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Establishing environmental monitoring in Sri Lanka

L G Hutton

Environmental Monitoring in Sri Lanka

There were 13 organisations in Sri Lanka in 1987 registered by the Central Environmental Authority (CEA) to carry out tests on water, soil, air and noise for environmental purposes. All of these laboratories have some facilities for testing water, five can test soils and only two can measure air and noise pollution. The organisations are listed in Table 1 (CEA, 1987).

Standards for various types of environmentally sensitive parameters discharged are prepared by interagency drafting committees, with representatives from organisations whose interests are involved, are published by the Sri Lanka Standards Institution. Other national and international standards for discharges are often used when drafting local limits. The standard methods of analysis for these parameters are also defined by the Sri Lanka Standards Institution. All these standards are subject to review as new problems and developments arise.

Some interlaboratory comparisons were carried out by CEA and the Centre for Analytical Research and Development, Dept. of Chemistry Colombo on 11 laboratories using chloride, sulphate, calcium, magnesium, sodium, zinc and copper on a synthetic potable water. The exercise proved very informative and has tightened up procedures in the participating laboratories. It is hoped to carry out some further comparisons in future (Gunawardhana, 1986).

It is interesting to note that despite the promising potential for environmental monitoring there is currently:

- 1) No surveillance organisation for regular checking of drinking water quality.
- 2) Few reports submitted to the Global Environmental Monitoring System, especially in relation to water quality.

The reasons for this state of affairs are several and probably synergistic:

- 1) Lack of awareness by the public on environmental and public health matters.
- 2) Lack of funds for purchase and maintenance of supply of chemicals and simple and complicated laboratory equipment.
- 3) High rate of staff turnover at professional and technical levels.
- 4) Pressure on provision of quantity of water rather than maintenance of quality of supply and distribution networks.
- 5) Concentration of industrial development in Colombo and its surrounding districts.

National Building Research Organisation (NBRO) and its Environmental Division

The National Building Research Organisation had its origins from the Building Research Institute and was founded at its present site in March 1984. Its work is directed towards the research and development needs of the total shelter sector. Its activities focus on five broad areas:

Geotechnical Engineering,
Building Material and Construction
Techniques.
Human Settlements Development.
Environmental Management.
Structural Engineering and Project
Management.

The Environmental Division was established in January 1986 with a view to provide research and technical assistance to the Urban Development Authority (UDA) to combat urban environmental pollution. The aims and objections of the Urban Development Authority are very briefly described in Appendix 1.

Development activities stress the environment, causing pollution in urban areas. Urban Development does not merely imply building construction. It includes all activities that are accomplished to improve urban areas such as promoting commercial development housing, providing

infrastructure, services and amenities such as public parks as well as industrialization. So in some cases while the standard of living may improve, the urban environmental quality may deteriorate both during construction and afterwards with increased activity.

Laboratory Facilities and its Establishment

Although there have been cases of gross pollution in urban areas in Sri Lanka, it has been difficult to quantify such incidents. A modern environmental laboratory with the capacity to monitor water, air and noise pollution is being equipped with UNDP-UNCHS funding.

The author visited Sri Lanka as UNCHS Environmental Consultant to NBRO for 6 weeks ending December 1986 primarily to review the equipment needs of the environmental laboratory and to finalise the list of equipment for procurement including detailed specifications and cost estimates.

In December 1987 the author returned for 3 months to install, commission and calibrate the equipment which was arriving at NBRO. The author will give a status report at the conference.

The equipment procurement has been split into two stages and the major components for phase 1 and phase 2 (draft) are listed in Table 2.

The training of staff in environmental analysis techniques and sampling will be illustrated by slides as well as some of Sri Lanka's environmental problems which are being researched.

Disclaimer

The views expressed are those of the author and do not necessarily those of the UNDP, UNCHS, NBRO or Sri Lanka Government.

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References

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Appendix 1

AIMS AND OBJECTIVES OF THE URBAN DEVELOPMENT AUTHORITY

The Urban Development Authority since its inception in October, 1978 has declared 79 Urban Local Authorities under the U.D.A. Act No 41 of 1978.

The Aims and Objectives of the U.D.A. regarding the above are the following

- a) To carry out integrated planning and physical development.
- b) To implement programmes in order to provide services in such areas that are consistent with integrated planning.
- c) To undertake and execute development projects.
- d) To formulate capital improvement programmes for the declared areas.
- e) To formulate and implement an urban land use policy for the whole of Sri Lanka.
- f) To develop environmental standards and prepare schemes for environmental improvement.
- g) To carry out building, engineering and other operations and connected infrastructure development of such areas.

In order to implement the above programme the Urban Development Authority is empowered to

- a) Enter into any contract with any person or organisation for the execution of development projects and schemes approved by the Government.
- b) To acquire and hold any movable or immovable property acquired or held by it.

Table 1

List of laboratories registered in 1987 by the Central Environmental Authority to carry out environmental monitoring (CEA,1987).

Institution Name	Parameters for which facilities are available			
	Water	Soil	Air	Noise
1. Ceylon Institute Scientific and Industrial Research (CISIR)	x		x	x
2. Colombo Municipal Council Microbiology lab	x			
3. Division of Occupational Hygiene	x		x	x
4. Geological Survey Dept.	x	x		
5. Government Analyst's Dept.	x			
6. Land Use Division, Irrigation Dept.	x	x		
7. National Water Supply and Drainage Board	x			
8. Sri Lanka Standards Institution	x			
9. University of Colombo, CARD	x			
10. University of Kelaniya, Botany.	x	x		
11. University of Kelaniya, Chemistry.	x	x		
12. University of Peradeniya Zoology.	x	x		
13. Water Resources Board.	x			

Table 2

Equipment for Environmental Laboratory, NBRO Sri Lanka

Phase 1	Phase 2
Analytical Balance	Air Meter
Autoclave	Autoclave
Centrifuge, hand	Balance, electronic
C.O.D Apparatus	Barometer
Comparator and discs	Bath, water for bacteriology
Conductivity Meter	Centrifuge
Deioniser	Colony counter
Distillation Unit	Conductivity/Temperature water meter
Dust sampler, Hi-volume	Dissolved oxygen meter
Earth Leakage Residual Current Device	Distilled water apparatus & reservoir
Flame photometer	Hotplate
Fume cupboard	Incubator
Furnace, Muffle	Kjeldahl apparatus *titrator
Gas meter, pumps and bubblers	Potable pH/specific ion meter
Hot plate	Potable ambient air monitor
Incubators	Recorder, chart
Multimeter	Sound level meter
Oven, Hot air	Turbidity meter
pH/specific ion meter	portable laboratory for water and wastewater
Refrigerator	
Spectro-photometer and cells	
Stirrers	
Sound level meter	
Toolkit	
Vacuum pump	
Water bath	
Water sampler	
General laboratory equipment	
Glass ware and plastic ware	
Chemicals	