Summary of Panel Discussion

**Panelists:** Prof. Feroze Ahmed (BUET), Dr. Han Haijnen (WHO), Dr. Bilqis A. Hoque (EPRC), Dr. Michinori Kabuto (NIES), Dr. Yasumoto Magara (Hokkaido University), and Prof. Motoyuki Suzuki (UNU).

**Moderator:** Dr. Zafar Adeel (UNU)

**Summary**

The key points raised in the commentary by the panelists and the ensuing discussion by the workshop participants are summarized here. The panelists emphasized the key challenges in dealing with the regional arsenic problem:

a. the availability and flow of information on the arsenic crisis is not sufficient and needs to be improved;

b. the low level of education in the people typically affected by the arsenic crisis limits the effectiveness of remedial actions;

c. the political will and governmental involvement in remedial actions often do not reach a desirable level; and

d. the remedial and treatment options offered to people often face an affordability constraint as the affected people typically live below the poverty line.

In consideration of these challenges, there were five broad areas of action identified:

1. Quantifying the human intake of arsenic: It was identified that arsenic can enter the body through various routes which can be food-based, water based, or air-based. The point was emphasized when considering the Chinese case where arsenic is suspected to enter the body through both food intake and air inhalation. There is a need for conduct further research to fully understand and quantify the intake of arsenic. This must also be linked to efforts to reduce the overall arsenic body burden; this has to be an essential element from a public health improvement perspective.

2. Risk acceptability: Once the arsenic body burden is quantified, a better risk assessment can be undertaken. This risk assessment must integrate the relative risks through various routes of exposure to arsenic. Such risk assessments and acceptability of a specific health risk are typically undertaken by national governments, but it is useful to find ways to engage the general public and the research community in this process.

3. Development of quality standards: The drinking water and ambient air quality standards for arsenic should cater to the local needs in Asia. This again would require a participatory approach in identifying the risk level that correlates to a particular quality standard. The new approach undertaken by the World Health Organization (WHO) in developing drinking water quality guidelines was appreciated as a step in the right direction.

4. Effective information exchange mechanism: The panelists highlighted the need for developing an information exchange mechanism that is transparent and widely accessible. Such effective mechanism is essential to coordinating and harmonizing remedial efforts. At the same time, it can be an important tool in warehousing research output and prioritizing key research areas.

5. Development of a long-term perspective: It was emphasized by the panelists that a long-term perspective in developing remedial options is a must. The long-term sustainability of these options and their acceptance by the affected population must be fully considered.
Workshop Programme

09:00-09:15 Opening Remarks - Prof. Motoyuki Suzuki (Vice Rector, UNU)

Keynote Speakers
09:15-10:00 Key Issues for Arsenic Crisis and an Approach for its Remediation:
West Bengal (India) Experience - Dr. Dipankar Chakraborti
(Jadavpur University, India)
10:00-10:45 The Chinese Experience in Dealing with Arsenic Contamination in
Groundwater - Dr. Jin Yanlong (Chinese Academy of Preventive Medicine - CAPM, China)
10:45-11:15 Coffee Break

First Session:
Technological and Human Health Dimensions of the Arsenic Problem
Chairpersons: Dr. Han Hajjinen (WHO) and Dr. Hiroshi Yamauchi (St. Marianna Medical
University, Japan)
11:15-11:35 Fate of Arsenic in the Environment - Prof. Ashraf Ali (BUET, Bangladesh)
11:35-11:55 Arsenic Contamination of Groundwater in Bangladesh and Its Remedial Measures - Dr.
Habibur Rahman (BUET, Bangladesh)
11:55-12:15 Technological Issues in Arsenic Monitoring - Dr. Masanori Ando
(NIHS, Japan)
12:15-12:35 Risk Assessment of Skin Lesions Posed by Arsenic Contaminated Well Water in
Shanxi, China - Dr. Zhang Yanping (Taiyuan CDC, Shanxi, China)
12:35-12:55 A Speciation Study Focused on the Identification of Proximate Toxic Arsenic Metabolites -
Dr. Kazuo T. Suzuki (Chiba University, Japan)
12:55-14:30 Lunch

Second Session:
Policy Dimensions of the Arsenic Problem
Chairpersons: Prof. Kazuo Yamamoto (Univ. of Tokyo, Japan) and Dr. Roy K. Boerschke
(World Bank)
14:30-14:50 Policy Development for Arsenic Remediation in Bangladesh - Prof. Feroze Ahmad (BUET,
Bangladesh)
14:50-15:10 Linkages of Short- and Long-term Policy Measures - Dr. Zafar Adeel
(UNU, Japan)
15:10-15:30 Preventive Policy against Hazardous Effects of Drinking Arsenic-Polluted Well
Water - Dr. Feng Lizhong (Shanxi Health Bureau, China) and
Dr. Jin Yinlong (CAPM)
15:30-15:50 Community Participation and Rural Water Supply in Arsenic Affected Areas: A Case Study
from Rural Bangladesh - Dr. Bilqis A. Hoque (Environment and Population Research Center -
EPRC, Bangladesh)
15:50-16:30 Coffee Break

Panel Discussion and Formulation of Recommendations
16:30-18:00 Panelists:
Prof. Motoyuki Suzuki (UNU), Dr. Han Hajjinen (WHO),
Prof. Feroze Ahmad (BUET), Dr. Bilqis A. Hoque (EPRC),
Dr. Michinori Kabuto (NIES), Dr. Yasumoto Magara (Hokkaido University)
Moderator: Dr. Zafar Adeel
18:00-18:15 Closing Remarks - Dr. Soichirou Iwao (Director of Environmental Health,
Ministry of Environment)
Workshop Participants

Dr. Zafar Adeel
Academic Programme Officer
Environment & Sustainable Development
The United Nations University
5-53-70 Jingumae, Shibuya-ku
Tokyo, Japan 150-8925
Tel: +81-3-3499-2811
Fax: +81-3-3406-7347
Email: Adeel@hq.unu.edu

Prof. M. Feroze Ahmed
Civil/Environmental Engineering
Bangladesh University of
Engineering and Technology
Dhaka-1000
Bangladesh
Tel: +880 (-2) -9663693
Fax: +880 (-2) -9663695
Email: itn@agni.com

Dr. M. Ashraf Ali
Assoc. Prof.
Civil/Environmental Engineering
Bangladesh University of
Engineering and Technology
Dhaka-1000
Bangladesh
Tel: +880 (-2) -8614640, ext. 7625
Email: ashraf@bdcom.com

Dr. Masanori Ando
Division of Environmental Chemistry
National Institute of Health Sciences
1-18-1 Kamiyoga
Setagayu-ku
Tokyo 158-0098, Japan

Dr. Dipankar Chakraborti
Director and Head
School of Environmental Studies
Jadavpur University
Calcutta - 700 032, India
Tel: 91 33 4735233
Fax: 91 33 4734266
Email: dcsce@vsnl.com

Dr. Han Haijnen
Environmental Health Advisor
WHO – Bangladesh
Dhaka, Bangladesh
Tel: (880 2) 9343372
Fax: (880 2) 8613247
Email: whosani@citechco.net

Dr. Bilqis A. Hoque
Environment and Population
Research Center – EPRC
Dhaka, Bangladesh
Email: eprc@bol-online.com

Dr. Soichiro Iwao, MD, MPH, Ph.D.
Director-General
Environmental Health Department
Japan Ministry of Environment
Tokyo, Japan

Dr. Libor Jansky
Senior Academic Programme Officer
The United Nations University
5-53-70 Jingumae, Shibuya-ku
Tokyo, Japan 150-8925
Fax: +81-3-3406-7347
Email: Jansky@hq.unu.edu

Dr. Minichinori Kabuto
Acting Director for Health Researches
National Institute for Environmental Studies
16-2 Onogawa, Tsukuba, Ibaraki, JAPAN
Tel: +81-298-50-2333
Fax: +81-298-50-2571
Email: kabuto@nies.go.jp

Dr. Feng, Lizhong
Shanxi Heath Bureau, Shanxi Province
People's Republic of China

Dr. Yasumoto Magara
Professor, Environmental Risk Engineering
Graduate School of Engineering
Hokkaido University
060-8628 Kita 13 Nishi 8 Kita-ku
Sapporo, Japan

Dr. Gen Ohi
National Institute for Environmental Studies
16-2 Onogawa, Tsukuba, Ibaraki
305-8506 Japan

Dr. Habibur Rahman
Bangladesh University of
Engineering and Technology
Dhaka-1000, Bangladesh
Email: habibr@ce.buet.edu

Ms. Yuko Sato
Visiting Fellow, Institute of Advanced Studies
The United Nations University
53-67, Jingumae 5-chome, Shibuya-ku,
Tokyo 150-8304, Japan
Tel: +81-3-5467-2811
Fax: +81-3-5467-2324

Prof. Motoyuki Suzuki
Vice Rector,
Environment & Sustainable Development
The United Nations University
5-53-70 Jingumae, Shibuya-ku
Tokyo, Japan 150-8925
Fax: +81-3-3406-7347
Email: Suzuki@hq.unu.edu
Appendices – Selected Workshop Presentations