Young Environmental Health Researchers Meet

A Report

29th and 30th January, 2015

Hosted by SOCHARA, Bangalore

Conducted at Indian Social Institute, Benson Town, Bangalore

OBJECTIVES

1. Getting to know individuals and institutions working on the broad theme of environmental health
2. Familiarising with the current research activities and priorities of individuals and institutions
3. Identifying and discussing priority EH issues at a state level and national level
4. Identifying key philosophical, technical and political challenges in environmental health research, and potential solutions to these challenges
5. Identifying avenues and a way forward for further interaction and collective action

PROCEEDINGS

Day 1: Getting to know each other

Introductions

Welcoming the participants, Adithya went on to discuss the thought process behind the meet, and the activities undertaken to identify young environmental health researchers from across India (snowballing, journal search, and screening of websites of public health institutions in India). The emphasis on 'researchers' was because it was felt that no such platform exists for environmental health researchers to exchange ideas, concerns and notes with their peers. The emphasis on 'young' was to facilitate uninhibited discussion in the absence of iconic researchers, and because the large burden of environmental problems will be faced by this generation and those to come in future. The open nature of the platform for sharing and discussion was re-emphasised. It was mentioned that some young researchers who were unable to come for the meeting due to personal reasons were also interested in learning about the deliberations taking place.

As part of an informal introduction session, participants were also asked about what their top environmental health priority would be if they became the health or environment minister. Some of the points included:

- Environment as a priority in health ministry (and health as priority in environment ministry)
- Stimulate change in younger generation by strengthening environmental education in schools
- Create manpower to monitor and manage the environment (such as introducing environmental officers and units at each administrative level)
- Provide financial benefits for reducing and recycling material wastes (especially plastics)
- Promote non-hazardous agriculture (organic) and lifestyle
- Incorporate health costs and considerations (from equity and social justice perspectives) in developmental decision-making
- Community participation approach in solving environmental and health issues

Some delegates also felt that it would not be possible to do anything useful being a minister due to various systemic constraints. Dr Ravi Narayan reflected that it is important for each of us to recognise that we are part of the problem, before we can solve it. He added that all the thoughts expressed earlier should be collected and shared with the environment or health ministry.

Sharing by Dr Ravi Narayan on his and SOCHARA's journey from an environmental health research perspective

Dr Ravi's early career experience of working with refugees in the East Pakistan refugee camp was largely about addressing healthcare needs, but also exposed him to the basic environmental health needs of a community. Following that, after having trained in industrial health, he was involved with a tea plantation in south India, where efforts were made to identify and improve health and safety of workers – especially in the area of water and sanitation. He emphasised the importance of community contact and experience for work in the field of health, and discussed about some important documents that have inspired SOCHARA ethos:

- *Health for All – An Alternative Strategy – report written by ICMR and ICSSR*
  In which it was mentioned by prominent academics from medical colleges: to attain health for all
    - Organise poor and underprivileged to fight for their basic rights
    - Need for a paradigm shift

  SOCHARA realised the need to move beyond the biomedical model, need for a sociological model
- *D Banerji's Health and Family Planning Services in India: An epidemiological, socio-cultural and political analysis* – provided the basis on which the SEPCE analysis approach (social, economic, political, cultural and ecological) was further developed
- *The New Epidemiology – Prof. Geoffrey Rose, 1992* – The primary determinants of disease are mainly economic and social and therefore its remedies must also be economic and social
- *Dr. Thelma's PhD thesis* – which demonstrated the importance of analysing the underlying cause of health problems, and the relevance of appropriate policies to address these issues

He further discussed the initial exploration on community health that led to the establishment of SOCHARA, which included a trip around India visiting community based health projects. Based on the

journey and further reflection, 'Community Health' was defined as – the process of enabling people to exercise collectively their responsibility to own their own health and to demand health as their right. The importance of "communitisation" as a concept was discussed. The participants were also introduced to other forums and platforms which help build an understanding on community health such as the medico friend circle (mfc).

SOCHARA's experience in environmental health was expressed through three cases:

1. Involvement in the Bhopal Gas Tragedy: where SOCHARA responded along with other mfc members in the performing research at community level to be able to assist demystification of information (through a comic book – Hamari Sehat Hamari Ladai), and to aid in appropriate policy decisions. The report of the study is available (The Bhopal Disaster Aftermath). Engaging with sensitive researchers and bureaucrats from within the system was also done – which helped in gaining further understanding of the problem. The difference in the research method and translation used by mfc was analysed and reported by anthropologist Shiv Visvanathan in his article in Lokayan Bulletin.
2. The National Institute for Malaria Research and SOCHARA partnered in researching and promoting community participation in bioenvironmental control of mosquitoes (by using fish species such as guppy). Appropriate communication strategies such as kalajatha (street play) were used in several villages in Tumkur district of Karnataka. Further engagement in this field, with WHO-SEARO in rollback malaria guidelines (to encourage community based and inter-sectoral solutions as part of national malaria programs), and the engagement with civic bodies in Mangalore and Bangalore were mentioned.

- CHESS: Community Health and Environment Survey Skill-share was a platform initiated by a few environmental groups with SOCHARA. The first of these workshops was held in 2001, to assist pollution impacted communities share about their problems with each other, and with health researchers and doctors. Through these workshops, communities were more empowered with health information and skills in basic research (lay epidemiological techniques), and researchers had an opportunity to engage and follow up with communities that need their support.

People's Charter for Health (India): developed by the Indian chapter of the People's Health Movement, also has emphasised the importance of environmental health. Dr Ravi also encouraged the participants to: read the People's Health Resource Book (Health for All Now!), and engage with the Global Health Watch series (and website), as there is a need for watching the progress of environmental health worldwide.

It was also discussed that it is important to work with groups from all political backgrounds, as health is a cross-cutting theme. Dr Ravi also mentioned about relevant SOCHARA publications, discussing frameworks to understand multilevel causation of environmental health problems. SOCHARA will also be participating in facilitating the 'Ecological Sensitivity' module at the Rajiv Gandhi Institute of Public Health (for the MPH Honours program).

The session was concluded with some emphasis on not just identifying problems, but also undertake socio-epidemiological research, work towards solutions, engage with communities, health systems

and policy makers with diverse methods of knowledge translation and action to impact social determinants of health.

Comments and questions:

''I appreciate SOCHARA's philosophy – I also feel like I am not just a researcher, but also an activist'', Anuj Ghanekar

''I attended a study dissemination on the river and drainage system located close to my home. Despite the fact that research was conducted over a period of many years, which showed toxic chemicals in the water, the findings and knowledge was not shared to the residents during the course of the research – this demonstrated a lack of knowledge translation" , Poornima

''We are 'Activist Professionals' and not 'Professional Activists'; at SOCHARA you drop in with your profession – you are not drop outs from your profession'', Dr Ravi Narayan

Sharing by individual delegates: Research Interests

1. *Divya Narayanan (The Other Media, Chennai)*

- The Other Media was set up in 2003 with a focus on peace, democracy, secularism, corporate accountability, economic, environmental and gender justice
- Community Environment Monitoring (CEM) project of The Other Media – supports grassroots activities for human rights, social and environmental justice.
- CEM is active in Cuddalore, Tamilnadu, where the SIPCOT industrial complex is located – It opened up democratic space for pollution impacted communities.
- Divya's current involvements:
    - **Healthy Energy Initiative** has been started in collaboration with a non-profit organization in the US called "Healthcare Without Harm." The other partnering countries are US, Philippines, South Africa and Australia.
        - Increasing the dialogue on health impacts of energy choices: involve doctors and public health professionals in the issues of energy, sustainability and health. There are very few discussions about health impacts. Therefore, the intention is to give doctors an idea about energy choices and health impacts, and encourage their involvement in the debates.
        - Southern Zone round table was held in Chennai and national round table was held in Delhi in 2014. Deans from Schools of Public Health across India attended – SRM, Manipal, JIPMER, IIPH, PGI – Chandigarh
    - Working on a project to study the health impacts of the lifecycle of coal.
    - Working on a debriefing paper: Critiquing the electricity and energy policy of our country – along with other contributors including Adithya from SOCHARA.
    - **Community Environmental Monitoring** – a process of generating data to substantiate anecdotal evidence of exposure to hazards in industrial areas. People from the community are trained to become community environmental monitors. This is an attempt to demystify science and teach communities to record

observations. Example: if an odour is perceived, the date, time and type of smell is recorded – "At 5:45 pm there was a foul smelling gas that was similar to rotten eggs". Such systematic observations over a period of time provide information on the type, timing and volume of emissions of certain chemicals which correspond to odours, providing strong usable evidence of the same. Thus, local communities are empowered to do their own research and use it as evidence to fight for their rights.

- Involved in CHESS (Community Health and Environment Survey Skill-share), a platform for exchange between experts and communities. The theme for this year's CHESS is Climate Change, Environment and Coal which will be held in Bangalore in Feb 2015. To understand health and health ramifications related to energy choices as well as legal strategies to fight back.

2. *Lalitha Vadrevu (Health Management and Research, Jaipur)*

Projects related to environmental health at IIHMR:

- Future Health Systems (FHS) – a project being carried out through a consortium of universities – Johns Hopkins University, International Centre for Diarrhoeal Disease Research, Bangladesh, Makerere University, Uganda and Institute of Developmental Studies, Sussex to generate evidence and drive change, specifically policy changes from equity perspective – keeping maternal and child health as main focus. Sunderbans, West Bengal is the study region of the project.
- Social, Technological and Environmental Pathways to Sustainability (STEPS) Uncertainty project – on climate change with a focus on livelihood impacts: A long term project with a Norwegian research institute

Future Health Systems Project

The Sunderbans are geographically very vulnerable – susceptible to floods, cyclones etc. The study area is large, spread out and has challenging terrain. Nineteen blocks of the district were included in the study. It is a rural, remote and agrarian region, housing approximately 4.5 million people. Natural disasters have been common in the past, and are a part of life here. The political history also has influence over current situation. The lands are largely waterlogged, and people depend on natural resources. Poverty, communicable and non-communicable diseases are prevalent. Health systems are weak.

The FHS project was started in 2011 to focus on maternal and child health, especially on child health, due to local need. FHS consortium is a knowledge intervention program. It objectives are:

- Generate and push streams of evidences on the health service delivery system
- Knowledge platform to generate new ideas on better health services to disadvantaged children
- Strengthen capacity of interested partners (government, non-governmental organisations and development agencies) to design and evaluate new interventions

The initiative addresses the following key issues in child health in the Sunderbans

- Climate – Climate change, adverse climatic events

- Access – To livelihood options, and to health care services (informal healers) studied. In one block there were 332 local healers. Almost 85% OPD care is provided by rural medical practitioners (who don't have official degrees in any of the medical disciplines): GIS and PRA exercises have been used for documenting
    - Traditional healers/informal healers.
    - Virtual health journeys – Two team members from IIHMR lived in the village and undertook journeys to understand what a common man does in the case of a medical emergency. Two main learnings were –
        - Transport – ferry guards very infrequent
        - Supply side issues – quality of care poor
- Proximal Environment around the child are crucial for development – physical environment, psychosocial care were found to be suboptimal
    - Climatic shocks have bearing on child care practices and psychosocial factors
    - Childcare at the hands of younger children was common during climatic events and among women headed households
    - Children are susceptible to malnutrition and other impairments in development.

Comments and questions:

- (Dr. Ravi) Engagement with rural medical practitioners? Answer: The study does acknowledge the important role they play in health care service provision. There was a questionnaire for quality assessment to determine how competent RMPs are. The result was that RMPs need capacity building.
- (Dr. Ravi) Were the results shared with the people? Did you get the community perspective? Answer: Yes, the results were discussed with the community. The next presentation focuses solely on the community perspectives.

3. *Rittika Brahmachari (Institute of Health Management and Research, Kolkata)*

Details of the STEPS (Social, Technological and Environmental Pathways to Sustainability) – Uncertainty from Below Project, were shared:

- How people perceive climate change and its effects on the determinants of their health?
- Interface between the policymakers and the islanders

STEPS has study sites across India focusing on three major ecologies –desert (Kutch), urban (Delhi and Mumbai) and mangrove (Sunderbans). Research findings from these three diverse terrains will be triangulated. This present discussion is about Sunderbans.

A. *Climate Change and Livelihood Uncertainty:* In order to understand how community perceives climate change, several ethnographic approaches were used. The project was in collaboration with Institute for Developmental Studies (IDS), Sussex which has an anthropology heavy group. Semi-structured household interviews, PRA (Participatory Rural Appraisal) and 'photo-voice' techniques were used. Findings:
    a. Most people reported having not heard the phrase 'climate change'. Only school going children have heard about it.

b. Community perceives "climate change" based on observations - monsoon getting delayed, rains are not as much as before, sea level rising, aquamarine species lost – fish variety are getting extinct because of boats and trawlers – small mesh nets destroy the fishes and other marine animals. These cause great risks to the people living on the river.

Through photo voice – the perception of local women (who were first trained to use cameras) was captured on the themes of:

- Climate induced effects on health systems
- Barriers to accessing existing health systems and other resources
- Adaptive strategies taken by the communities to be resilient

After collection of the photos there is a process of knowledge translation – interface meeting with the block development officers, panchayats, school teachers and other members of the community. In the process women are also getting empowered and their voices are being heard, besides evidence being generated.

B. *The variance in understanding of the health rights of vulnerable groups in the Sunderbans, India:* This part of the project aimed at understanding vulnerable groups and health vulnerability and status of health rights in the area. Crab collectors, women with migrant husbands, people living on embankments, Meen dharas (tiger prawn eggs harvesters) were found to be especially vulnerable.

C. *Understanding and unlocking community capability: Role of local media in Sunderbans health system ecology:* This sub-project aims to document health needs, reporting of health status, role of media in influencing health needs, and political economy in media reporting. The need for stronger engagement with media was felt. Through the project:
   a. Sunderbans Health Watch Report and google group created
   b. Capacity building of the local stakeholders – in maternal and child healthcare.

Comments and questions:

- (Amulya) What are the other livelihood opportunities? Answer: Agrarian – mainly that.
- (Amulya) Have you explored the political aspects? Answer: No, do not want to delve into that.
- (Adithya) Trawlers were mentioned before as hampering marine biodiversity. Result of climactic change or globalization? Assessing vulnerability is a huge challenge and it occurs at multiple levels. Needs further discussion – SOCHARA too working on vulnerability assessments.
- (Adithya) – Tiger conservation – what is being done in the community? Answer: Community is taking up measures to conserve tigers.

4. Poornima (Institute of Social and Economic Change, Bangalore)

ISEC is largely funded by the central government, but also receives other sources of funding based on collaborations and from funding agencies. The organizational structure, centres and the broader work areas were first discussed. The Centre for Environmental Economics and Natural Resource Management (CEENR) unit works on sustainable development and climate change, and urban

ecology (including water and sanitation). Centre for Research in Urban Affairs (CRUA) works on urban areas related issues especially sustainable management focusing on water and health, sanitation and health, e-waste, holistic healthcare in rural areas. The work on water and health is mainly on urban water supplies including groundwater contamination and depletion. The project on improving sanitation in rural northern Karnataka revealed that there is lack of information on hygiene, role of cultural beliefs and behavioural factors, social and economic issues, and issue of water shortage. As a result of the intervention there was a decrease in diarrhoea, skin problems, worm infestations and food contamination. Eco threats due to e-waste are increasing.

The Holistic Healthcare project has various components, including environmental health. It has helped in understanding the perceptions of people regarding AYUSH. Merging of traditional knowledge and AYUSH has been looked at.

The role of private sector in rural sanitation, climate change and coping mechanisms have also been studied. Sanitation in urban areas was looked into in terms of access to toilets in slums including environmental and socio-economic issues. E-toilets have also been studied and found to be beneficial. The cost of each e-toilet was about rupees 3.5 lakhs/unit and was manufactured in India. The issues in management of e-toilets compared to Sulabh toilets were discussed.

5. *Amulya Nidhi (Swasthya Adhikar Manch and Nai Shuruvat, Indore)*

He started his work several years ago with Tarumitra where he worked on environmental awareness in schools and colleges. His work experience on environmental health includes disposal of toxic waste from Bhopal at Pithampur, impact of Bt Cotton in Bhadwani and Dhar districts, health impacts on people displaced by Narmada dam projects and health impact of asbestos factories. More recently his work includes ethical aspects of clinical trials, and campaign on right to health. Swasthya Adhikar Manch (SAM) has a fellowship under which fellows work on the issues of health amongst others. The interventions by SAM are based on participatory research which is as a result of collective effort of various organisations.

A movie on silicosis was shown. Adivasi men migrating from Madhya Pradesh to Gujarat to work in glass factories are being affected. Impact on family members was also shown. The issue with silicosis is that is misdiagnosed as tuberculosis. The tribal population SAM works with migrates from Madhya Pradesh to Gujrat to work in quartz crushing. Though owners are aware of the health impacts they do not take any action.

Three surveys/studies were conducted in 2005, 2008 and 2012. Though government agencies conducted studies, they were not community-based. Hence these studies were conducted in 21 villages through using household questionnaire for evidence generation. Meetings were conducted with doctors, Panchayati Raj Institutions and at village level. Lung samples were collected following death of those suffering from silicosis to strengthen the evidence for purposes of advocacy. The 2012 data collected from 102 villages showed that there 1701 victims with 503 deaths in the study villages.

Evidence was also generated through conducting camps where radiographs were taken and sent to Employees State Insurance (ESI) hospitals for confirmation of diagnosis. The action resulting from the data included rallies, awareness material and affidavits. A victims' organisation was formed and

a Public Interest Litigation (PIL) filed which resulted in National Human Rights Commission (NHRC) taking up silicosis as a national issue.

The linkages between research and advocacy can be understood through the compensation provided by the Government of Gujarat and rehabilitation undertaken by Government of Madhya Pradesh. People's knowledge is important and serves as primary source of information. Silicosis rehabilitation board has been set up which oversees schemes and programmes.

The sharing concluded with some discussion on protection against silicosis, tracking migration and alternatives to closure of factories. Adithya commented about Amulya's deep linkages with several communities, and experiences of exposing ground truths in a manner that will engage those responsible, legal platforms, and also policy makers.

6. *Vinay Kumar (National Referral Centre for Lead Projects in India, Bangalore)*

Stating his background to be from environmental science, he mentioned about exposure to lead causing 1 lakh deaths/year. *National Referral Centre for Lead Projects in India* (NRCLPI) is involved in the lead educator program. It was found that diagnosis of lead poisoning is usually made late. Units for measuring lead levels have been established for correct diagnosis - testing for lead in blood is done. There is no permissible limit of lead in blood since at all levels it is toxic. The main sources of lead were batteries, paints and ayurvedic medicines. NRCLPI has also worked on quality of environment for children's play area by measuring lead content in soil and water. Yellow paint was said to be especially important in the context of lead exposure – which should be avoided in painting toys, walls and play areas in schools. Currently, surveys are being undertaken for estimating lead levels in traffic policemen. Vinay has invited delegates to collect and send water and soil samples for testing heavy metal content, as they have the facilities for detection and measurements.

Based on a movie shown by Vinay, there was a small discussion on presence of heavy metals in ayurvedic preparations, to which Shailesh (UHCRC) responded, informing about the traditional and modern processes of bhasmikaran, and how this has impacted concentrations of heavy metals in preparations.

It was further reflected that in the shift in paradigm towards broader environmental issues, it would still be important to further understand and address specific toxicological issues such as lead pollution.

7. *Bhupali Mhaskar (Watershed Organisation Trust, Pune)*

Her background is from health sciences, and her association with environmental health is recent, through her work with Watershed Organisation Trust (WOTR). The organisation's work is largely in community led watershed interventions (on which they are a nationally known resource group, and are involved at policy level as well), rural livelihoods, renewable energy, and more recently in climate change adaptation (CCA). Their experience spans seven states in India, and they have provided technical support to projects in Africa. As part of the CCA project, health vulnerability assessment, nutrition, disaster risk reduction, biodiversity register, and sanitation are the various components. Addressing malnutrition has been an important action component, which has involved awareness, support to kitchen gardens, agricultural advisories and systematic growth monitoring. Drinking water

projects and sanitation projects have also been taken up in several areas. A project for addressing mental health has also been initiated, due to agrarian distress in rural areas.

The work on health vulnerability assessment has been in collaboration with SOCHARA. An older livelihoods vulnerability assessment tool (Co-DriVE tool) was used as a template for development of health tool. These tools help identify drivers of vulnerability and provide a structure for creating local adaptation plans. Currently plans are underway to conduct some work in the domain of impact of heat on health in rural areas. It was emphasised that WOTR's work is largely community-driven and governed, through the creation of local committees, leaders, and voluntary work.

8. *JK Lakshmi (Indian Institute of Public Health, Hyderabad)*

Lakshmi's background is in Homeopathy, and her PhD was in health promotion. She stated about her personal interest in the field of environmental issues, and her efforts to constantly bring the issue of sustainability in workplace discussions. Some of IIPHH's involvements in the field of EH have been:

- Rapid assessment of states' preparedness for climate change
- Near-term health effects of transport policies to reduce greenhouse gas emissions in the city of Hyderabad and the state of Andhra Pradesh (AP)
- State of the Environment reports(Hyderabad & AP)
- Impact of environmental changes and UV radiation exposure on ocular health in the Indian subcontinent
- Membership of the steering committee for Municipal Solid Waste Management (Hyderabad)

She also mentioned about the TCAM (Traditional, Complementary and Alternative Medicine) – which involves systems of medicine which are "low carbon" alternatives; and other capacity building engagements at state level on the theme of climate change and health. Her other recent interests include active transport, plastic-free environments, and water conservation.

9. *Sharing by the team, Urban Health and Climate Resilience Centre, Surat*

The team comprising of Shilesh, Priyanka, Urvi and Anuj shared about the umbrella project under which they work together as a team: the Asian Cities Climate Change Resilience Network (ACCCRN) which has a larger goal of making cities healthier. They also discussed briefly the history of Surat, from the plague epidemic in the early nineties, to various interventions that have taken place over a period of time. The strong role of the doctors' network and the efforts of the municipal corporation to improve infrastructure and resilience of the city were discussed.

Urban Health and Climate Resilience Centre (UHCRC) has organic links with the Surat Municipal Corporation, which facilitates their research and suggestions for interventions. The team comprises individuals with competencies in public health management, urban planning, and anthropology. UHCRC's main focus has been on the themes: urban health systems, vector borne diseases, disease forecasting, nutrition, and community participation. Consequently, projects are associated with these themes, including:

- Vector and waterborne disease surveillance systems

- Strengthening the systems, piloting of technology assisted surveillance, mapping, dissemination of information

- Surat urban heat project
    - Mapping of heat zones, surveillance on heat morbidity, and documentation of community perspectives to create platforms for discussion and build systems and resilience on those fronts
- Building community resilience
    - Mixed method approaches to document community perceptions about climate change and strengths in traditional systems to deal with these emerging issues
    - Cultural context of Surat City in relation with health and climate

The surveillance system instituted by the municipal corporation was discussed in more detail, where each house is visited every fifteen days to identify cases of fever. The team also discussed about their interests in the differing responses to disaster situations, and in identification of appropriate research methods to use in various settings (for instance, rural and urban settings). Urban areas need specialized methodological approaches and modifications in traditional approaches used in rural settings are required.

It was commented that the UHCRC team has provided a case study in the interdisciplinary research.

10. *Prahlad IM (SOCHARA, Bangalore)*

Prahlad discussed about history of work on sanitation at SOCHARA. His personal experience has been for almost 8 years, initially with the governmental sanitation program, and later on with SOCHARA. He has engaged with and established state level networks for his work: PHM-Karnataka, Fluoride Action Network, Karnataka Sanitation network and GRAKOOSA (union of rural labourers). He uses a modified version of the community led total sanitation (CLTS) approach in his work. Several communities and community based organisations have invited him to facilitate his method – and it has shown varying results in different villages. Over the years, it has been seen that several factors impact adoption of toilets, besides awareness. Some trainers that have been trained by Prahlad have taken work forward in their respective districts, and this has been encouraging.

SOCHARA fellows and team members have been involved in conducting exploratory researchers on the linkages between sanitation and health. Results of three such studies were shared:

- On the continued usage of toilets – it was found that in some villages, only a small fraction of constructed toilets were in use after one year of construction – due to various reasons, including political reasons
- On the reasons for continued practice of open defecation in Madhya Pradesh
- On the impact of lack of access to toilets on mental health of women – several impacts were found, including exposure to harassment, violence, stress, and even suicidal thoughts

11. *Gulrez Azhar (by pre-recorded video) (Indian Institute of Public Health, Gandhinagar, and RAND Corporation)*

Dr Azhar shared about to work being done by his team in the context of heat and health in Ahmedabad. Heat waves were not recognised as natural disasters until recently. In the context of

climate change, temperatures are expected to rise further, and cities such as Ahmedabad are suffering from heat island effect which can have great impact on health locally. Several studies have been carried out, including work on early warning systems, education for the masses etc. Various other occupational groups such as construction workers, kite makers, agarbatti rollers, rag pickers etc were surveyed and provided with additional information to protect themselves from heat. Recommendations have been made to policy makers based on these studies, and this has resulted in the Heat Action Plan for the city. The project has been done with the support of the municipal corporation, and other local agencies and includes several components – forecasting, use of hoardings, pamphlets etc with information, capacity building of healthcare staff. It was found that the intervention may have resulted in fewer heat related mortalities as compared to before the intervention. There is plan to implement this model in other cities as well.

[Adithya was unable to make his presentation due to lack of time at the end of the day. To find out more about his work, kindly visit SOCHARA's website. Dr Ravindra Khaiwal's (PGIMER) presentation was provided to delegates on their pen-drives for viewing.]

Technical and political challenges in environmental health – a discussion, facilitated by Dr Thelma Narayan, Director of SOCHARA

Some key issues were put forth:

- Inter-disciplinary collaboration in research – some teams are showing how this can be made possible and a rewarding experience
    - However, it is still a challenge to include multiple perspectives and methods in projects – there is a need for further work in this regard
    - It is important to have multiple disciplines involved as work in environmental health needs it
- Availability of techniques to study environmental health – due to complexity of the issue
    - Innovative ideas are needed, with the scope and boundaries of environmental health widening with time
- Local context is important in interpreting findings, communities are heterogeneous which makes it difficult to generalise findings
- Inadequacy of mentorship and mentors in this field
    - This is a challenge again because of the changing paradigms in the field, and also because of few senior resource persons in this field in India. A network between researchers may help partially in this regard

Dr Thelma added about the need for sustained engagement with issues over a period of time, as issues take time to address. In addition, examples were taken from SOCHARA's own experience of engagement with communities and policy makers to facilitate action in environmental health. It was also reflected that environmental health is a politically sensitive subject, and there is a need for strength in the form of collectives to engage with this issue meaningfully without feeling threatened. She reiterated the importance, urgency and cross-cutting nature of the issue. The importance of knowledge translation of the research findings to communities and administration was also mentioned.

Figure 1: Participants of the Young Environmental Health Researchers Meet, at ISI, Bangalore

Day 2: Environmental health – state level experiences

Sharing of state level experiences *(Session was moderated by Amulya Nidhi)*

1. Karnataka experiences
    a. Adithya initiated the discussion by using the epidemiological iceberg to highlight the hidden environmental disease burden. In global scales, India ranks low in the environment sector. He mentioned the list of critically polluted areas in India as prepared through the CEPI (comprehensive environmental pollution index) exercise. There is a need for further reflection in this regard. He further added his observations from Karnataka which included
        i. Issues in Bangalore
            1. Waste management: which was further discussed through the Mavallipura dump case-study, where rural areas are being impacted by urban waste disposal, and the repeated let-down by the municipal corporation
            2. Air pollution and respiratory health
        ii. Other issues in Karnataka
            1. Endosulphan tragedy (border of Kerala and Karnataka)
            2. Iron-ore mining in Bellary
            3. Fluoride contamination of water
        iii. In addition, he discussed about the presence of a National Institute for Research in Environmental Health (NIREH) and the need to engage with and critique the institution and its work.
    b. Prahlad further added that:
        i. Dry latrines are being constructed despite being illegal, and manual scavenging is prevalent in rural and urban areas

ii. Several areas are also suffering from water logging, adding to sanitation challenges

c. Poornima further discussed her experiences on sanitation in northern Karnataka, and also issues related to e-waste in Bangalore as it is the IT capital in India – and the exposure of informal recycling sector.

d. Vinay agreed to the above mentioned points, and emphasised the prevalence and exposure to lead and other heavy metals

2. West Bengal situation

a. Lalitha and Rittika discussed the issues of arsenic contamination in water that was prevalent in some areas. In addition, pesticide poisoning among farmers, and suicides among women due to stress (economic and social stresses, due to male outmigration) were also mentioned. Mining, silicosis, thermal power plants were other issues. The issue of the role of public private partnerships, and corporate social responsibility in environmental health was raised.

b. In addition, issues from the Sunderbans region was discussed in more detail:

i. Occupational health of workers exposed to saline water for long time due to tiger prawn farming

ii. Issues in decision making – as the geographic region falls in two different districts

iii. The focus on tiger conservation, and neglect of some other issues such as access to healthcare, and availability of peripheral workers

c. The need for media to highlight local issues was emphasised

3. Madhya Pradesh (MP):

a. Several issues were raised by Sayyad, Dhirendra and Amulya

i. Taking the example of issues around Som River, Sayyad discussed about dams, displacement, coal mining, deforestation, tourism, malaria and irrigation

ii. The Bhopal Gas Tragedy is well known, and there are several groups working to support the affected communities in their ongoing struggle for justice.

iii. Contamination of groundwater due to inappropriate disposal practices of contaminated water was mentioned

iv. Change in crop types, from nutritional crops such as millets to now growing resource intensive crops such as wheat

v. Malaria is prevalent in several areas

vi. Inappropriate use of water bodies, such as for harmful tourism practices

vii. High use of pesticides in agriculture

viii. Issue of dam related displacement, and MP being the home of Narmada Bachao Andolan

ix. Sand mining is also prevalent, and it is impacting rivers

x. Interventions are being planned to revive old rivers, through methods such as interlinking – which need to be strongly critiqued

xi. Privatisation of water is also becoming an issue

xii. There are also talks about nuclear energy in the state, and

b. Some positive developments were also discussed:

i. Collection of e-waste, vehicle free days on certain roads in Bhopal
ii. Policy change has been effected to provide Rs 1 Lakh compensation to families whose members have been affected by silicosis

c. Amulya pointed out that MP is known to be a laboratory for various experiments, citing various 'developmental pilot projects', and historical incidents such as the Bhopal Gas Tragedy.
d. However, in MP, there is a strong civil society and peoples movements. Several methods are being used to assimilate and disseminate information. Amulya also added the importance of support from experts to community based struggles through fact finding reports etc.

4. Maharashtra:
    a. Bhupali and Anuj shared about the state.
        i. Farmer suicides was stated as a large problem in several areas: related to climatic vagaries, availability of water, promotion of cash crops, use of pesticides by farmers
            1. It was added that WOTR is responding to some of these issues by improving local resilience through watershed programs and support to organic cultivation, and water budgeting at village level
        ii. Schemes have been drafted for tribal communities, but have not been implemented adequately; and interdepartmental convergence was also not taking place in the context of tribal development
        iii. Urban problems, seen in places such as Mumbai and Pune include
            1. In-migration, increase in slums and inadequate urban planning
            2. Poor waste management and disposal of plastics
            3. Vector borne diseases such as dengue are on the rise, especially because of the need to store water due to water shortages
            4. Sanitation continues to be a problem, and manual scavenging is prevalent here as well
            5. Like other cities, air pollution is also a huge problem here
        iv. The Lavassa project was cited as a case of disregard for environmental concerns
5. Tamilnadu
    a. Information was shared by Divya and Venkatesan
        i. Manual scavenging was said to be prevalent in TN as well
        ii. The proposed methane gas extraction project is being explored in the deltaic areas – which may threaten health and lives of local people
        iii. Several cases of dumping of hazardous wastes by industries were cited, leading to impact on marine life and fisheries. Medical waste is also being dumped into sewage
        iv. Shorelines are habitat for the endangered and vulnerable Olive Ridley turtles, which are getting threatened
        v. Issues pertaining to industrial pollution in Cuddalore, Mettur and Karur were discussed, and the role of local people's movements in addressing the situation was mentioned. CHESS has involved communities from these areas
        vi. Eco-san toilets have been developed in some areas for women

vii. Other issues such as genetically modified crops were also discussed

6. Gujarat

The UHCRC team shared various points.

a. Priyanka emphasised that
    i. orientation is largely towards business and materialism, and sensitivity towards community is less
    ii. migration is a huge issue, and several challenges are faced by migrants
    iii. intercommunity tensions exist, which are flared by news from other areas
    iv. reports are inadequately disseminated, creating knowledge asymmetry
    v. highest number of industrial deaths in India
    vi. increasing levels of industrial pollutants in the air (able to smell chemicals at night time) due to the Hazira belt near Tapi River, and increased prevalence of respiratory diseases
b. Urvi added about Surat city:
    i. Vector borne diseases are still a major issue
    ii. The city is flood-prone, and previous epidemics such as plague have helped transform some aspects of urban management and systems positively
    iii. But the city remains vulnerable to climate change, and sea level rise – and is amongst the most vulnerable in the world
    iv. A heat action plan is also in place involving corporation, media and community
c. Shailesh discussed specifically discussed some innovations being made to address these issues
    i. A door-to-door surveillance system has been set up by the municipal corporation to identify cases of communicable diseases. Through this project, data is being generated on malaria which is helping tackle the problem and predict and map outbreaks of diseases.
    ii. Heat is a major issue in Surat as well, and work is being done through UHCRC and Indian Institute of Human Settlements (Bangalore) to understand it
d. Anuj further discussed broader issues in Gujarat including
    i. The importance of identifying enablers and obstructers in multi-stakeholder activities
    ii. The need for more and more cross-sectoral partnerships such as the Surat Climate Change Trust (SCCT)
    iii. Social concerns like malnutrition and oppression of women, minorities, immigration add to overall environment vulnerability. He also indicated the absence of the culture encouraging peoples movements in the state

7. Andhra Pradesh
    a. Dr Lakshmi discussed several issues, including the matter related to the recent partitioning of the state – with Andhra being the richer, and Telangana the poorer and drier state
        i. The urbanisation process was described: ‘rabid’ construction, craze for imported material, rampant use of plastics and disposables, concretisation of surfaces, falling of trees, use of exotic tree species, increase in e-waste,

and burning of garbage. Urban heat island effect is noticed in Hyderabad. Change in local environment has changed ecosystems as well, including disappearance of sparrows and other previously prevalent species. Encroachment onto public land and violations are very common.

ii. Progressive and useful schemes such as rainwater harvesting and waste segregation is not mandatory
iii. The state is prone to disasters and poor rainfall as well. Agriculture sector has been moving more towards cash crops, depending on chemical inputs which is impacting the environment. Farmer suicides are also an issue here.
iv. Loss of traditional way of life, and importing of culture is the trend

Policy in Environment and Health (moderated by JK Lakshmi)

A few participants shared their experiences.

- Divya shared about her engagement with the energy and electricity policies of India (including documents such as the 12th plan, reports by the Planning Commission etc) which showed that the only health concern that had been mentioned in connection with energy was on indoor air pollution due to burning of biomass fuels for cooking. This showed a systematic neglect of impacts of outdoor air pollution, disposal of toxic wastes, and other health and environmental issues associated with energy production, which contribute to health impacts at scales potentially larger that impacts of indoor air pollution. There is a need for involvement of public health professionals in this regard, especially in the light of global attention to issues of climate change. There is a role for health professionals in mitigation of climate change, and not just adaptation.
- Adithya shared briefly about this work on the impact assessment policies and processes in India for developmental and industrial projects. It also showed a systematic neglect of health concerns. Public health professionals were not involved in impact assessments that were studied – leading to large gaps in the health impact assessments of those projects. There is a need for engagement on this front to ensure decisions related to developmental projects incorporate health concerns.
- Prahlad shared about the evolution of the sanitation policy over several governments, and the features of those policies. More recently there has been a transition from Central Rural Sanitation Programme in 1985 to currently Swachh Bharat Abhiyan. He discussed that the focus has been on financing sanitation infrastructure, but inadequate attention has been paid to implementation of the program and uptake by communities. These gaps continue into the current program. Sanitation is linked to each of the MDGs, but the country is falling short in meeting some of these targets. It is not possible to address issues of malnutrition and women's safety without addressing sanitation.
- The gaps between policy and action were also highlighted by some participants such as Vinay Kumar, in the control of heavy metal exposure.
- Amulya shared about the engagement in advocacy through public interest litigations, petitioning the National Human Rights Commission, and with various policy making bodies. This has been done for issues such as silicosis, and clinical trials. These case studies can be explored further.

- Other participants added that there has been inadequate engagement by public health professionals on matters of policy. There is a need for engagement – especially in emerging issues such as climate change which have serious health concerns. There is also a need for capacity building among those working on health issues, in the matter of policies, policy making, and policy advocacy. It was also expressed that the language used in policy documents needs to be translated to simpler forms for wider dissemination and building community capacity on the same.

Concluding Remarks about the workshop

- Divya: The past two days have been really good. The number of people working on environmental health is very low. There are many working on environment, but I have heard of very few people working on the health aspect. I hope at some point in the future we will get an opportunity to work with each other and collaborate.
- Lalitha: It was an excellent platform to meet each other face to face. Showcased different voices and perspectives. It has to sustain and get louder. Posting and writing about environmental health individually in various forums or as a group will be helpful. There is a need for ethics and equity related discussions to increase as well. A repository of information on methodologies in EH would be helpful as well.
- Rittika: It was a great learning opportunity for me. I had not learned much about the areas of environmental health before. I have broadened my views now. We should scale up this platform – through social media, have wider objectives, learn from others in the same field. We should collaborate with all of them – findings, reports. We should be in touch.
- Poornima: Two main learnings for me: 1) Knowledge translation. 2) To solve any problem one should learn about the community – it has to be implemented at the ground level. Lack of access to water and livelihood are the two main reasons why people migrate. This leads to a new set of social problems in the city – they face many other problems. If health and livelihood is strong in the villages, they would not have move to cities. Something should be done to make their life easy in the villages.
- Sayyad Ali: Move from a biomedical model to a social model. Also specific needs of rural/tribal villages need to be addressed – snake bite, animal bites etc. There are not many facilities for such services in PHC and CHC – have to go to the district hospital.
- Amulya: The workshop facilitated new learning from areas such as Sunderbans, Surat and the field of Sanitation. There is a need to engage with policy makers, especially in campaigns like Swacch Bharat. Work on environmental issues and “development” always leads to clash of perspectives. Researchers, engineers – all groups should come together and collaborate. PHM (People’s Health Movement) has a variety of sub groups – a possible suggestion is to create an environmental and social determinants subgroup. Exchange of information – region specific information. If not possible nationally, regional meetings should be conducted in the future.
- Mr Mohammad – Expected outcomes of the workshop are: a report needs to be prepared to be submitted to mfc bulletin, a press note, and formation of e-groups – networking opportunity – literature is so vast that it is hard to keep track of everything that is happening, so better to be in contact with others from the same field of interest.

- Vinay Kumar – I have to thank silicosis, lead poisoning, sanitation, etc – if we were affected by them, we would not be here. All these problems affect child development – one such issue is the lowering of IQ. Children's quality of life is being affected – their lives are being wasted, and it also impacts the economy; and governmental intervention is urgent and necessary in this regard. Resources are being used for the wrong purposes. It would be a good idea to identify the key national level issues that have emerged from this meeting, and pass it on to the concerned officials and create awareness about it
- Dr. Lakshmi – Environmental health is a tricky area to be working in. It is not lucrative and it is controversial. The odds are against environmental health researchers – they are all fuelled by their own passion. Inspired by all the motivated individuals – inviting people to collaborate at various levels. This was the most eco-sensitive environmental health workshop/conference!
- Anuj – Learned a lot. Found comfort in knowing that there are others who are confused. One step ahead in the struggle, feel more comfortable with the term activist. Gained methodological and theoretical knowledge. The knowledge sharing was motivated by commitment – all participants in the workshop had concern and sensitivity to the society they are working in. Liked that it was open agenda– felt like we had a space to participate. The time was less for sharing, there were no inhibitions – facilitated this environment. Continuing my topic of – enablers and obstructers of cross sector partnership, one obstructer is the lack of enthusiasm of individuals. Keeping this in mind – to continue this forum – webinar might not be feasible. Writing activity is suggested –one topic is policy analysis because we all have inadequate knowledge about policies. The other topic can be field experience – there are many constraints from institutions that prevent us from publishing everything.
- Shailesh – New ideas and methods by young researchers. We shouldn't aim for something big. Let's start small with the one policy analysis – enthusiasm will sustain. Such a group of young researchers will become the young health leaders in the future.
- Priyanka - Two key lessons – 1) My lens of viewing environmental health has widened from beyond vector –borne diseases 2) I felt policy was not really important earlier. Now I understand the relevance of my work in driving policy changes.
- Urvi – The first thing that came to my mind when we were discussing the past two days is that we were never taught about health issues in urban planning. My vision was limited before. When you design a city – you should keep in mind each and every aspect of city planning. Health is the last priority when you design city. I felt a planner or policy maker, when we design something we have to keep in mind the health. As an urban planner, I was only focused on big cities and metros. When you go back to the village – when you deal with them and think about them, you actually feel for them and it will make us planners better people and provide for a better environment.
- Venkatesan – There are many gaps in my knowledge. The field of environmental health is also linked to politics of religion, and nuclear physics (in the context of new nuclear research facilities being planned in Tamilnadu state). The relationship between the two – ecology and consciousness - these have to be explored further. As human beings we have our own limitations – we cannot solve every problem.
- Adithya: Thanks to all participants for making time to attend. As time was limited, several aspects of environment and health were only touched upon, and some important aspects

such as ethics and philosophy of our work were not covered. There is a need for taking forward these discussions: how we could build on our strengths, and be involved in decision-making on environmental health policy at various levels. There is also a need to further identify others with similar interests and add them to networks. It is hoped that this event will lead to processes and encourage similar platforms.

Report prepared by Adithya Pradyumna

Rapporteurs: Janelle, Rahul, Anusha, Sabu, Bharti and Adithya (all from SOCHARA)

Annexure

Agenda of Meet:

Time slot	Agenda Item*	Activity	Presenter/Facilitator
Day 1 (29th Jan, 2015): Getting to know each other			
9 – 9:30 AM	Registrations		Swamy (SOCHARA)
9:30 – 10:30 AM	Quick introductions	Individual introductions	Adithya
10:30 – 11 AM	Tea break		
11 – 11:30 AM	Environment and health research – various facets	Sharing on SOCHARA involvements from a research perspective	Ravi Narayan, Community Health Advisor, SOCHARA
11:30 AM – 12:30 PM	Research interests and experience	Individual/team presentations	Teams/delegates from IIHMR, Other Media, ISEC
12:30 to 1:30 PM	Lunch break		
1:30 – 3:45 PM	Research interests and experience	Individual/team presentations	Teams/delegates from UHCRC, SAM, NRCPLI
3:45 – 4:15 PM	Tea break		
4:15 – 4:45 PM	Research interests and experience	Individual/team presentations	Teams/delegates from WOTR, IIPH, SOCHARA
4:45 – 5:30 PM	Methodological, mentoring, collaboration (interdisciplinarity), and other challenges in EH research	Open discussion	Thelma Narayan, Director, SOCHARA-School of Public Health Equity and Action
Day 2 (30th Jan, 2015): India's environmental health, and what we could do about it			
9:30 – 10:30 AM	Sharing state experiences – - local problems, - policy issues, - responses from government, civil society	Individual sharing – either orally or through powerpoint presentations	Moderated by Amulya Nidhi

Time slot	Agenda Item*	Activity	Presenter/Facilitator
	and movements		
10:30 – 11 AM	Tea break		
11 AM – 12:30 PM	continued	continued	Moderated by Amulya Nidhi
12:30 – 1:30 PM	Lunch		
1:30 – 2:45 PM	Discussion on health and environmental policy (upto 5 minutes for each speaker) - health policy from the environmental perspective - environmental policy from the health perspective	Facilitated discussion - Divya (Energy) - Adithya (EIA) - Prahlad (Sanitation) - Others as per capacity Followed by open discussion	Moderated by JK Lakshmi
2:50 – 3:45 PM	Role of environmental health research, and researchers – defining a way forward	Open discussion: role in: - education - awareness - research - action - advocacy - policy - monitoring	Moderated by JK Lakshmi
3:45 – 4:15 PM	Tea		
4:15 PM – 5 PM	Wrapping up	Open discussion and reflection	Moderated by Adithya

Institutions that were represented:

IIHMR – Indian Institute of Health Management Research (Kolkata, and Jaipur), UHCRC – Urban Health and Climate Resilience Center, Surat; SAM – Swasthya Adhikar Manch, Indore; WOTR – Watershed Organisation Trust, Pune; The Other Media, Chennai; IIPH – Indian Institute of Public Health (Hyderabad, and Gandhinagar); NRCLPI – National Referal Center for Lead Projects in India, Bangalore; ISEC – Institute of Social and Economic Change, Bangalore; APU – Azim Premji Univeristy, Bangalore; SOCHARA – Society for Community Health Awareness, Research and Action, Bangalore

Institutions whose representatives were unable to attend/didn't respond:

SJMC – St John's Medical College, Bangalore; PGIMER – Post Graduate Institute of Medical Education and Research, Chandigarh; SCTIMST: Sri Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum; NIREH-National Institute for Research in Environmental Health, Bhopal; School of Public Health, MAHE, Manipal; PHFI-Public Health Foundation of India, New Delhi; CSE – Centre for Science and Environment, New Delhi; SRMC – Sri Ramachandra Medical College, Chennai; Hazard Centre, New Delhi, MSRMC- Ramaiya Medical College, Bangalore, KEM Research Centre, Pune; CRF-Chest Research Foundation, Pune