Linkages of Short- and Long-term Policy Measures

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Arsenic Contamination in Groundwater - Technical and Policy Dimensions

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Overview

- Regional scope of the arsenic crisis
  - Why focus on Bangladesh?
- Short-term and emergency measures
- Long-term mitigation and policy measures
- Cross-cutting issues
- Transition from short- to long-term options
- Key lessons learned

Regional Scope of the Arsenic Crisis

Asia

- Bangladesh: 35 million+
- West Bengal, India: 6 million+
- Shanxi Province, China: 100,000+
- Nepal: 100,000+
- Red River delta, Vietnam
- Cambodia, Thailand, Pakistan

The Americas

- Argentina
- Mexico
- Chile
- USA

Why Focus on Bangladesh?

- Magnitude of the problem
- National scope
- Multi-sectoral impacts
  - Water management
  - Public health sector
  - Agriculture
  - National economy
- Application of findings to other developing countries

Short-Term, Emergency Mitigation Measures

- Overall Approach
  - Cohesive strategy
  - Clear, achievable goals
  - Fair and unbiased implementations
  - Linkages to long-term policies
- Participation of the civil society
- Intra-governmental coordination
- Information dissemination and transparency leading to confidence building

Short-Term Mitigation Measures – 1

- At least on safe water option in each village (>80%)
  based on hydrogeology, geographic location, and socio-economic conditions
  - Deep Tubewell (where suitable aquifer is available)
  - Dug/Ring well (where technically feasible)
  - Rainwater harvesting
  - Treatment of surface water (adequate quality and quantity)
  - Treatment of arsenic contaminated water
- Hydrogeological investigations
  - Screening of all wells through local involvement

Short-Term Mitigation Measures – 2

- Health issues
  - Detection and documentation of patients
  - Provision of safe water and food supplements to patients
- Institutional arrangements
  - Setting up of a Task Force
  - Roles of key stakeholders: government, NGO's, private sector, media
  - Local government for monitoring & implementation
  - Information management

Long-Term Policy Options – 1

- Safe water options
  - Piped water supply
  - Application of proven safe and sustainable technologies from short-term options
- Hydrogeological issues
  - Mapping of aquifers
  - Development of groundwater management policy
  - Laboratory facilities for groundwater analysis
- Health-related issues
  - Imparting appropriate training to doctors and health-care workers
  - Understanding health impacts,
    - Dose-response relationships in local settings
    - Impacts on children

Long-Term Policy Options – 2

- Institutional arrangements
  - Water quality legislation
  - Institutional capacity development
  - Development in health sector
- Research and development

  Research coordination mechanism
  - Fate of arsenic
  - Leaching of arsenic from wastes
  - Geochemical mechanisms of arsenic mobilization in aquifers
  - Diagnosis and epidemiology of arsenicosis
  - Bioavailability of arsenic and food chain impacts

Cross-Cutting Issues – 1

- Awareness building
  - Role of popular media
  - Stewardship of information
- Linkage to national sustainable development
  - Framework for national sustainable development
- Impacts on economy
  - Infrastructure growth in the context of:
    - Medical and public health facilities
    - Water delivery systems
  - Negative impacts on agricultural output??
- Food security and nutritional quality
  - Existing and projected trend of malnutrition

Cross-Cutting Issues – 2

- Social and Societal Aspects:
  - Lack of awareness
  - Worst impacts on poorest of the poor
  - Social stigma associated with arsenicosis
  - Consideration of alternative livelihoods
  - Societal support for survivors

Transition from Short- to Long-Term Measures

- Water issues
  - Transition in technologies

  - Quality monitoring programmes

Involvement of communities, NGO groups
Awareness raising
Infrastructure development

Transition from Short- to Long-Term Measures

- Health issues
  - Uncertainty in number of patients
  - Capacity development for public health facilities
  - Ensuring food security and nutritional quality – role of agriculture

- Institutional issues
  - Scaling up
    (moving from household measures to national infrastructure)
  - Elaborating a time frame

Key Lessons Learned

- Thorough investigation prior to major development works
- Government has a key role to play
  - Leadership and guidance
  - Coordination of efforts
  - Effective implementation
- Involvement of private sector and general public is critical
- Technological options alone are not sufficient