possible exposure to mercury.

WHAT DOES THE DOCTOR RECOMMEND?

It is important to be aware of any sources of mercury nearby. Please find out the chemicals factories near by are using and see if there is any use of mercury.
Make sure not to handle any liquid that is silvery shiny – it may be mercury.
If you notice any symptoms like tremors, teeth problems in many people in the community and you know you have been exposed to mercury, or you suspect to have been exposed to mercury please check it out.
It is important to find out because the effects of some forms of mercury may be treatable by giving chemicals that will wash the mercury out of the body. But some varieties of mercury may cause permanent damage in the body. However it is much easier to prevent mercury from entering your body than treating mercury induced harmful effects.