

that is common to all nations or all mankind (*ius gentium*). Over fifteen centuries, this concept has endured throughout Europe as a legacy of Roman law, despite the decline and fall of the Roman Empire. The doctrine of public trust, which asserts public rights in navigable waters, fisheries and tidelands, is but one manifestation of *ius gentium*. Upon reflection, it is not unreasonable to think that the coming together of 27 members of the EU to share their common heritage through a law that is common to 'all nations' is a modern embodiment of *ius gentium*. There is no reason why this philosophical approach of the EU should not

be broadened to other parts of the world towards wise use of water, a heritage common to all.

Looking at the Water Framework Directive from India's perspective, it is particularly relevant to note that this philosophy of water management, despite its roots in a society that pre-dates modern society by over fifteen centuries, is based on science and technology. Modern water law and policy cannot exist without active participation from science. Yet, science cannot make judicial and policy decisions. In the larger scheme of democratic governance, science, scientists, and scientific institutions have an

obligation to see that the best available scientific knowledge is brought to bear on the creation of water laws and policies, as well as their implementation. Science has to learn to address a different type of knowledge that lies outside its traditional boundaries.

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## Omega-3 fatty acids: A boon to human beings

Omega-3 fatty acids have drawn considerable attention due to their potential role in human health<sup>1</sup>. Here we mention the benefits of omega-3 fatty acids and conditions which are responsible for better results.

Omega-3 fatty acids are considered a boon to human beings. Body functions are improved by their intake. Brain is a vital organ that keeps the body functions in proper control. These fatty acids increase the volume of grey matter associated with mood and regulation of emotions. The risk of dementia and Alzheimer's disease is also checked. They also boost the cognitive functions in elderly people, and there is improvement in osteoarthritis by prevention of loss of cartilage that acts as a cushion in the joints and checks inflammation. They protect against prostate and breast cancer by stimulating the death of tumour cells. These fatty acids increase HDL cholesterol and reduce triglycerides, a condition that is favourable for the heart. These keep the blood in fluid state by decreasing platelet aggregation. Thickening of the arteries is

inhibited and there is an increase in dilation of the arteries. These strengthen our immune system. Dietary intake of omega-3 fatty acids is inversely related to age-related macular degeneration and reduces the risk of blinding disease. Above all, it is reported to prevent sudden death of an individual.

Omega-3 fatty acids are long-chain poly unsaturated fatty acids like eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), which increase the fluidity of membranes. Once the membranes function in a normal manner, there is proper cell-to-cell communication. Omega-3 fatty acids are found in flax seeds, walnuts and soybeans, besides fatty fishes like salmon. These are essentially in the *cis*-form. The oils containing omega-3 are not directly taken; instead they are used for cooking. At higher temperature (160°C), the *cis*-form is converted to *trans*-form, which is not healthy for humans as the benefits of omega-3 fatty acids are lost. The same refined oil can however be used uncooked, but spread over salads, etc. for better results.

The omega-3 rich edible refined oils and supplements, should be kept in the dark and protected from oxidation. Their intake should not be more than 3 g per day. The use of omega-6 fatty acids (sunflower oil and safflower oil) is also beneficial. However, their consumption is much higher in comparison to omega-3 fatty acids, and therefore they produce deleterious effects. The best way is to reduce the consumption of excess omega-6-rich edible oil, and increase omega-3-rich edible oil, for proper health benefit.

1. Patil, V. and Gislerød, H. R., *Curr. Sci.*, 2006, **90**, 908-909.

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## From biohazard to bioresource

Zoos are known to harbour hundreds of herbivorous animals<sup>1</sup>. These animals produce enormous amount of dung daily. The collected dung is disposed swiftly since it is considered waste, unhygienic and a potential reservoir for contagious diseases. Due to this repulsive attitude, animal dung as a bioresource with rene-

wable energy potential has seldom been recognized in zoos globally.

Cow dung has been used as fertilizer and fuel in many countries for centuries. Mahatma Gandhi was keen to utilize biogas from dung and it was materialized in the 1930s when the Indian Council of Agriculture Research developed a simple

device known as 'gobar gas plant' that produced biogas and manure<sup>2</sup>. However, the concept did not receive public interest for nearly half a century.

Biogas is comprised primarily of methane and carbon dioxide. It is produced by anaerobic digestion or fermentation of organic matter. The biogas technology