

WIKI 1

RESEARCH QUESTIONS

On basis of the research conducted by DAV MODEL SCHOOL, DURGAPUR, a series of research questions (both descriptive and relational type) were plotted and preferred answers were also drawn:

- **What is the water level during summer season and rainy season?**
 - ✓ *The water level of Barakar river remains 10-15 feet at the center of the river and during the rainy season the water level rises to about 30-45 feet at the center, this change of level is also a cause of flood in the local areas. Thus, the river is claimed as "savior as well as destroyer".*
- **For what purposes the river water is used?**
 - ✓ *The water is highly used for household purposes like bathing, washing clothes and vessels, fishing and also for drinking purposes. The water of the river is sent to a tank nearby and then, after some treatment, it is supplied to the localities by the municipality.*
- **Is there any special usage of the river water?**
 - ✓ *The river water is used for hydel power production in the Maithon Dam, which produces about 60 MW of energy. The dam also acts as a reservoir and has several utilities like navigation and supply of water to industries.*
- **Has the water ever resulted to any kind of diseases after using it for drinking or bathing?**
 - ✓ *The local people claim that the water hasn't resulted to any kind of diseases. But, during the rainy season the water quality varies. Thus, sometimes leads to certain skin diseases. The river water then, is rarely drunk directly and most of the locals primarily filter it and then use it for drinking purposes. Sometimes, the traditional method of filtration is also used, i.e., by digging a pit beside the river where the soil layer partially filters out the water. They proclaimed that, may be some minute diseases have occurred but no such major diseases have ever occurred after usage of the water of the river.*
- **Is the water of Barakar River used or affected by any industry?**
 - ✓ *The water of the Barakar River is not used or affected by any industry. But the water quality is affected by the pollution caused in the Damodar River due to the presence of coal mines surrounding it.*

Then the local people were also asked if the water is clean or is it cleaned after any festive usage like *Chhath*, and they replied that the water is clean and is also cleaned after such festive usage. This cleanliness is proved by a system of separated sewage flow beside the river which, according to them, doesn't mix with the river.

They were also asked certain relational research questions

- **Is the water seen to lose its clarity in any season?**
 - ✓ *During the rainy season, the water is seen to lose its clarity accompanied by a change in color, i.e., the water turns yellowish. Otherwise, in rest of the months, the river water is clear.*
 - **Have the people ever felt their skin to become oily or dry while using the water?**
 - ✓ *The local people didn't observe any specific changes. (but by observation, it was visible that most of the people using the water had dry skin)*
 - **Is any kind of wastes dumped into the water directly?**
 - ✓ *No such wastes are dumped into the river directly but sometimes it may be done at the crematorium.*
 - **Does the water color change in any season?**
 - ✓ *Yes, it does in the rainy season, it changes to somewhat yellow color. But remains the same in all other seasons.*
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On the basis of these answers the hypotheses were done.

HYPOTHESES

Based on the research conducted on the Barakar River water we can say:

- ✓ *The river water is highly used for household purposes like bathing, washing clothes and vessels which involves usage of soaps and detergents. Moreover, the water is also used by washer men. These **soaps and detergents increase the basicity of the water. Thus, the water can be predicted to be alkaline in nature.** This also can increase the hardness of water to some extent due to the presence of Ca^{++} and Mg^{++} ions.*
- ✓ *Since, the water is not used for dumping wastes or discharging effluents from industries thus the **contamination level is estimated to be low** and thus the **turbidity** (which is a measurement of contamination of water bodies due to the presence of algae, dissolved and suspended particles, and other micro-organisms) **shall also be low.***
- ✓ *Since, there is low contamination thus the **BOD, i.e., Biological Oxygen Demand of the water is also expected to be low,** which increases with increase in presence of organic matter in the water.*

- ✓ *Less usage of water by industries for discharging effluents indicates **lower presence of total suspended solids**. But it may increase during the rainy season due to the drainage water flowing by the river getting mixed with the main course of the river.*
- ✓ *As the people consider the water as a source of drinking, so it can be estimated that **the water consists of favorable amount of fluoride, chloride, nitrate, etc.***
- ✓ *People also proclaim that fishing is very common in the river thus it **can be expected that the river has favorable amount of dissolved oxygen and favorable conditions for the aquatic world.***
- ✓ *As no such industrial effluents are discharged and no such organic matters are dumped into the river water thus it is also **expected that the total dissolved solids are low** (which increases by the presence of particles like salts, ionized or micro-granular (colloidal sol), etc.)*
- ✓ *As the river has not caused any such major diseases thus it is **expected that the bacterial growth in the river water is quite low**, except during the rainy season when the drainage water gets mixed with the main course of the river.*
- ✓ ***The water hardness is predicted to be a bit high** due to the enormous use of the water for intensive cleansing purposes such as bathing, washing clothes, etc.*

All these predictions are expected to be the results of the tests that are conducted by the authorized departments (West Bengal Pollution Control Department and Journal) as well as by the school.

The predictions are made on the basis of the answers of the research questions mentioned above.

These are some of the predictions that can be claimed as the propositions that may be in support with the final results of the tests conducted with the help of the testing kit provided and with the results of pre-tests conducted by the West Bengal Pollution Control Board.