WEPA Action Programme for Sri Lanka 2016

DR. R.M.S.K. Ratnayake
Actg. Deputy Director General

Himali Karunaweera
Assistant Director
Environmental Pollution Control Division
Central Environmental Authority
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Rivers & Tanks in Sri Lanka

Rivers and Tanks in Sri Lanka

- Main river
- Tank
- Abandoned tank

Legend:

Scale: 0 25 50 Kilometers
Water Supply Coverage

• 33% of population in Sri Lanka is served by pipe bone water supply with 294 water supply schemes
• Protected Dug Wells is 33%
• Hand pump/tube wells is 8%
• Rain water is used by 2.4% of population

Overall access to safe drinking water coverage is 76.4% in 2007 (NWSDB report)

• Total well water usage is 72%
Different types of wells
Legal status of ground water protection in Sri Lanka
• Multiple mandates governing the use and management of ground water are dispersed among various agricultural, land and water managing institutions.
• No single or formally accepted policy or law
• Extraction is freely open to every one and no limits.
• Fee is charged only if the water supplied in piped schemes.
Institutional Arrangements for water administration

- **Central Environmental Authority**
  Overall responsibility for protecting water Environment.

- **Water Resources Board** — scientific characterization, mapping, preparation of comprehensive and integrated plans for conservation, utilization, control and development of the groundwater.

- **National Water Supply & Drainage Board** — operational development and installation of public and private water supply schemes based on groundwater, coordinate sewerage systems.

- **Department of Irrigation** — Regulation & control of inland waters

- **Mahaweli Authority** — Maintenance of Mahaweli River and its reservoirs for development of lands for agriculture.

- **National Aquatic Resources Agency** — *Conduct Researches on* Aquatic Resources

- **Department of Coast Conservation** — Conservation of the coastal zone and management of its resources.

- **Marine Pollution Prevention Authority** — protect the marine environment from ship based and shore based maritime related activity.
Prevailing ground water issues

- Ground water is polluted mainly due to;
  Heavy agricultural practices tend to increase excess amounts of Nitrates manly in shallow aquifer ground water eg. In Jaffna peninsula due cash & horticultural crops.

- Over use of agrochemicals in Dry zone Chronic Kidney Disease (CKD) in North Central Province is still unidentified.

- Untreated sewerage disposal /poor hygienic practices resulted in wide spread bacterial pollution of wells.

- Industrial effluent and waste disposal such as solid waste dumps & oil dumps

- Over extraction of Ground water leads to well drying & salinization of the aquifer /intrusion of salt water in coastal areas.

- Due to natural geochemistry of the area and other
  - Dental fluorosis in central, north- central, north -eastern & south-eastern regions (10mg/l reported)
Recent ground water pollution incidents reported due to Industrial discharges;

- Since 2011 ground water contaminated with oil discharge from Power plants in Chunnakum area in Jaffna peninsula.
- In 201Well water contamination in Rathupaswala (Gampaha area) due to industrial effluent discharge (rubber glove manufacturing industry) on land. Still the groundwater is high in sulphate content and nitrate.
- Ground water contamination since 2013 due to Palm oil effluent & sludge disposal on land.
- In January 2016 accident in paint factory in Panadura, Keselwatte, leakage of chemical compounds butyl acetate in to near by lands and polluted well water in the close vicinity.
- In January 2016, leakage in under ground diesel tank and pollution of ground water and Nilwala river.
- North-central Province CKD issue is still unidentified
High medium & low polluting industrial distribution in Sri Lanka

- Total "A" category: 6271 (22%)
- Total "B" category: 6834 (25%)
- Total "C" category: 14787 (53%)
Provincial distribution of industries in Sri Lanka
Profile of Gampaha District

Population 2,304,833

Industry - 6406 high polluting industries - 1901

Solid Waste generation 750 tonnes / day
# Ground water usage in Colombo & Gampaha Districts

( study of the management of ground water resources in Sri Lanka)

<table>
<thead>
<tr>
<th></th>
<th>Colombo</th>
<th>Gampaha</th>
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<tbody>
<tr>
<td>Population rely on ground water %</td>
<td>34.8</td>
<td>75.4</td>
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<tr>
<td>Ground water usage – individuals m$^3$/d</td>
<td>78,000</td>
<td>156,000</td>
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<tr>
<td>Registered deep bore hole wells</td>
<td>342</td>
<td>890</td>
</tr>
<tr>
<td>Ground water for piped supply m$^3$ / d</td>
<td>0</td>
<td>5,859</td>
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Issues in Sri Lanka

• Ground water pollution is drastically increasing due to industrial discharges
• It is difficult to predict the industrial pollution due to lack of baseline data
• CEA has no any regulation on groundwater pollution and groundwater withdrawal
• To set up the regulation on ground water, CEA should have data on ground water
• Policy & regulation on improvement of groundwater protection by industrial pollution, is very important and needful
Project Activities

- Literature survey to gather information on the area and past studies if any.
- Awareness programmes to build technical capacity of laboratory staff.
- Selection of sites within Divisional Secretariat areas in Gampaha district.
- Mapping of wells in selected areas by GPS locations.
- Preparation of standard format for data collection.
- Collect samples from wells including wet & dry periods.
- Record meteorological parameters; rainfall, temperature, relative humidity.
- Measure field parameters; Temperature, pH, DO, Conductivity.
- Analyze COD, pH, Nitrates, Phosphates, Ammonia, Total Coliform, Faecal Coliform, Chloride and metal irons (if necessity arises).
- Preparation of report on base line data and mapping of ground water quality.

Scheduled period for this water quality analysis is 12 twelve months including wet & dry periods of the year.
Flow diagram of activities

Desk Study & Literature survey

Awareness

Selection of Sites

Water Sampling

Wet

Dry

Lab Analysis

Data Interpretations

Published in the Website
Future plans of the CEA on protection of ground water

- Enforce the regulation on siting of industries which compelled the industry to select suitable sites with proper discharge modes.
- Policy decisions based on the results of ground water contaminations in critical areas.
- No any chemical effluent discharges be allowed on land disposal.
- Impose multiple discharge standards such as sea out fall, sewer systems, inland surface waters.
- Limit over extraction of water from industries via conditions in the Environmental Protection Licence.
- Implementation of ambient water quality standards and river classification thereby protection of groundwater – surface water interactions.
- Establish regular and island wide monitoring programme for ground water quality.
- Encourage rain water harvesting to enhance the groundwater table.
Thank you