- Magnesium concentrations for the Nile River water samples ranged from 5.81 to 7.80 mg/L. In drains water samples, magnesium concentrations ranged from 21.30 to 31.80 mg/L.
- Boron concentrations for the Nile River and drains water samples were less than 1.0 mg/L.

***III-Major Anions***

- Fluoride concentrations for the Nile River water samples ranged from 0.26 to 0.41 mg/L, while for drains water samples ranged from 0.26 to 0.45 mg/L. The fluoride concentrations of the River Nile and drains water samples were within the permissible limits of law 48 (not exceed 0.5 mg/L).
- Chloride ion concentrations for the Nile River water samples ranged from 12.21 to 29.21 mg/L, while for drains water samples ranged from 117.00 to 221.00 mg/L.
- Nitrate concentrations for the Nile River water samples ranged from 1.8 to 14.80 mg/L. In drains water samples, nitrate concentrations ranged from 6.40 to 19.30 mg/L. The nitrate concentrations for the Nile River and drains water samples were within the permissible limits of law 48 (not exceed 45 mg/L).
- Sulfate concentrations for the Nile River water samples ranged from 18.40 to 47.40 mg/L, In drains water samples, sulfate concentrations ranged from 66.20 to 121.2 mg/L. Sulfate concentrations in the Nile River and drains water samples were within the permissible limits of law 48 (not exceed 200 mg/L).
- Phosphate concentrations for the Nile River water samples were less than 1.0 mg/L (the permissible limits of law 48).In drains water samples, phosphate concentrations ranged from 0.92 to 11.87 mg/L.

*IV-Trace Metals*

- Aluminum concentrations for the Nile River water samples ranged from 0.06 to 6.41 mg/L. In drains water samples, aluminum concentrations, ranged from 0.09 to 0.63 mg/L.
- Barium concentrations for the Nile River water samples ranged from 0.02 to 0.06 mg/L. In drains water samples, barium concentrations ranged from 0.05 to 0.12 mg/L.
- Cadmium concentrations for the Nile River water samples were less than 0.01 mg/L (the permissible limits of law 48), except samples No. A11 and A15. In drains water samples, cadmium concentrations exceeded the permissible limits of law 48 (not exceed 0.01 mg/L) except samples No. B1 and B12. The presence of cadmium in water samples is mainly due to industrial discharge wastes in the area under study.
- Chromium concentrations for the Nile River water samples were less than 0.05 mg/L (the permissible limits of law 48).In drains water samples, chromium concentrations were more than 0.01 mg/L (the permissible limits of law 48) except samples No. B12 and B13.
- Copper concentrations for the Nile River and drains water samples were less than 1.0 mg/L (the permissible limits of law 48).
- Iron concentrations, for the Nile River water samples were less than 1.0 mg/L (the permissible limits of law 48).In drains water samples, iron concentrations ranged from 0.37 to 2.01 mg/L. Most of the drains water samples were higher than the permissible limits of law 48 (not exceed 1.0 mg/L).
- Manganese concentrations for the Nile River water samples were less than 0.5 mg/L (the permissible limits of law 48).In drains

water samples, manganese concentrations were higher than 0.5 mg/L (the permissible limits of law 48). The presence of manganese in the drains water is mainly due to excess irrigation water.

- Nickel concentrations for the Nile River and drains water samples were less than 0.1 mg/L (the permissible limits of law 48) except samples No. B1, B2 and B4.
- Lead concentrations for the Nile River water samples ranged from 0.01 to 0.11 mg/L. Lead concentrations in most of the Nile River water samples were higher than the permissible limits of law 48 (not to exceed 0.05 mg/L). Presence of lead in the River Nile water in the area under study is mainly related to precipitation of lead dust fallout as a result of heavy traffic and condensed human population.
- Zinc concentrations for the Nile River and drains water samples were less than 1.0 mg/L (the permissible limits of law 48).

***V-Organic Matter***

- TOC concentrations for the Nile River water samples ranged from 2.73 to 8.75 mg/L, while for drains water samples ranged from 16.84 to 62.47 mg/L.
- In drains water samples, COD concentrations ranged from 130 to 540 mg/L.
- In drains water samples, BOD concentrations ranged from 40 to 240 mg/L.
- Oil and grease concentrations for the Nile River water samples ranged from 0.11 to 5.30 mg/L. All oil & grease values were

higher than the permissible limits of law 48, (not to exceed 0.1 mg/L).

***VI-Removal of Trace Metals***

- The results showed that, trace metals can be removed by precipitation as sulfides through the addition of sodium sulfide to very low concentrations under alkaline condition. Optimum pH, which gives higher metal removal, was 7.5 for Chromium and Aluminum, 8.5 for Copper, Cadmium and lead, 9.5 for Nickel and Zinc.
- The results data showed that, high concentrations of sulfide were shown to be more efficient in removal of trace metals than lower concentrations.
- Sulfide precipitation has shown to be able to remove trace metals from actual industrial wastewater to values below the standards limit of Law 48/1982.

***VII-Removal of TOC***

- Different doses of polyferric sulfate and ferrous sulfate were used to reduce the concentrations of TOC. The results showed that the reduction of TOC was found to be greater with polyferric sulfate than ferrous sulfate for the same coagulant dose used. The use of polyferric sulfate in water treatment is expected to reduce treatment costs through a lower coagulant dose.