

Health, occupation and environment in the unorganized sector*

The theme of the International Conference on Health, Occupation and Environment in the Unorganized Sector was 'Managing occupational hazards and risk factors through epidemiological tools'. Around 80 delegates from different parts of the country and abroad participated in the conference.

While presenting the genesis of the conference, Y. K. Gupta (Director, Industrial Toxicology Research Centre, Lucknow) stressed the importance of the unorganized sector, which constitutes a major workforce in the country, employing a sizable population exposed to a variety of toxic substances and air pollution in the workplace. Most of these people are working without protective devices. Therefore, a proper epidemiological study based on their health and environment in the workplace is the need of the hour. P. K. Dave (formerly Director, AIIMS, New Delhi), in his inaugural address highlighted the problems of rickshaw pullers by saying that they had escaped the notice of the authorities. The seats have no support system to cushion the jerks and potholed roads. Also, the Indian rickshaw was heavy and badly designed, exacerbating their problems. Rickshaw pullers do not get proper nutrition either and hence are extremely susceptible to respiratory diseases, backache, osteoarthritis, extreme wear and tear of knee cartilage, etc. Dave pointed out that in the unorganized sector there is no insurance scheme. Raggpickers, labourers carrying bricks at construction sites, thresher users, etc. have limited access to state health services and for the redress of their grievances.

'The statistics of the occupational hazards in the country is very frightening as the rate of mortality of the occupational diseases is high. Thus the need is to gear occupational health services to cater to the non-manufacturing sector, especially the unorganized sector', said T. Rajgopal (Corporate Medical Advisor, Hindustan Lever Ltd, Mumbai) in his keynote address.

Rajgopal mentioned that the current burden of occupational injuries has increased (estimated to be 18 million cases), while among them major ones are musculo-skeletal disorders, chronic respiratory disease, occupational dermatitis and noise-induced hearing loss.

V. K. Sharma (India) delivered a talk on 'Dermatological problems in unorganized sector'. He stated that skin-related diseases were common and in extreme cases could lead to cancer. Even seemingly harmless activities like being a kitchen worker can lead to dermatitis. Similarly, beauticians and hairdressers suffer from acute allergies, hand eczema due to hair dyes, chemicals in henna, styling gels and shampoo. He noted that agricultural workers – one of the most unorganized segments – suffer from parthenium and xanthium allergies. N. L. Wagner (Germany) delivered a talk on 'Models of occupational health services for small and microenterprises'. He said that depending on national laws and practices, the extent of service for the workforce differs enormously between countries. In Europe, coverage of workforce for safety and health services in Germany was 99–100%, Britain was ~12–30%, Finland 80–90%, and France 90–100%. In India, according to the Ministry of Labour, approximately 92% of the workforce is in the unorganized or informal sector. The Factories Act and factory rules cover ~5% of the workforce. Occupational health services (OHS) are mandatory only for factories with hazardous processes, which encompass ~1% of the Indian workforce. In Germany, coverage by OHS was considered insufficient and not acceptable, as hazards in big companies or microenterprises are the same and changes in laws and regulations were made accordingly.

Ralph Steinberg (Germany) delivered a talk on 'Bioaerosols and health hazards in solid waste disposal sites'. Study of bioaerosols in major landfill sites shows the presence of coliforms at the dumping sites – of significance was isolation of *Klebsiella pneumoniae*. Others include *Aeromonas* sp., *Pseudomonas aeruginosa*, aerobic spore bearers, *Staphylococcus aureus*, *Micrococcus* and *Corynebacterium* species. Fungi such as yeast, *Aspergillus*,

Rhizopus and *Alternaria* were also found. Inadequacies in landfill design and operations can account for high concentration of bacteria and presence of fungi. Presence of *Klebsiella pneumoniae* at a concentration 105 cfu/ml at the study site may pose a health hazard to the workforce. Fungi such as *Candida* and *Rhizopus* can lead to infections, especially in diabetic workers.

G. K. Kulkarni (India) talked about occupational and environmental health issues in the construction industry. He said that the construction industry plays a key role in the economic development of the country. The risk to limb and life is high and the workforce is grappling with complex psycho-social issues and has recently come under legislative surveillance. Anugrah Shaw (USA) delivered a talk on partnership approach to improving health and safety of the agricultural workers in India. He said that promotion of safe and judicious use of pesticides is essential to safeguard health and individuals responsible for application of pesticides. In India, several groups are currently working on some aspect related to health and well being of pesticide applicators. The magnitude as well as multidisciplinary nature of the problem make it difficult for any one group to address the issue. Proposed partnership amongst government, growers, pesticide industry, academia and research centres and institutes would provide a mechanism to pool the resources and expertise to address health and safety issues of agricultural workers. Sivaramakrishnan (India) delivered a talk on executive health management. The programme for executive health management covers life-style management, tobacco-use prevention, organizational stress evaluation, healthy heart (preventive cardiology), health education, preventive health check-up programmes and computer safety programmes. The above programmes had a positive impact on executives. This was evaluated through a follow-up feedback. A. K. Jindal (India) delivered a talk on 'Workers perception regarding health services of a social security scheme: A study in Faridabad'. He said that since ESIS is being considered as a role model for replication in the unorganized sector, the study shows that a

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number of changes will have to be undertaken in the functional aspects of ESIS to make it more friendly, especially as workers in the unorganized sector have little bargaining power compared to their counterparts in the organized sector. Policy planners should consider this aspect while preparing the road maps for health, occupation and environment in the unorganized sector, so that the proposed health service system is able to provide comprehensive health cover to the unorgan-

ized sector. Two-day poster sessions dealt with occupational health problems in the unorganized sector and their solutions.

The uniqueness of the conference was that for the first time in the country the theme of conference 'Occupational health problems in unorganized sector and their roadmap', was addressed in a platform. Around 45 research papers and 20 posters were presented in the conference. Several health problems, epidemiological survey reports and problem-solving measures in the

unorganized sector were discussed among physicians, occupational health experts, environmental engineers, scientists from areas of toxicological and biological sciences, geologists and corporates.

C. Kesavachandran* and **S. K. Rastogi**, Epidemiology Section, Industrial Toxicology Research Centre, PB No. 80, Lucknow 226 001, India.

*e-mail: kesavachandran@rediffmail.com

National Symposium in Chemistry*

The symposium began with the presidential address by G. Mehta (IISc, Bangalore). The second session of the meeting included presentations by H. B. Kagan (Paris-Sud, France), K. N. Ganesh (NCL, Pune), R. C. Boruah (RRL, Jorhat), and K. G. Thomas (RRL, Thiruvananthapuram). Kagan spoke on the chirality propagation in chemistry. A major part of his lecture emphasized the problem of amplifying a small enantiomeric excess, with a simultaneous increase of the quantities of chiral compounds through asymmetric catalysis. This presentation was followed by lectures on 'Aminoproline collagen peptides: Origin of hyperstability' by Ganesh, where he elucidated the relative contributions of factors such as H-bonding, electronegativity, electrostatic and conformational effects on the observed hyperstability of collagen peptides. Boruah presented a variety of strategies to modify the steroidal D-ring to afford a new class of β -formyl enamides. At the end of the session, Thomas presented his work on hybrid nanomaterials which possess unusual photophysical properties both in the ground and excited state.

The third session of the first day started with a presentation by T. Pradeep (IIT-Madras, Chennai) on ice-surface chemistry, where he dealt with a layer approach using spectroscopy and scattering studies. This was followed by a lecture by S. Sampath (IISc, Bangalore) on functionalized and

nanostructured surfaces, where he spoke about redox centre-fixing using thin films on conducting surfaces. B. M. Choudary (Ogene Systems, Hyderabad) spoke about the transition metal complexes in heterogeneous chiral catalysis and their applications in organic transformations. B. Bagchi (IISc, Bangalore), who presented an invited lecture at the meeting, spoke on application of chemical dynamics of water in biological systems and materials chemistry, using theoretical and computer simulation studies. The first day of the meeting concluded with a public lecture in the evening by C. N. R. Rao (JNCASR, Bangalore, and Founder President of the Chemical Research Society of India (CRSI), who shared his experiences of carrying out chemical research in the Indian setting through the lecture entitled, 'Science for our future: Reflections on doing science in India'. Through this well-attended lecture, Rao urged and encouraged the young researchers present in the audience to take up serious research in areas related to chemical sciences.

On the second day, there were four sessions. In the first session, Wudl (UCLA, USA) gave a talk on self-mending plastics. He described how by suitably modifying the monomers through well-planned organic synthesis, the resultant polymers/plastics could be made self-healing or self-mending by application of heat. This was followed by a presentation by R. A. Vishwakarma (NII, Delhi), covering selected aspects of medicinal chemistry dealing with synthesis of GPI-anchored lipophosphoglycan.

The second session started with the Darshan Ranganathan Memorial Lecture (second in the series) by R. Varadarajan (IISc, Bangalore), who described mutational

effects on protein sensitivity. This presentation dealt with design of temperature-sensitive mutants. A. Simon (MPI-Stuttgart, Germany) spoke about s-block metal oxide and nitride clusters with extended metal-metal bonding, which have effects in the interfacial regime of physics and chemistry. Recent advances in soft/hard acid/base chemistry was the subject of the last lecture of the second session, delivered by S. K. Ghosh (BARC, Mumbai), who has employed density functional approach to obtain his new results.

The post-lunch session on day-two began with a presentation by P. T. Perumal (CLRI, Chennai). He described the synthesis of modified pyrazoles and several other organic transformations that employ Vilsmeier reagent. This lecture was followed by a presentation by S. Roy (IIT, Kharagpur) on tin chemistry. His presentation showed how a main group metal such as tin, by the virtue of having two stable oxidation states, can behave like a transition metal in certain aspects. The last lecture of this session was presented by R. Murugavel (IIT, Mumbai). He described the role of metastable ligands in the inter-conversion among metal phosphates.

The post-tea session had two lectures on organometallic chemistry. D. S. Pandey (Rewa) spoke on various aspects of arene ruthenium chemistry covering synthesis, spectroscopic study and reactivity. A. Sarkar (IACS, Kolkata) described his contributions to transition metal organometallic chemistry in the areas of Fischer carbenes, alkene metathesis, and palladium-mediated coupling reactions.

Later in the evening, accepting the lifetime achievement award, K. Nagarajan

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