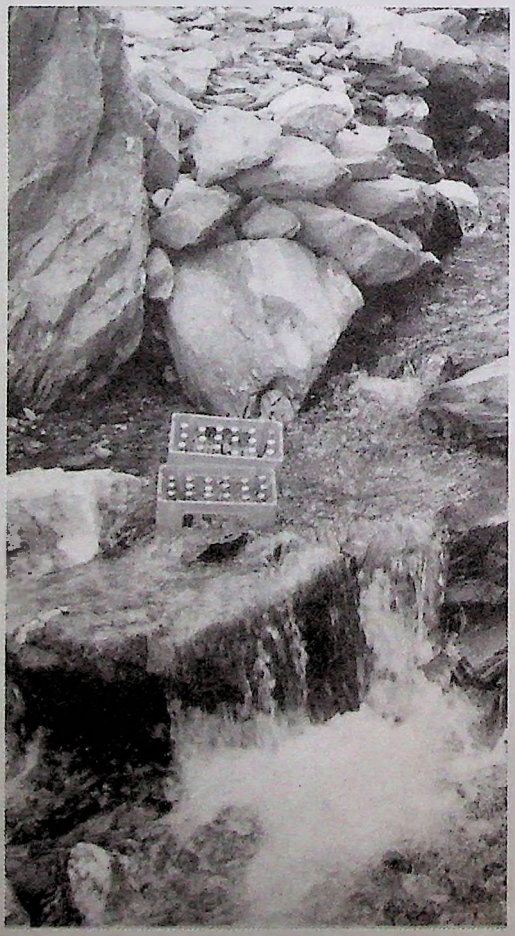
Vol. 2. Issue 2. April - June, 1998

# peas

The Programme for Environmental Awareness in Schools

*India's first environmental magazine for schools!*



*Water is scarce but . . .*

## In this issue...

# Comment...

**"Unless children are taught right attitudes in their early impressionable years - whether at school or at home - there is little hope for these to be fostered later."**

"Water is one of the most essential things for life. Without water, there would be no life on earth" states our lead article. And without water we are going to be facing crisis after crisis. It is therefore important to develop right attitudes to water.

A colleague told me of a little boy playing with his garden hose. For little children this is fun! He sprayed the water all over. Up. Down. Sideways. "Don't waste water," my colleague advised. "No. I will!" replied the defiant lad. "Water is precious, don't do that," he was told. "No, I will," he continued. The episode ended with the tap being closed but the boy not very pleased.

I listened to the incident being narrated and came away wondering what the parents or elders in that home taught that little one. It was a wealthy house and so the message obviously is - Don't worry ... There's plenty! If "Charity begins at home," then even such attitudes begin there.

I continued to ponder over that incident. Unless children are taught right attitudes in their early impressionable years - whether at school or at home - there is little hope for these to be fostered later. Even if parents don't breed bad attitudes, here's what can happen – Water appears to flow freely for the child and so what is free needs to be used freely, one is prone to think. How important it is to counter such attitudes.

Teachers have an important role to play, and the classroom must become the breeding ground for lessons in conservation, preservation and protection. Don't waste. Don't litter. Don't spoil those plants. Don't hurt those helpless animals. Never tire of giving such practical bits of advice to children.

What is learned is often transferred to others. It is children who have powerful messages even for the elders. "Mummy, don't dirty the kitchen!" or "Daddy, smoking is bad for your health!" These penetrating pieces of advice did not come without some prior input to the child. Someone else, a teacher or a friend, gave the child similar advice. It made an impression and now is issued when needed. And undoubtedly, it is bound to have an impact. When children speak the world will stand up and listen.

If this is true, the little boy with the hose has learned his lesson. This same boy will one day turn to his father and say -"Daddy, don't waste water."

**Ken R Gnanakan**


## peas

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peas
is a quarterly magazine
for schools
published by
Dr. Ken Gnanakan
ACTS Trust
P.O. Box 9522
Bangalore 560 095

PEAS is an official arm of ACTS Trust, registered in Karnataka.

# Water Water Water

Water is one of the most essential things for life.

***Nearly three quarters of the total surface of the earth is covered by water. It is necessary that we must be aware of the process of water cycle.***

G. Sindhu
Cluny convent
High School,
Bangalore

Water is one of the most essential things for life. Without water, there would be no life on earth. It is an important natural resource. All living things need water. Human beings and animals require water to help them to digest the food they take. Plants need water to help them to grow and to produce food in their leaves. We must know that, the human body is three quarters water.

Water is there in most parts of the world. Nearly, three quarters of the total surface of the earth is covered by water.

The oceans and seas contain salt water. Sea water is saltish because, over thousands of years, rain water has flowed from land to the sea. Salt of the rocks is washed down into the sea. We get clean water from deep wells due to the fact that water on the surface of the earth sinks into the ground and in the process, becomes filtered. Rain water which fills the shallow dips on the earth's surface, become stagnant and become a breeding place for many harmful germs which cause health hazards to human beings.

All the waters from rivers, streams etc. finally reach the sea and since the water reaches the sea, it becomes of no utility for us since it turns saltish. For this reason and to prevent this, dams, reservoirs, tanks etc. are to be built on the land to store the water. Canals can also be built and can be used for navigation and irrigation purposes. Another vital utility of water is that it is the major source of energy. For this purpose, dams on large and important rivers are constructed. These dams contain special gates which can be opened or closed. When the gates are opened, the water in the reservoir behind the dam rushes with tremendous force through the opening and turns a wheel which is called ***Turbine***. The turbine works

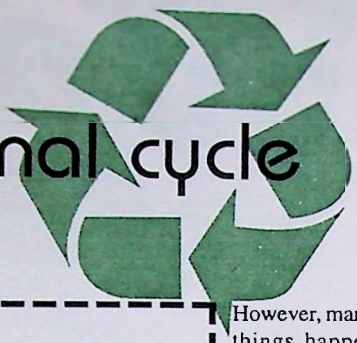
> **“ Without water, there would no life on earth ”**

like a generator which produces ***electricity,*** which is known as hydro-electric power. As we all know, without electricity, the civilized world of today comes to a stand still and no productive activity can take place. The water stored in the reservoir of the dam can also be used for irrigation purposes. Such dams which can be used for production of electricity as well as for irrigation purposes are called multipurpose projects. Bhakra Nangal, Damodar Valley, Hirakud, Tunga-bhadra and Nagarjuna Sagar projects are the important dams of such type in our country.

**Water ... is an inseparable thing in our daily life and we can say that our survival and existence primarily is dependent on it only**

We also know that plants require water essentially for their sustenance. Plants are living things which breathe. They take in carbon-di-oxide and release oxygen without which we would all die. Plants make air pure and keep the earth cool. Plants and their roots firmly hold the soil and when heavy rains/floods come, they prevent soil erosion. Plants and trees give us shade and also help in keeping the environment clean and unpolluted. The food and fruits we eat are all derivatives of plants and trees only. We could thus see that without WATER, plants and trees cannot exist and without them, we cannot. Thus our existence is linked with water directly and also indirectly.

# water... the eternal cycle



This study from Centre for Environment Education, Ahmedabad reminds us that no water is wasted!

Water is not lost by use. If a pail of water gets spilt on the ground, don't think you have seen the last of it. It will come back to you after a period of time. This is why, although the total quantity of water on the earth is limited, it never gets all used up.

Water is continuously recycled by a process in nature known as the water-cycle. The water in the oceans and seas is constantly evaporating because of the sun's heat and the winds. The evaporated water rises into the atmosphere.

As this water-vapour rises, it encounters cooler temperatures and a process of condensation begins. The result is the formation of clouds. When the droplets of condensed water become heavy, they fall as rain.

As the rain falls, three things happen. Some of the water evaporates immediately. Some of it seeps into the soil to fill underground reservoirs. The remaining part flows along the surface of the ground to the rivers and streams which carry it back to the oceans. Similarly, the water that has seeped into the soil may also follow the slope of the terrain to find its way back to the oceans. Thus the water that originated in the oceans returns to it. This is why the process is called the water cycle.

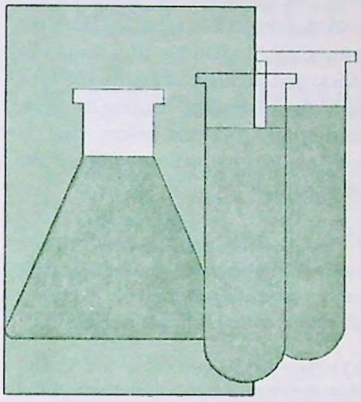
However, many things happen to the water during the course of the cycle. The water vapour that rises from the oceans has no impurities in it. But as the water goes through the cycle, various substances dissolve in it as part of a natural process. This is because water is a universal solvent, and dissolves almost everything it meets.

Even as the water falls from the clouds, it dissolves minute quantities of the gases and carries dust particles from the atmosphere. In cities and industrial areas, factories emit numerous gases into the atmosphere. Some of these are acidic in nature and harmful. Rain water dissolves these gases and becomes a dilute acid solution. When such water falls on plants and animals, it does considerable damage to them. This is known as acid rain. On reaching the ground, soil particles and other salts are added to it. This water then reaches rivers and streams which flow over various types of rocks and soils, and comes into contact with a variety of substances, natural as well as man-made. These are all dissolved and carried by the water.

Thus the water flowing into the oceans from the rivers is full of impurities. In contrast, the water that evaporates off the oceans is in its purest form.

# Arsenic in your bottled water?

*Daksha Hathi in Deccan Herald*



Sometime, ago, Dr. Raj Kumar, one of Karnataka's luminaries, reportedly refused to drink bottled, mineral water, and instead, drank from the river flowing past at the place where shooting was going on. That, one felt, was a remarkably sensitive and sensible act.

Of 13 brands of bottled water tested by the Consumer Education and Research Society, Ahmedabad, only three brands were found conforming to all the specifications! Shockingly, one brand even contained arsenic which is a cumulative poison! And none of the brands was free from bacteria! This contradicts the claims of brands like Trupthi, Golden Eagle and Nirantar which tell the consumer that they are "germ free" and "100 per cent bacteria free".

Arsenic was found in a range of 0.01 ppm to 0.1 ppm in 'Yes'. This was much higher than the maximum limit of 0.05 ppm stipulated by the Bureau of Indian Standards (BIS) and the Prevention of Food Adulteration (PFA) Act. The World Health Organisation has stricter standards which is 0.01 ppm (max).

The Society tested 13 national and regional brands guided by their market share. It put these waters through an expert taste test and then analysed them for chemical, mineral and bacteriological contents.

Out of these, eight came under the 'drinking water' category - Bisleri (Bangalore), Bisleri (Ghaziabad), Bisleri (Calcutta), Bisleri (Baroda), Bailley (Mumbai), Bailley (Surat), Trupthi (Chennai), and Bisil - regional (Mehsana).

The five 'mineral water' brands included one national brand 'Yes' (Nadiad), and four regional brands - 'Golden Eagle' (Chennai), 'Aquaspa' (Mumbai), 'Saiganga' (Ahmednagar) and 'Nirantar' (Thane). 21 samples from each brand were tested.

While 'Yes' showed arsenic content, 'Bailley' (Surat) had a high level of aluminium (0.2 ppm) against a maximum IS limit of 0.03 ppm. Aluminium is linked with Alzheimer's Disease. 'Yes" was also on the borderline in fluoride content. It had a level of 1.4 ppm against a maximum limit of 1.5 ppm set by the IS and the PFA. Aluminium in water can be a problem for two specific groups, warns CERS - Kidney dialysis patients and premature babies.

What most of us don't know as we confidently take swigs from our marketed water is that there is a difference between mineral and bottled water. Though mineral water was brought under the PFA in February 1995, bottled drinking water is still exempt from all rules! Though the BIS has set standards for both types of water, the makers of bottled drinking water can sell their products without any checks on its quality.

What the Society tells consumers is that all mineral waters are drinking water (except for the presence of more minerals) whereas all drinking waters are not mineral water. However, CERS found no distinct differences between both types. Only 'Golden Eagle' (276 ppm) and 'Yes" (9270 ppm) can be truly called mineral water as per their claims says the Society. Curiously, "Trupthi', a drinking water brand, has a high content of TDS (299 ppm) in spite of no such claim! The rest of the brands were found to have as low a TDS as 43 ppm (in drinking water) and 70 ppm in mineral water.

**What most of us don't know as we confidently take swigs from our marketed water is that there is a difference between mineral and bottled water.**

Before the bottles were opened for chemical testing, they were looked at closely to see if they contained anything else besides water. The PFA

**Some useful tips for consumers of bottled water :**

**Don't buy more bottled water than you need and check the 'best before' date.**

**Don't drink direct from the bottle unless you plan to finish it all in one go. You could contaminate the water with your own bacteria!**

**Always boil the water if you give it to a baby to drink.**

**Store bottled water in the fridge after opening and finish it within four days.**

**Always crush bottles after use.**

**For detailed information contact : CERS, Suraksha Sankool, Thaltej, Ahmedabad Gandhinagar Highway, Ahmedabad 380 054.**

requires that 'natural mineral water' should be free from dirt, foreign matter or any other ingredients harmful to health. Of the 21 samples tested in each brand, the Society found floating particles (visible even to the naked eye!) in five brands of drinking water and three brands of mineral water as listed below!

*Drinking water*
9 bottles of Bisleri (Calcutta)
8 bottles of Bisleri (Bangalore)
4 bottles of Trupthi
2 bottles of Bisil
1 bottle of Bisleri (Ghaziabad).

*Mineral Waters*
9 bottles of Nirantar
8 bottles of Golden Eagle
6 bottles of Aquaspa

However, the particles could not be identified as the filtered quality was too less for testing.

All samples of 'Yes', 'Saiganga', 'Bailley' (Mumbai) 'Bailley' (Surat) and 'Bisleri' (Baroda) were found to be without floating particles.

As for taste, which of course is a personal matter, the Society conducted an evaluation of those samples of water found to be safe. The experts tasted three brands of mineral water, and seven brands of drinking water (except 'Bailley' from Surat which had excess aluminium). The preferences expressed by them may help you to pick the ones you are most and least likely to enjoy. 'Golden Eagle' topped their taste chart with an overall score of 66 per cent, followed by 'Trupthi' (56 per cent), 'Saiganga' (51 per cent) and 'Bisleri' of Calcutta (51 per cent) . The least liked brands were 'Bailley' (Mumbai) (30 per cent) and 'Bisleri' of Bangalore (26 per cent).

Not surprisingly, when CERS sought clarifications and proof from manufacturers on these exaggerated claims, their response was a deafening silence!

As usual, CERS sent their findings to the various firms and received interesting responses! Acqua Minerals Pvt. Ltd., responded regarding two brands of Bisleri bottled at Baroda and Bangalore. They disagreed with the Society's sensory comments.

Bisil Plast Ltd., makers of 'Bisil' said that their source was "borewell". They also sent a copy of their brand's certificate from Italab Pvt. Ltd., Mumbai. The certificate showed that only 8 out of 30 (chemical and sensory) and 6 microbiological parameters under the Mineral Water Standards of IS were tested.

CERS has urged that new rules should be fixed, covering all bottled waters, not just mineral waters and the standards of PFA and BIS should be made uniform and mandatory.

The material for containers should be standardised to prevent contamination and leaching. A minimum essential mineral content should be set for 'mineral water' and the term 'natural mineral water' should be reserved exclusively for spring water from deep, protected sources or from drilled sources, subject to scrutiny from the authorities. Labelling rules should be strict, and precise, stressing the type and source of water, manner of disinfection and the 'best before' date as well as detailed information on the composition.

However, there was one small consolation for which we must praise the Indian bottled industry - all brands were free from pesticide residues!

## Bubble Bath

The CERS has warned consumers to avoid bubble baths. Bubble baths are not made from soaps but from synthetic detergents, says Insight.

These detergents are found in laundry soaps and dishwashing liquids. children love bubble baths, but bubble baths are more dangerous than bar soaps. The detergents in them can cause severe skin abrasions and a liquid brand could be contaminated with mitrosamines, which can expose the body to a harmful carcinogen. Bubble baths can also strip away the mucous lining of the urinary tract, exposing that vulnerable area to infection. They perform no function which cannot be accomplished by ordinary soap, other than making copious suds. Their novelty does not justify the risk of kidney and urinary tract infections.

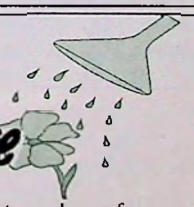
## How "Green" is your "Grey" matter?

# Test Your Eco-knowledge

1. Which river crosses the equator twice?
2. Which ocean has the largest number of volcanoes?
3. Which is the largest freshwater lake?
4. Which is the deepest lake?
5. Which regions of seas and oceans are the most polluted?
6. What is the wastewater that is released from a factory called?
7. Who wrote these lines "Water, water, everywhere, not a drop to drink?"
8. What is the total percentage of fresh water that is available for human needs?
9. Which river was known till recently as Europe's industrial sewer?
10. What are Cirrus, Cirrostratus, Cumulus, Cumulonimbus?
11. What is an acquifer associated with?
12. With which movement is Medha Patkar associated?

1. Amazon 2. Pacific ocean 3. Lake Superior 4. Lake Baikal 5. Coastal 6. Effluent 7. S.T. Coleridge 8. 0.003% 9. Rhine 10. They are all types of clouds 11. Groundwater 12. Narmada Bachao Andolan

# Water
## How much and where



If all the water on the earth were collected over India, the column of water would be 425 km high. Do you know that this is about 50 times the height of Everest? But not all of this water is available for our use. The oceans and seas hold about 97 per cent, which is salty. Another 2 per-cent is beyond our reach for a different reason - it is frozen in the ice-caps of mountains, glaciers and other cold places like Antarctica. The remaining 1 per cent, which occurs in rivers and lakes, in underground reservoirs and in the atmosphere as moisture, is what is really available to us.

This 1 per cent we have for our direct use is in volume some 14 million cubic kilometers. If all this water was distributed equally to all the people on this earth (and there are about 5 billion of them), each would receive 3,000 million litres as his share. If you have access to adequate water supply, you probably use about 200 litres of water a day for your personal needs. At this rate, your share of water would last you 40,000 years!

*- CEE*

## eco echoes

"While the rich and the well-offs talk about ozone layer depletion, global warming and nuclear hazards, the poor man only understands that his crops wither in the parched land, his wife knows that she walks five kilometers or more daily to collect a few pots of water."

***Kamal Nath***

"If water is essential, right attitudes to water are equally essential. Our supplies are not limitless but right attitudes could make the difference between appreciating what we use or exhausting what we have."

***Ken Gnanakan***

"The real monuments of Bangalore are not edifices of stone and mortar. Bangalore always had living monuments - outsize trees and uncounted water bodies which lay about between the buildings and the traffic. We now have to use the past tense to describe all this".

***Laeeq Futehally***

"One thing is clear those who wish to protect India's forests will have to do more than merely sit back and act as spectators. They must join hands to form a counter lobby against the timber lobby. They must also ensure that wildlife and tribal groups combine their political and physical resources to defend the forests from commerce."

***Bittu Sahgal***

# bits & pieces

## Children Overdosed with Vitamins

Nineteen children were admitted to Wenlock hospital recently when they vomited continuously after an overdose of vitamin pills rich in iron.

All of them are students of the second standard at Jokatte government primary school, near Baikampadi.

The health department has prescribed the pills with iron content to improve the children's health. Fearing that they might not take the medicine regularly at home, the schools have been asked to give them the dose.

## Story of a flying hippo

Corporate press releases seldom have surprises like the news of a flying hippopotamus. Last week, Emirates, the international airlines of the United Arab Emirates, set a winsome picture of a 400 kilogramme hippopotamus which had the honour of being a much adored cargo on board Emirates.

Rama the hippo was recently transported from Colombo in Sri Lanka to Pretoria in South Africa on a 7,000 mile flight. "Rama, an endangered species native to South America, was along the four born in captivity at the Delhi-wale zoo in Sri Lanka in 1989" the release said.

The hippopotamus was transported to South Africa's Pretoria Zoo as part of an exchange in which two female greater kudu were sent to Sri Lanka in return. The kudu also flew Emirates.

## Tulsi, neem can purify dirty water

Researchers at the Visvesvarya College of Engineering, Nagpur, use extracts of tulsi *(occimum sanctum)*, wheat *(triticum vulgare)* and neem *(azadirachta indica)* leaves to treat polluted waters.

Present methods of water disinfection are chlorination, a widely popular and cost effective method, and ozonation, which is costly for the developing countries.

The effectiveness of the extract increases with increasing concentration of juices and increase in contact-time improves the performance of the juices.

Tulsi juice gives the best results followed by wheat and neem. Water treated with neem juice is bitter, while that with tulsi is pleasant. With wheat juice, it is tasteless.

*PTI*

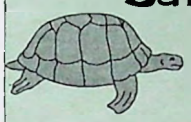
# Dolphin sanctuary in UP

The 160 km stretch in the upper part of the Ganga between Bijnor and Narora barrage in Uttar Pradesh is soon to be declared as a dolphin sanctuary. According to World Wildlife Fund for nature (WWF) sources, almost all the paper work in this regard was completed and the new Government at the Centre will only have to issue the notification.

Though it has been listed under Schedule 1 of the Indian Wildlife (Protection) Act. 1972, and the IUCN, which is the world conservation union has declared it as endangered in 1996, the species is fast vanishing.Conservationists put its population at present to around 2,500 from 4,000 to 5,000 in 1982, Recent studies revealed that dolphin population is declining at the rate of 10 per cent per annum.

Of the 130 to 160 dolphins killed annually on an average, as many as 100 are being butchered in the Ganges between Buxer and Farakka.

# Saving the timid turtles



For every endangered species there's a saviour. And here is a man from a far off land.

For Dr. Robert Sutcliffe, "Every mighty oak was once a nut that stood its ground." The punchline on his coffee mug perfectly sums up his determination.

Sutcliffe, an embodiment of dedication and commitment, has made the coast of Orissa his home for the cause of the endangered Olive Ridley turtles.

Leaving the United Kingdom in 1993, Sutcliffe chose to settle here to set up his dream project-Orissa Turtle Trust.

*Indian Express*

# Alaska's school children strive to bring famous sled dog home

Alaska's school children are petitioning a Cleveland museum to return the stuffed remains of *Balto*, the sled dog that led the last leg of a heroic, 1925 relay to bring lifesaving diphtheria serum to Nome. But officials at the Cleveland Museum of Natural History are adamant. "The dog is not going to be returned."

Nome was in the throes of a deadly epidemic at the time of the dogsled relay, and *Balto* was hailed as a hero. The stuffed dog has resided at the museum since in 1930s. But youngsters at Butte Elementary School north of Anchorage have launched a drive to bring him home.

# Kolleru freshwater lake faces extinction

The scenic Kolleru lake, situated in Krishna and West Godavari disticts of Andhra Pradesh, one of the few largest freshwater inland lakes in the world, is fast becoming extinct, endangering a rich variety of animal and plant species, due to indiscriminate exploitation and encroachment of the water body.

The lake, has a water spread area of more than 900 sq. km and a maximum depth of 10 ft during rainy season and a minimum depth of 3 feet during summer. It is also the world's largest natural freshwater fish producer of about 30,000 tons per year and one of the largest bird sanctuaries with 188 species of birds.

# THIS & THAT

- **Save our Rice :** A non-governmental organisation has moved the Supreme Court, asking the government to challenge a patent given to a Texas-based company for basmati rice, or move the dispute settlement body of the World Trade Organisation.

- **Eucalyptus Clone:** Kerala Forest Research Institute has developed 15 clones of eucalyptus that grow faster than existing varieties.

- **Emissions Increase :** Global $CO_2$ emission have not decreased! The Asia Pacific region (highest defaulters include India) has risen by 37% since 1990.

- **Polluted Water :** Ten thousand people suffer from water borne diseases every year in Delhi caused by polluted water being supplied by the government.

- **Clean Water :** Researchers in Leicester University have successfully used the seed of a tropical tree to produce clean water even from sewage water.

- **Malaria Fear Renewed :** Onset of monsoon renews fears of malaria in the Dakshina Kannada district and malaria is synonymous with monsoons in this district. This is mainly due to the throwing of tender coconut shells indiscriminately where water collects and provides a unhealthy breeding ground for mosquitoes.

## The dark side of coloured food articles

Don't be tempted by colourful food stuffs stacked on the shelves of roadside eateries, warn scientists. These colours can cause damage to liver, kidney, heart as well as skin, eye, lungs and bones, they say. A report published in a recent issue of the journal Current Science says even the permitted artificial colours, if consumed indiscriminately, are not completely safe.

Presently eight synthetic food colours such as erythrosine, carmoisine, ponceau 4R, indigo carmine, brillant blue FCF, fast green FCF, tartrazine and sunset yellow FCF are permitted food colours in India.

But some other synthetic dyes like auramine, metanil yellow, lead chromate, rohdamine, sudan-2 and 4, orange-2 and malachite green pose serious health hazards as all of them are mutagenic and potential carcinogen.

Metanil yellow, the commonest non-edible chemical widely used in food items like 'ladoo' causes insufficient oxygen supply to skin and mucous membrane along with degenerative changes in stomach, liver, kidney, abdomen and testes while intake of lead chromate, added as a colourant to chilli powder, results in epigastric pain, anaemia, nausea and constipation due to lead toxicity.

# Wrigleys Replies...

The Managing Director of Wrigley India Pvt Ltd, Mr.Nauzer Nowroji writes - "I agree with the opening statement in your recent editorial... school children are exposed to many dangerous situations. However, with so many real dangers out there, it does the children and citizens of India a disservice to raise false alarms.

I am concerned about the misstatements made about chewing gum, particularly as they apply to our products. Because it is classified as a food item, Wrigley's chewing gum is held to very high standards in terms of its ingredients and how it is produced. All of the ingredients in our brands of chewing gum are safe, wholesome and extremely high quality. Each ingredient has received the approval of India's Directorate General of Health Services. If there are maufacturers not following these standards, they should be chastised directly, but I can personally testify to the quality and wholesomeness of our products.

Not only is Wrigley's chewing gum not harmful in any way, but it offers people a wide variety of benefits. In addition to being enjoyable, chewing gum can help relieve tension and aid concentration. Particularly after a meal, chewing gum can help freshen your breath, aid digestion, and reduce the risk of cavities by stimulating saliva flow and removing food particles from your teeth." May 28.1998

*Thanks, Mr Nowroji, for your clarification. There are always two sides to every account, and it is good for our readers to be informed. Ed.*

## Belching cows contribute to green-house effect

Belching cows are a main source of gas emissions that cause the green house effect, raising the Earth's average temperature,a study has found.

The study by the Brazilian Agency of Agriculture and Farming Research and the Brazilian Science and Technology Ministry found that ruminants produce methane gas in the stomach during digestion.

Bacteria residing in the stomach of ruminants are responsible for breaking down the organic matter and, the study says 93 per cent of the methane produced by agriculture and cattle farms in Brazil comes from this source.

The methane gas is one of the by-products of the beasts' digestion process and is expelled through the mouth when they belch. The study said an ox produces an average 50 kg of methane per annum and Brazil's 160 million cattle stock is estimated to produce eight million tonnes of the gas each year.

That would raise the world methane gas output to 530 million tonnes per annum and the life span of gas in the planet's atmosphere to an average of 14 years. Gases like methane and carbon dioxide in the atmosphere, which hinder the Earth's ability to deflect the sun's rays, lead to a rise in the global temperature.

*Times of India*

# Continuing El Nino may be helpful for monsoon

Paul Epstein, of the Harvard School of Médicine, had written a paper last year linking the El Nino effect to "hepatitis, shigella, typhoid, and cholera, as well as malaria, dengue, yellow fever, encephalitis, and plague," all of which are prevalent in India.

It was also observed that in addition to fires, water-borne and animal carried diseases become more prevalent during El Nino-related droughts.

Said a Greenpeace report, "Next on the agenda for India is whether the current El Nino survives next spring and continues for 1998's growing season. Too far out for now and only a minor concern at this time.

During an El Nino event, seasonal monsoons in India can fail. This highly populated region is dependent, on the arrival of the monsoons for agriculture; failure of the monsoons can quickly cause drought and famine.

La Nina episodes typically cause flooding of rivers in Bangladesh and in regions of southeast China."

Experts however are keen to point out that El Nino predictions should be taken with a pinch of salt, as it is just one of the factors that can predict weather. Mr. Kalsi, spokesman for the Indian Weather Bureau agrees : "It is just one of the factors that influences rainfall and the weather. We've been studying it closely and have discovered a positive cooling trend, that basically implies that it is conducive to the monsoons. It, however, should be remembered that El Nino is only one factor that goes into predicting the weather."

Scientists have warned that the warming of Pacific Ocean waters due to El Nino currents may affect monsoon levels in the country.

Half a million people are affected by the drought in Sri Lanka, because of water shortages and ravaged harvests. The drought has devastated the tea crop in Sri Lanka and India, the two largest tea producers in the world.

Last year El Nino caused a scarcity of rainfall in southern India. Worries expressed earlier about the phenomenon affecting crops were however belied by a good yield in the north of the country. The ministry of tourism admitted this and in a news source on the internet it was quoted as saying, "the effect of El Nino has been felt more in the south than in the north."

The phenomenon prompted former Union agriculture minister Chaturanan Mishra to write to the then Prime Minister, Mr. I.K. Gujral, and the finance ministry on the likely fallout of the El Nino phenomenon on the food grain output in the country and said an amount ranging between Rs. 400 to 500 crores could be required to meet the situation.

Heat waves from Costa Rica to Honduras, severe drought in Sri Lanka and the Philippines, hot and dry weather in Malaysia and the worst hailstorm in 20 years in Tegucigalpa, Honduras, are blamed by meteorologists on El Nino.

In the Philippines, the severe drought has destroyed $ 100 million worth of crops and is currently destroying crops at the rate of $120,000 each week.

Forest fires are also burning throughout the country. 2,475 hectares of reforested areas, fruit plantations and primary virgin forests have thus far been destroyed.

El Nino, however is not all bad news.

The south may have had a bad monsoon, but in other parts of the world El Nino brought in an unexpected bonus. Unseasonal and heavy rains in Argentina made it the largest peanut producer in the world last year. India has a record soybean crop last year, though scientists were unsure whether this was due to El Nino.

The name El Nino (referring to the Christ Child) was originally given by Peruvian fishermen to a warm current that appeared every year around Christmas. Today, the effect is a stronger version of the same event. It was only in the 1960s that El Nino became associated with changes over the entire tropical Pacific and beyond.

The name today refers to the warm phase of a large warm-cold oscillation in the water and atmosphere of the Pacific region. The complete phenomenon is known as the El Nino/Southern Oscillation.

The warm El Nino phase typically lasts for approximately 8 to 10 months. The entire cycle usually lasts about three to seven years, and often includes a cold phase (known as La Nina) and may be similarly strong.

*— Asian Age*

*Fresh water is becoming increasingly scarce throughout the world and could be...*

# The cause of major world conflicts

**Fresh water is becoming increasingly scarce throughout the world and disputes over access to water supplies could increase dramatically in the new century, says conflict analysis here.**

The problem particularly affects developing countries in such areas as the Okavango river in Southern Africa or the Ganges, running through India and Bangladesh, where urbanisation rising populations, and economic growth have put unprecedented demand on water supplies and fuelled international argument.

More than one billion people in the world who do not have access to safe drinking water are mostly poor, living in developing countries. As the average amount of water available per person decreases worldwide, defending water resources has become one of the most pressing environmental issues to emerge as vital as national security concerns around the globe, say the experts.

In an attempt to anticipate conflict problems over water rights, economists, members of non-governmental organisations, policy makers, corporate executives, international bankers and lawyers met at American University's Washington College of Law to discuss how to avoid such conflicts in developing countries. More than 85 per cent of fresh water in the world is transboundary water - or water that is shared between two or more countries according to Atif Kubursi, an economics professor who is an expert on water conflicts in the Middle East. While developing countries were more likely to be dependent on transboundary water than industrialised countries, Ashok Swain, a peace and conflict resolution professor in Sweden, said they were less likely to have international joint commissions manage the shared water resources.

Water problems remained acute in the Middle East, West Asia and parts of Africa, particularly the Sudano-Sahelian belt and sourthern Africa. These locations experience high evaporation rates, high levels of expected future water demands, and potential transboundary water conflicts. "Water scarcity is at the root of problems in the Middle East," said Kabursi.

In the Gaza Strip, for example, strict quotas regulating Palestinian water consumption, population pressures, and severe water contamination made water scarcity conflicts inevitable.

*InterPress Service*

# There's Water on the Moon...

***enough to support a human colony, says NASA***

**There is enough water on the moon to support a human colony for a hundred years or perhaps hundreds of years, according to NASA scientists. The data transmitted by NASA's lunar prospector robot showed tiny flecks of ice deep in shadowy craters.**

Dr. Alan Binder, chief investigator for the mission said "We have found water. We have the first unquestionable results indicating significant amounts of water at both lunar poles." He said the discovery had tremendous implications. "The moon" he said, "was bone dry. The water was added. We are now certain the water is there. The uncertainity is how much."

Dr. William Feldman, who analysed the neutron spectrometer results, said preliminary data showed that the Moon could hold enough water to sustain a human colony for generations or enough hydrogen to serve as fuel for further explorations into space.

"The Moon's North Pole has twice as much water as south - but that both reserves could be immensely useful... This is a significant resource which will enable a modest amount of colonisation for centuries". The scientists estimated that the Moon may hold from 11 to 330 million tons of water, may be even 1.3 billion tons. A reserve of 33 million tons would be enough to sustain a colony of 2,000 people on the lunar surface for over a hundred years without recycling the water.

*Times of India*

## Volunteers Coming together for First PEAS Coordinators Meet

The first PEAS coordinators meet is being planned for July 30 and 31, 1998 in Bangalore. Coordinators from various parts of India will be attending to plan out ways and means in which the PEAS movement could be made more effective.

Coordinating the meet is Noel Jackson who says -"A time like this should not only help us to find out more about PEAS, but also to learn from one another." Reports and ideas from the various PEAS programmes will be received.

The two mornings will feature concept presentations by PEAS Chairman Dr Ken Gnanakan. The talk will focus on the urgent need to integrate environmental concerns into educational systems.

The following Coordinators will be attending:

**Madurai** : Mrs. Jessie Jayakaran, Prof. Arputhamurthy, Mrs. K. Basker;
**Trichy** : Dr. E. Chandrasekhar;
**Hyderabad** : Dr.M. Pushpa, Mr. Prakash;
**Chennai** : Mr. J. Freddy
**Calcutta** : Mr. E. Jackson
**Ahmedabad**: Mrs. Reena Jinwalla
**Pune** : Mrs. N. Sengupta
**Bangalore** : Mrs. Meera Tushar, Mr. F.D'Souza, Mr. Mohan Murthy
**Mumbai**: Mr. Francis Vijayarangam, Mrs. Lorna Seldon

peas *update*

# Conservation through Consumerism

*- A Healthy Interaction with Teachers in Delhi*

Forty teachers from nine schools attended Teacher's Seminar on Conservation through Thoughful Consumerism on 4th April 1998 at Naval Public School , New Delhi.

A very healthy interaction took place amongst the teachers. Dr. Ken Gnanakan's ideas on consumer culture and emphasis on waste management rather than conservation of environmental resources only was well brought out. It was an eye opener for most of us.

This was followed by another activity in which teacher's grouped themselves and came out with suggestions for 'Thoughful Consumerism' in the classroom and home.

Some of the valuable suggestions are :

*1. To carry their own bags (preferably cloth) to buy items from the market*

*2. While buying bread, not to take a plastic bag from the shopkeeper.*

*3. Make garlands from polythene strips (made from plastic bags) to decorate the classroom instead of buying crepe paper etc.*

*4. "Environment week' or a "Green week' to be regularly held in the school in which parents participation is important*

*5. For rough work use slates instead of paper*

*6. Teachers joining the school or those who resign/retire to donate a sapling to the institution.*

*7. Children should be encouraged to bring a sapling on their birthday instead of sweets etc. These can be planted in the garden or a green corner can be made in the classroom. Also children can be encouraged to give plants as birthday gifts rather than other consumer items.*

*8. To discourage use of plastic pencil boxes, ball pens etc.*

The highlight of the workshop was a comment by one of the teachers "We do not have problem students but problem parents" as she felt that when teachers try to inculcate the habits of a friendly environment culture and dignity of labour, the parents react strongly by saying "We do not send our children to such good schools to do this kind of work in the classroom" (cleaning the classroom or school corridors).

The importance of the parents role in educating the child came through clearly. The good things that are taught to children must be endorsed by parents.

*Plan to attend the next PEAS National Conference in Mumbai - November 14 - 17, 1998.*

**Film Premier**

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# peas

## Second National conference
## 14 - 17 November, 1998
## to be held at Mumbai

**Plans for the Second National PEAS Conference in Mumbai are getting into top gear as the committee under the direction of Mrs Roshan Khariwalla prepares for what promises to be an exciting time. The possible venue, on the banks of the Powai Lake lends itself ideally to this exciting event.**

The programme will be conducted from Saturday, 14 to Tuesday November 17, 1998. A wonderful way for children to begin the conference on Children's Day — when children from all over India assemble.

A series of workshops, talks, slide-shows, audio-visual programs, competitions, quiz shows and cultural programs have been carefully created to focus attention on the various environmental topics planned.

The theme for the National Conference is -
***My World, Our Future***

Sub-themes for the four days are :

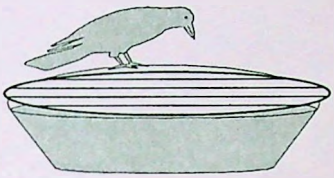
Day 1 : *Development, Energy & Resources*
Day 2 : *Ecological Balance & Conservation of Bio-Diversities*
Day 3 : *Pollution - Reducing and Recovering Waste*
Day 4 : *Population & Sustainable Life styles*

Approximately 700 children including 300 children from Mumbai and the rest from 15 different metropolises of our country will attend this conference. The managing committee of the Western India region, consists of educationists, environmentalists and other committed volunteers, will conduct the programs specially structured for the National Conference.

The conference is only the beginning of an ongoing process which will elicit eco-friendly actions and attitudes from children. PEAS aims to encourage an environmental culture within schools and this is what is hoped will be encouraged through those who attend.

# some activities

## Making Birdbaths



**Materials needed : Clay pan or a metal pan, strong wires, large nail and hammer.**

Using the nail and hammer make four holes in the pan. Tie lengths of wire through these holes and hang up the bird bath in a tree or from a rafter of the verandah. This will keep them safe from cats which might kill the birds coming to drink and bathe.

Ensure that the pan is cleaned every morning and kept filled. Observe the birds visiting the bird bath and draw them, noting the important features, e.g. size, colour, shape of bill etc.

Notes may be made as you observe the various features and habits of the birds that visit your birdbath!

## A water filter using a flower pot.

**Materials : a flower pot, cotton wool, sand, gravel, soil, charcoal or partially burnt wood, muddy water**

Wash the sand and gravel to remove clay particles. From partially burnt wood charcoal powder can be obtained. Plug the hole at the bottom of the pot with cotton wool and then spread a layer of gravel a few centimetres thick over it. Layers of similar thickness of sand and charcoal powder should then be laid over it.

Now pour some muddy water onto the pot without disturbing the layers. Collect the water as it trickles from the bottom of the pot.

Compare the water that comes from the bottom of the pot with that initally poured in. Is it less muddy?

The crust of the earth is similar, made up of several layers. As the rainwater percolates through these layers and settles down over impervious rocks, it is naturally filtered of impurities.

## Water Conservation tips

- ❒ While using water from a tap, reduce the flow.
- ❒ Do not leave the tap running while brushing your teeth, shaving, washing clothes and utensils. A tap running for 1 minute can drain out more than 10 litres i.e. half a bucket of water.
- ❒ Use a mug of water for shaving.
- ❒ Wash vegetables and utensils in a bowl of water instead of under a running tap. You can use less water this way and you can also reuse the water for your plants.
- ❒ Reuse water used for final rinsing of clothes to clean the floor and vehicle.

**The largest domestic user of water in urban areas is the flush toilet. More than 16 litres of water is used per flush.**

- ❒ Install a water regulating flush system in your toilet so that lesser quantities of water can be used.
- ❒ If you have a large flush cistern, you can reduce the amount of water it holds by putting in a few bricks.
- ❒ Use a bucket and mop to clean the floor and vehicle instead of a hose. It takes nearly 300 litres of water to clean a car by hose!

*- ICRA*

Regn. No. MAG (2) FRB. DECL 53/97-98

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