WWD-2016 - Summary Report
(Himalayan English School, Ghansali, Uttarakhand INDIA)

April 12, 2016/August 6, 2016

Best School/Children Participation AWARD

2016 विश्व जल दिवस 'स्वच्छ नदियों

"अंतरराष्ट्रीय स्वयंसेवक गतिविधियों

The World Water Day (WWD) 2016 Awareness Discussion – Himalayan English School (HES), Ghansali, Uttarakhand, India

Note from Sudhir Nautiyal, Founder, HES:
Due to Holidays for HOLI from 23 March to 27 March 2016 and also the new admissions for next session immediately after in holidays, we couldn't organize the Rivers of World Day 2016 as per schedule and it was organized on 12 April 2016. Students of class 6 to 10 participated in this event.
The management of HES decided that this year we should celebrate this day by spreading the awareness about importance of the water to the young minds of our own school. We believe that our next generation must know and understand the importance of water very clearly.
Accordingly we decided to organize an open talk in HES, where Management, teachers and students assembled. Following is the detailed summary with pictures of this event–

1. **Water is very important, how?**
   This was explained by Mr. DK Das and Mr. SK Nautiyal to students. As such –

1.1) Water Quality: Why does it matter?

There is water all around us. There are vast oceans, large lakes, grand rivers, small ponds, and tiny streams. All of these matter to us and to other life on this planet.

Why the quality of water sources is important?

Each of our streams and rivers have their own basins, which are comprised of several **watersheds**. Tiny streams feed large rivers, which can then feed lakes or oceans. The contamination of the tiniest stream will affect everything downstream.

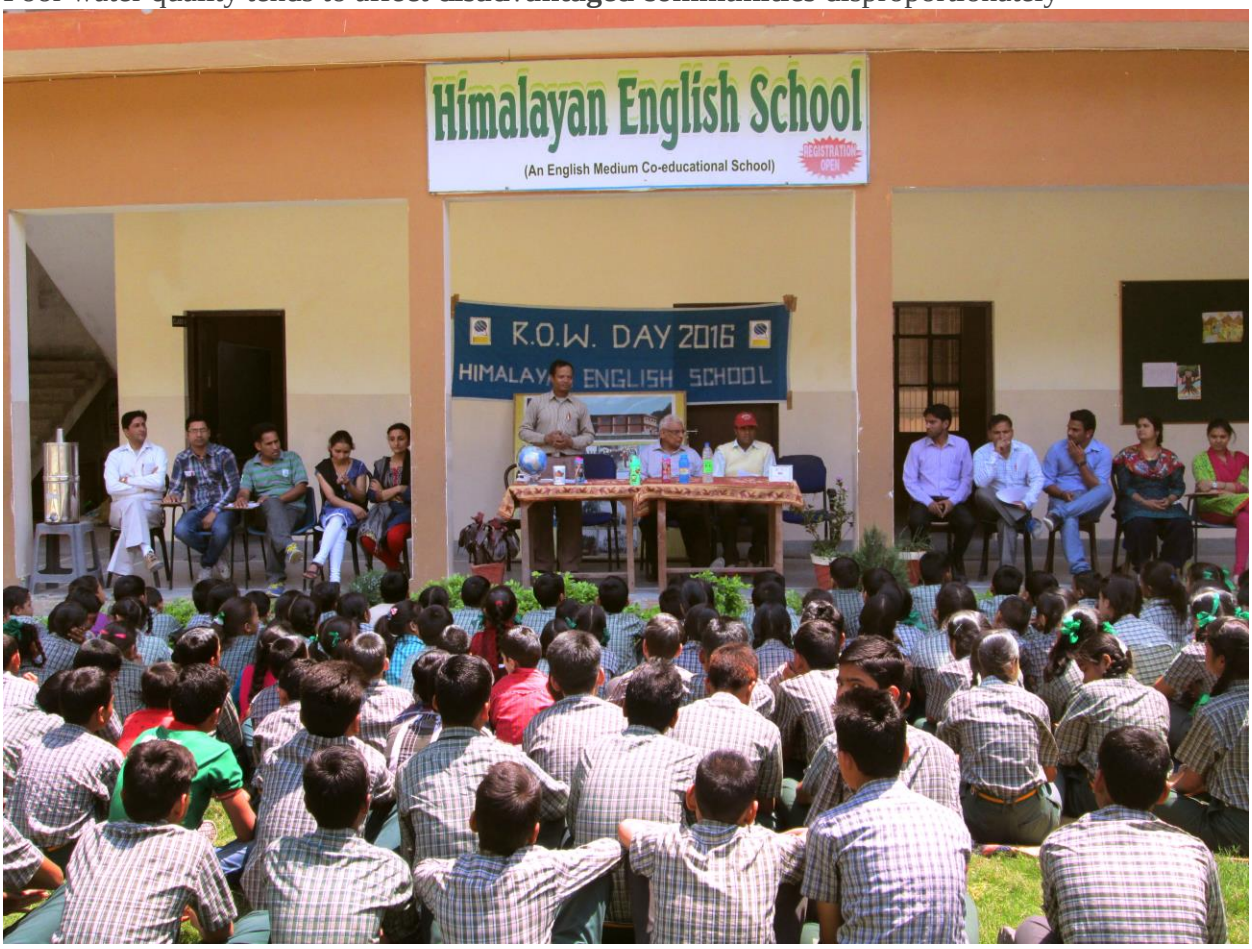
We often get our **drinking water** from lakes and rivers. Although we treat our drinking water, we should protect it from its headwaters consisting of small creeks and tributaries at the upstream to the downstream areas.

Lots of other **animals and plants** depend upon these water and watersheds which we inhabit.

Cleaner water means a healthier **food chain** (from bugs, to fish, to birds, to people.) Dirty water can affect the health of the fish we eat, and thus our health.

We use water for **recreation**.

Poor water quality tends to affect **disadvantaged communities** disproportionately



1.1) The importance of Water Monitoring

Every living thing on earth needs water to survive.

Human bodies are made up of more than 60 percent water.

We use clean water to drink, grow crops for food, operate factories, and for swimming, surfing, fishing and sailing.

Water is vitally important to every aspect of our lives.

Monitoring the quality of surface water will help protect our waterways from pollution.

Farmers can use the information to help better manage their land and crops.

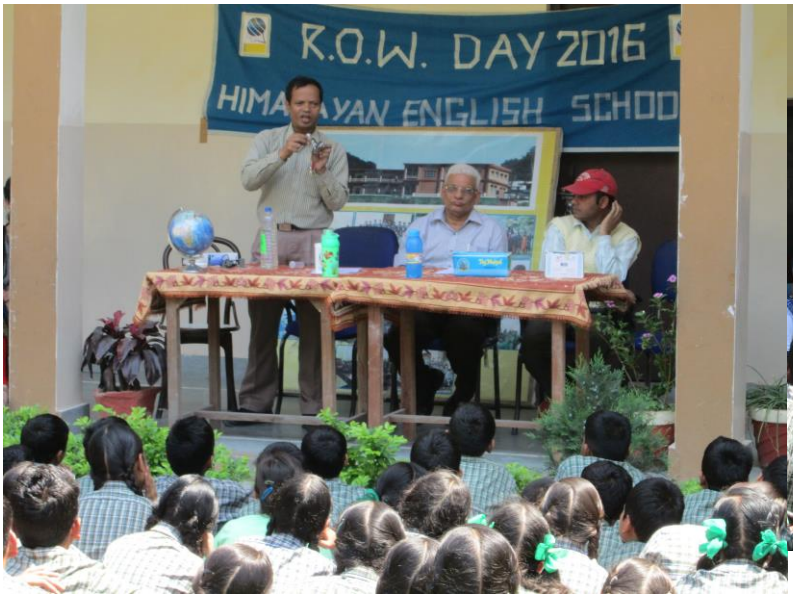
Our local, state and national governments use monitoring information to help control pollution levels.

We can use this information to understand exactly how we impact our water supply and to help us understand the important role we all play in water conservation.

Water is a vast network of branching rivers, springs, creeks, swamps, estuaries, wetlands, lakes, bays, etc.

Each water body can contain dramatically different levels of pollution.

Water quality issues influence human and environmental health, so the more we monitor our water the better we will be able to recognize and prevent contamination problems.



1.2) Measuring Water Quality

Although you might not have access to the resources of a scientist, there are some simple tests you can perform to get an idea of the quality of a particular water body:

1.31) Temperature

The temperature of water can affect it in many different ways. Some organisms prefer cool water, while some like it warm. Most aquatic organisms are cold-blooded. This means that the temperature of their bodies match the temperature of their surroundings. Reactions that take place in their bodies, like photosynthesis and digestion, can be affected by temperature.

It is also important to know that when the temperature goes up, water will hold more dissolved solids (like salt or sugar) but fewer dissolved gases (like oxygen).

The opposite is true for colder water. Plants and algae that use photosynthesis prefer to live in warm water, where there is less dissolved oxygen. Generally, bacteria tend to grow more rapidly in warm waters.

Colder water contains more oxygen, which is better for animals like fish and insect larvae.

1.32) Dissolved Oxygen (DO)

Oxygen is necessary for many aquatic species to survive.

This test tells you how much oxygen is dissolved in water for fish and other organisms to breathe.

Most healthy water bodies have high levels of DO. Certain water bodies, like swamps, naturally have low levels of DO in the water.

Lots of organic debris (fallen leaves, sewage leak) can cause a decrease in DO concentration.

Microorganisms, in the process of decomposing the organic material, use all the oxygen in water.

How does oxygen get in water in the first place?

Much of the oxygen in water comes from plants during photosynthesis and also from air as wind blows across the water's surface.

1.33) pH (acidity)

The potential of Hydrogen, also known as pH, is a measure of acidity and ranges from 0 (extremely acidic) to 14 (extremely basic) with 7 being neutral.

Most water is in the range of 6.5–8.5.

Let's see some examples to compare pH values.

Lemon juice has a pH of 3 — this makes it an acid. We all know how it feels to accidentally get lemon juice on a cut finger. Stronger acids have the ability to eat through solid objects if spilled.

Liquid bleach has a pH of 11 — this makes it a base. Strong bases, just like acids, can burn your skin.

Let's think about why. Our bodies are made mostly of water. Water has a pH of 7. Things that are close to pH 7 work well with our bodies.

The same holds true for aquatic organisms. If the water becomes too acidic or basic, it can kill them. Not all acids and bases are bad. Aspirin and tomatoes are acidic, while milk of magnesia and baking soda are both bases.

1.34) Turbidity

Turbidity refers to the clarity of water, or how clear it is.

This determines how much light gets into the water and how deep it goes.

Excess soil erosion, dissolved solids or excess growth of microorganisms can cause turbidity. All of these can block light. Without light, plants die.

Fewer plants mean less dissolved oxygen. Dead plants also increase the organic debris, which microorganisms feed on. This will further reduce the dissolved oxygen and cause high Bilological Oxygen Demand **(BOD**). No dissolved oxygen means other aquatic life forms cannot live in the water.

1.35) Conductivity

Conductivity is a measure of how well a solution conducts electricity. Water with absolutely no impurities (Distilled water, non-ionized water) does not conduct electricity and thus conductivity tends to go to zero.

In real life, the impurities in water increase its conductivity. Because of this, if we measure the conductivity of water, we have some estimate of the degree of impurity.

The current is actually carried almost entirely by dissolved ions. The ability of an ion to carry current is a functions of its charge and its mass or size: Ions with more charge conduct more current; larger ions conduct less.

To measure conductivity we use a machine called a conductivity meter.

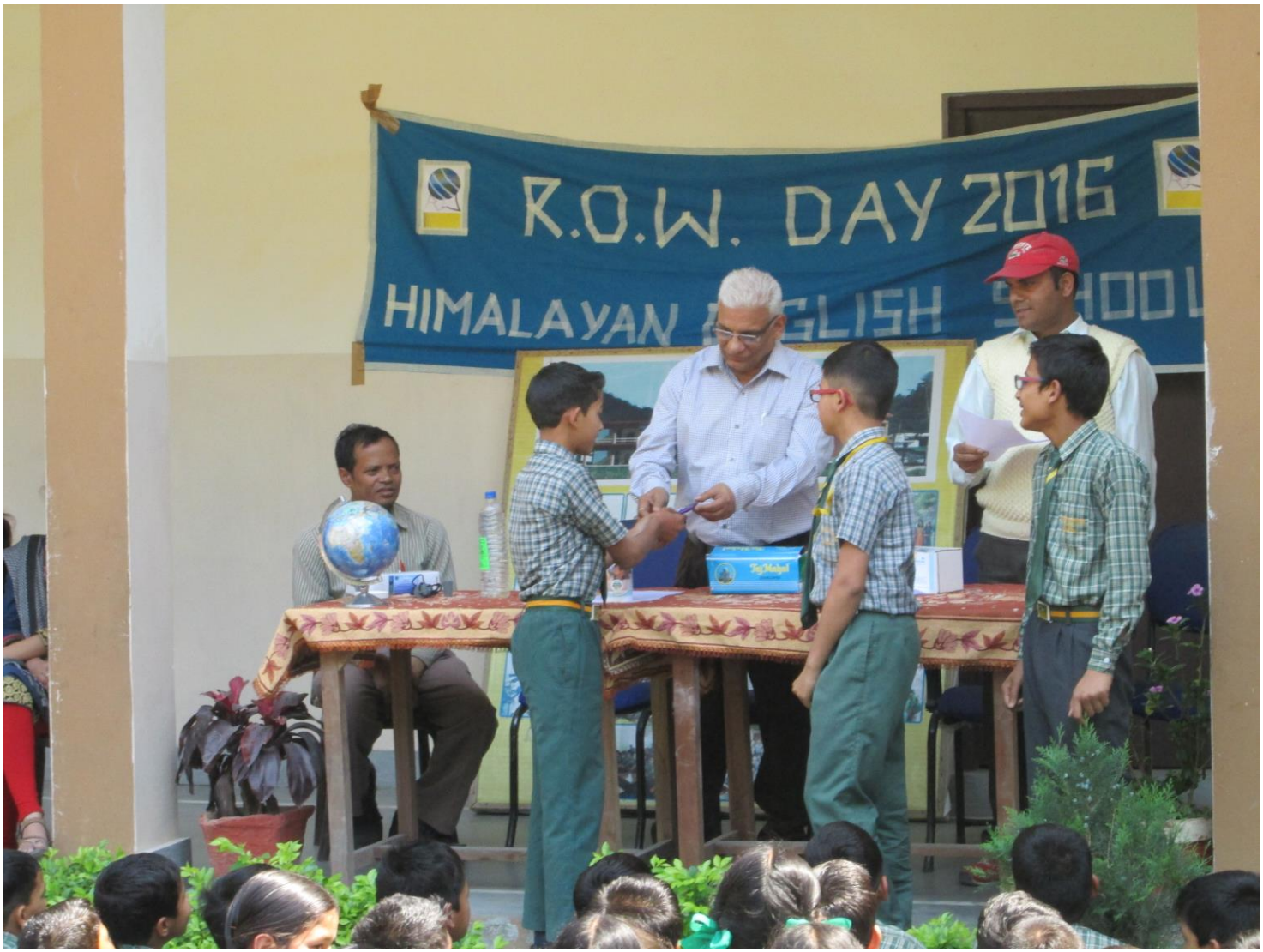
The actual amount of electricity that a given water solution will conduct changes with how far apart the electrodes are and what temperature the water is.

This quantity is expressed in units called mhos (the unit of resistivity is the ohm; mho is ohm spelled backwards).

The meter has a probe with two electrodes, usually 1 centimeter apart. Most of the modern ones sense the temperature as well and electronically correct for its effects. Since the meter gives a reading which is corrected for temperature and electrode separating distance, the number is called "specific conductance," expressed in mhos per centimeter at 25° C.

The SI unit of conductivity is the siemen (S) named after the French physicist and equivalent to the mho. Thus 1 microsiemen per meter (μS/m) is equivalent to 100 μmho/cm. Very often, a meter will read out in μS/cm or mS/cm (or just μS or mS which are assumed to be per centimeter).

Laboratory pure water has a specific conductance of about one millionth of a mho/cm.



What is the conductivity of our distilled water?

Distilled water is theoretically 0 µmho/cm. The laboratory pure water is around 1 µmho/cm;

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2) Mr. DK Das also explained about the functioning of water testing equipment. This equipment was presented to Himalayan English School by Mr. Subijoy Dutta, Founding Director, Rivers of the World Foundation.

3) Students were also asked to say something about the water and rivers. Following students participated in the talk-

a) Mr. Shikar Gairola class 10

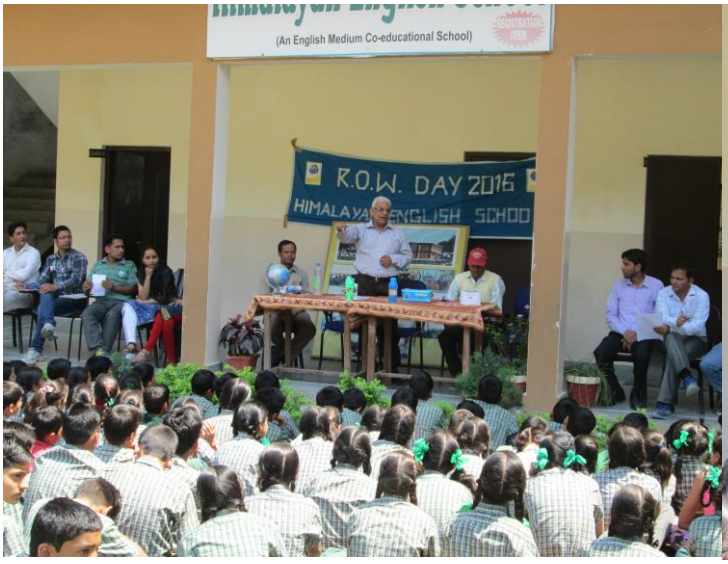
b) Miss Chetna Varma Class 10

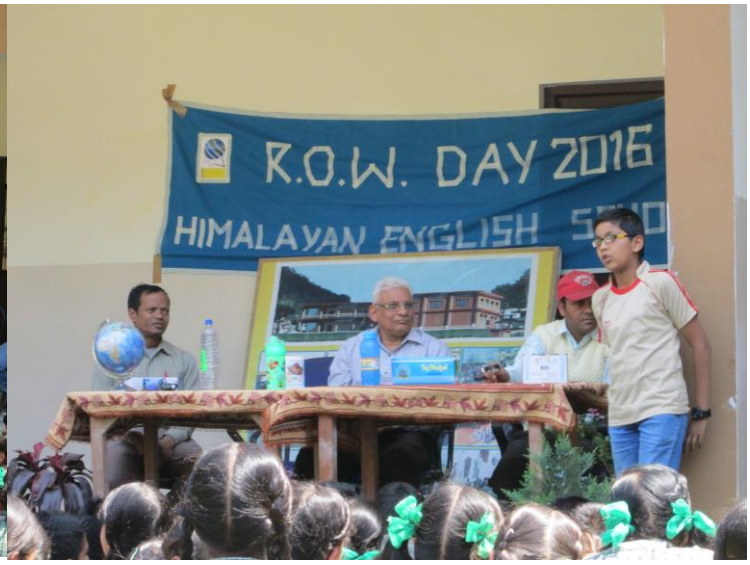
c) Mr. Manraj Bhandari Class 7

d) Mr. Durgesh Thapliyal Class 7

e) Miss Raseshwari Das class 10

The judges declared that talk given by Mr. Shikar Gairola was the best among all and he was awarded first and Mr. Durgesh Thapliyal was second and rest all were given consolation prizes for participation.





4) Mr. S. K. Nautiyal Founder HES informed students that Himalayan English School Ghansali will soon start regular testing of water quality from the month of May 2016. This test will be conducted in our Science lab. The students themselves will conduct the test, and report will be forwarded to Rivers of the World Foundation as an input data for records.

5) Mr. S. K. Nautiyal founder HES, explained that in order to spread awareness about water quality among the local citizens, students of surrounding Himalayan remote area, our School will conduct small seminars in which local citizens and youths of other schools and society will participate.

6) At the end Mr. Chandra Mohan Administrative officer HES, addressed the students to develop a habit of saving water. They should also tell others in their homes not to waste water. By doing this our small students will participate in the bigger mission of saving environment and earth.

In addition he told students that they should study science very well so that they can make their future in the field of environment.

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