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Threats and Preventions of Some Particular Fluid to Human Life

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ABSTRACT: Fluid mechanics is an omnipresent subject, it deals with the behavior of fluid. Due to wide range of applications it almost pervades everywhere. Since the recent technology all depends on basic principle of fluid mechanics, industries completely rely on it. Apart from that natural flow are governed by the equations in fluid mechanics. In this paper we discuss the threats due to natural flows as well as artificial flows of smoke and water. And discuss also the safeguards to prevent from the threats of fluid flow to avoid any harm on human life, property and activity.

I. INTRODUCTION:

Fluid is a substance that is capable to flow [1]. Fluid can be divided into two types liquid and gasses. Study of fluid behavior is termed as fluid mechanics. Ancient human possesses the erratic knowledge of flow being lived on the bank of a river or shores. Intermittently fluid flow develops from nanofluid [2,3] to the ocean [4].Mechanics of boats, cyclonic gyres [5], storms in ocean has been studied gradually as a matter of need.Joukowsky [6] the father Russian aviation, presented the geometric symmetry between circle and airfoil of airplane to rejuvenate the aerospace industry and mammoth research in this field up to the production of high-speed jets, fighter planes and passenger planes. However, wind engineering is developed with its both positive and negative impact [7].Construction of fluid flow for wellbeing of mankind has extensively be done using present tools, equations and methods [8, 9, 10]. As the bridge piers, ducting of air conditioning are the results of these studies. Thus, the study of fluid flow with the time proved fruit full for the mankind, still it has some drawback. Among all the disaster caused by fluid like smoke and water are discussed here along with the preventions and safeguards.

Some Governing Equations:

Equation of Continuity:

The principle of conservation of matter, in a fluid region, says in the absence of inlets and outlets the amount of fluid remains same. This principle is termed as equation of continuity [11].
The mathematical formof equation of continuity is

$$\frac{\partial \rho}{\partial t} + \nabla.(\rho\overline{q}) = 0$$

Where $\rho = \rho(x, y, z, t)$represents the fluid density at any point P (x, y, z) in cartesian, at any instant t.

If the pattern of flow is independent of the time at any instant of time t and locationP (x, y, z) then$\frac{\partial \rho}{\partial t} = 0$.
Therefore,equation of continuity becomes

$$\nabla.(\rho\overline{q}) = 0$$

For an incompressible, homogenous fluid, the density is constant in the entire fluid.
Above equation becomes

$$\nabla.\overline{q} = 0$$

Euler's Equation of motion:

At time t if $\overline{F}$ is force per unit mass with fluid density ρ and pressure p of moving fluid with velocity $\overline{q}$ then the Euler's equation [11] is

$$\frac{d\rho}{dt} = \overline{F} - \frac{1}{p}\nabla p$$

Bernoulli's Equation:

For non-viscos fluid relation between velocity and pressure is the Bernoulli's equation, first developed by Euler

$$p + \frac{1}{2}\rho\overline{q^2} = 0$$

II. DISCUSSION:

Smoke has always had a strong impact, both favorable and unfavorable, upon man and his properties and activities. Since, the end of 20th century is assumed to be a globalization period invites the industries to make the world as global village. The smoke from Chimney mix the pollutants to environment causes unhealthy air and hence problems like asthma. Thus, there should be

an engineering tool to purify the smoke before it enters the exquisite environment. Even absorbent of carbon dioxide should be developed to cover the Chimney exit. Participation in environmental of dancing smoke from village chulhas in the early morning, open burning of harvested fields, automatic fire in the mountains is also considerable which can be overcome by using modern techniques. Chulha can be replace by gas stove, collecting crops to make the fertilizer rather than setting it on fire after harvesting.

Unwell drained sullage forms stagnant pounds that provide breeding places for disease.And open an avenue for some diseases mainly in the wet season. Pathogens in wastewater can pollute groundwater sources, may increasing the risk of diseases like lymphatic filariasis. unplanned drainage can cause flooding, resulting in property loss in some cases casualty can occur. By means proper flow of sullage can improve environment and reduce the disease. However, the floods and tsunami are not away from disaster causing act.The last few decades have observed a prominent rise in disasters worldwide, such as floods, droughtsand storms. And with this increase there have been associated financial losses. The increase in climatic threats are of major concern to the vulnerable agricultural sectors.Effective policy and practice necessitateto know exact damage and loss data for the agricultural sectors. In order to fill the discrepancies to overrule disaster impacts on agriculture.In the villages for the famers for their cattle's strong establishment of pounds are needed at domestic level in order increase the production corps and increasing heat in villages causing a climatic change.

III. CONCLUSION:

It's a right time to take a right time to plan the unplanned sullage and stray dancing smoke in the environment to save the life on earth.

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