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[1]. 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.

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From biohazard to bioresource

Zoos are known to harbour hundreds of herbivorous animals[1]. 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 renewable 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[2]. 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

harnesses this natural process by creating an artificial environment via a biogas plant, which provides conditions for bacterial action, and removes the methane gas produced so that it can be used as fuel. The preferred material for digestion in a biogas plant is animal dung due to its fine consistency. Dung and water are mixed and fed into the biogas plant daily. The digested organic matter called the 'slurry', is removed by an outlet that can be used as a natural fertilizer for crops.

I recently observed household biogas plants in villages near Dahod, Gujarat. A family with 4–6 members usually requires a 2 cubic m plant, which provides biogas for a total of 4 h daily (2 h in the morning and 2 h in the evening). The cost of a single biogas plant is US$ 250. The Sadguru Foundation, an Indian nonprofit agency in natural resources management, has established over 1300 household biogas plants in rural areas of western India[3]. The biogas plant is divided into three basic parts – an inlet or mixing tank where an equal ratio of cow dung and water are mixed daily, a digester that connects the inlet, and an outlet chamber where bacteria form to produce methane gas by interacting with dung and water. The outlet tank is connected to a digester, which receives the slurry. It is collected and used as organic manure. Building a biogas plant thus is simple and cost-effective; a plant can be constructed within 20 days in a rural setting.

More than 600 million visitors globally interact with zoo animals each year and for the urbanites, zoos are often the only place where people can contact nature and wildlife. The visitors represent a powerful lobby whose knowledge, understanding and involvement can be positively harnessed for the benefit of nature, if zoos have an appropriate education strategy. Although the recent World Zoo Conservation Strategy covers a wide range of topics, there is no mention of biogas[4].

Zoos around the world should prioritize biogas plants so that visitors can be educated on the importance of renewable energy. In USA, zoos on an average spend about US$ 10,000 annually to dispose animal waste. The waste from herbivores mainly consists of indigestible plant fibre – a high-energy fuel material that can be utilized for cooking, heating and producing electricity sustainably. A zoo can start a biogas plant using a minimum of 500 kg/day of herbivorous animal waste for the production of biogas to enhance alternate energy use.

The average American consumes five times more energy than the average global citizen, ten times more than the average Chinese, and 20 times more than the average Indian[5]. The need for affordable, clean and renewable energy to enhance sustainable development was highlighted recently by the World Energy Council and the UN Commission on Sustainable Development. Hence it is time for zoos around the world to look at animal dung as a bioresource to ignite alternate energy projects with the easily accessible biogas to send a powerful educational message to the millions of visitors. Zoo biogas plant is therefore an option that the global zoo community can no longer ignore.

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National Scientific Research Regulatory Authority

With the passage of time and advancements witnessed in almost every sphere of science and technology, it has become essential that our country must have a high-powered national body for regulation and monitoring of research activity to maintain a register of researchers working in every corner of the country.

Such a body must function as a watchdog for most of the research activities (excluding sensitive areas like defence, atomic energy, space, etc.), and act as an arbiter for disputes and at the same time provide all necessary guidelines, support and facility for researchers. The National register for researchers must readily provide necessary information about the researchers, such as their contact address, area/field of research interest, etc. This will prove a revolutionary milestone, especially for budding researchers, who are on the lookout for a suitable research supervisor and research laboratory. The proposed body must also prevent any possible duplication of research work, as the details of the project areas of all the registered researchers will be available on its website. Prevention of duplication of research work, and discouraging advancement of unproductive research activity, will check wastage of precious national resources and manpower. Mandatory registration of researchers will be beneficial in several other ways, and promote greater interaction amongst the fraternity.

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