

WATER THAT WE DRINK - IN SINDH

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Directly or indirectly 90% people of Sindh drink the Indus water. Direct means through canals and lakes fed by the Indus. Indirect means from ground charged with water due to seepage by the river itself or its canals or lakes filled by the river or the irrigated fields. This means the whole Indus alluvial plains as well as all cities of Sindh get supplies from the Indus. The exception is Thar and Kohistan of Sindh and part of Karachi getting water from the Hab Dam and occasionally from Damloti wells. The situation therefore demands to monitor waters in the Indus for its quality at various stations and also of canals, lakes and ground water to see what pollutants enter into the river water on the way to the sea and how they are diverted for human and other uses. Major diversion occurs at Guddu, Sukkur and Kotri in the three barrages of respective names. Water at Guddu depends on the discharge of the river Indus and pollutants discharged in it from Municipal, industrial as and agricultural wastes of the Punjab and NWFP.

Some Municipal wastes are definitely treated before discharging them, but these pertain only to city drainage. However wastes swept from the city are not treated and through various processes and they end into the rivers. Industrial wastes containing heavy metals and synthetic chemicals are not treated, but directly disposed off, in channels leading to the river. Agricultural wastes include pesticides, and fertiliser residues, farm yard manure residues and field drainage wasters having high concentrations of toxic substances. City of Lahore discharges 550 cusecs of municipal and industrial wastes in the River Ravi, whose discharge is only 180 cusecs in winter. This highly polluted water flows down streams.

Guddu Barrage Command.

At Guddu water is diverted into canals namely:

- Right Bank, Desert Pat feeder and Begari Sindh feeder.
- Left Bank Ghotki feeder.

These are non-perennial and water flows into them from June to October. They are designed to irrigate 23 million acres in Sindh and 0.7 million acres in baluchistan. Quantities of water applied are far in excess of evapotranspiration needs of crop. Rice is grown on right bank canals and dry summer crops on the left bank. At least 25 to

30% excess water is applied on the left bank and 80-100% excess on the right bank.

The excess water seeps into the ground and adds to water table. This is water that people drink in Guddu Command area either from canals for four months a year and from ground deposits for another eight months. It contains pesticides and nitrates which are injurious to human health.

Pollutants sources.

- Punjab drainage has salts contents of 150-600 ppm at Guddu in summer and winter.
- Punjab drainage municipals, industry, agriculture wastes continuous to flow through out the year and contains:
 - Lead and other metallic compounds used for colour prints from textile mills.
 - Heavy metals.
 - Pesticides.
 - Bacteria (Human and cattle).
 - Nitrates (both NO_3 and NO_2).

Guddu to Sukkur.

- Seepage or drainage of agriculture fields containing NO_2 (Ghani) + pesticides.

Pollutants entering the river Indus from Sukkur to Kotri.

- Drainage of Manchar lake.
- Regenerated water minimum 3200 cusecs or 20,000 gallons or 100,000 litres per second. Regenerated water contains:
 - Pesticides.
 - Nitrates, nitrites, chromium, lead, copper and zinc.
 - Salts.
- Salt content at Kotri reaches 600 ppm in winter months.

Kotri to Sea.

- In addition Municipal wastes from Hyderabad, Kotri cities and industrial wastes from Kotri industrial area via Baran River.

Supplies to Karachi.

- Water quality about 250-600 ppm salts. These have following pollutants:

- Pesticides.
- Heavy metals.
- Salts NO₂, NO₃ and pH (Ghani).

Supplies to Hyderabad.

- Same as Karachi.

Hyderabad city disposal.

City desposits both in the Phulleli canal the river Indus people on down stream side drink this water from Phulleli canal and river Indus.

Karachi city disposal.

Karachi city water disposal is in two following major sources:

- Liari.
- Malir near Korangi.

It pollutes sea water with adverse effects on fish, crusteans and other sea fauna.

Effect of Manchar Lake.

- There existed 200 fish species in 1930 in Manchar lake. Due to drying of lake, they died in 1961, 1982.
- Now fish is dying due to saline water in the lake. Lake attracted birds form Central Asia, Mongolia, Siberia. Now the number has reduced as there is no fish, food of these birds.
- No birds.

Pollutants in Kenghar lake.

- Kalu Kuhar Industrial Area, drainage consisting of lead and heavy metals.