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ASSE India – Newsletter Committee

Sandip Mukherjee

## Message from the President's Desk....

June 20, 2018

Dear colleagues,

Greetings!

Glad to know that efforts to upgrade to ISO 45001 certification has commenced in many organizations with efforts on "gap analysis", sensitization and preparatory training initiatives.

I am hopeful that organizations would take all the necessary steps well in advance to upgrade their respective OHS Management Systems to the level to ISO 45001 much before the "deadline" of three years.

A few years ago, I heard a gentleman sharing his thoughts on "corporate karma". It is believed that a bad karma results in bad outcome. He was explaining with examples, how reportedly some bad karma of some corporates/entities had manifested in extremely bad results for them, though over a period of time. These examples were mostly related to customer service or governance issues. Today with the passage of time when I reflect on it, I feel possibly the level of safety, health and welfare of people are connected with the progress and prosperity of the organization they work for. As we further proceed, I develop increasingly reliable conviction that organizations with higher focus on customer needs as well as on people's health, safety and well-being, would generally do better in their economic score-card and overall performance.

Let us all continue to contribute in our own way to take our respective organizations, and those that we are associated with to the desired path with conviction, compassion and commitment.

With best wishes and warm regards,

*Dr. Krishna Nirmalya Sen, Ph.D, P.E., FIE*

President

ASSE India Chapter



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## Editor's Corner:

Dear Reader,

We are presenting the 52<sup>nd</sup> Issue of ASSE India Chapter Newsletter.

Monsoon is already set in. Almost every corner of the country is experience moderate to heavy rain. Good monsoon is a freedom from painful summer and blessing for farming, however at the same time it creates additional hazards in our day to day's life. Recently several incidents have come in the daily news related to collapsing of buildings & houses due to heavy rain and flood. To protect human lives and minimize damages to property, engineering control and awareness on construction of safe houses are important. Hence I am furnishing an article and important references related to concept of flood resistant building. Monsoon also increases risks in road travel. To address those additional hazards putting together few tips on safe driving.

In this season people are oftenly contracted with few common diseases. With little basic awareness we can keep ourselves healthy and enjoy the beauty of monsoon. Find some overview at health tips section related to these disease.

Also the brief on forthcoming important days in health and safety calendar for the month of July is furnished for ready reference along with your favorite quiz.

Do keep on sending interesting articles on OH&S for publication. Happy reading.

Warm Regards to all our Readers,

Sandip Mukherjee,

Chair – Newsletter (ASSE India Chapter)

# Flood Resistant Buildings: a Requirement for Sustainable Development in Flood Prone Areas

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**ABSTRACT:** Floods are the sources of large scale destruction from the early stages of civilization. Rising rate of population and consequent urbanization leads to deforestation and a high percentage of the paved surface which blocks the infiltration of water in case of precipitation. Lesser infiltration leads to high runoff resulting in rapid and increased hydrograph peak. In India, more than 40 Million Hectare of the total 329 Million Hectare geographical area is flood prone. During last three decades, other than heavy financial losses, millions of people were affected and about 4000 people lost their life due to the flood disaster in India.

Increase in the frequency, spatial extent, duration, intensity and timing of extreme weather condition is expected due to climate change. Flood is a natural process which cannot be ceased to occur; thus efficient flood preparation is the need of the time to minimize the damage in flood-prone areas. Sustainable development involves safe, economically feasible, environment-friendly and socially approved growth.

Sustainable development in the field of flood hazard mitigation is required. In this paper, an effort is made to discuss the concept of flood resistant residential houses and the new techniques developed and used in different parts of the world.

Learn how to protect you and your loved ones during a thunderstorm.

## I. INTRODUCTION

Flood can be defined as the condition in which that land is submerged in water which is normally used to be dry. It can be attributed to an unusual high stage of a river or other water bodies like lakes, oceans etc. during which the water spills over the bank and spread to the adjoining land. The low-lying area adjacent to a river bank is called flood plain, which is formed mainly of the sediments of river and consists of a very fertile soil. In the case of flood the water spills to the flood plains which are thickly populated due to the advantages of good water availability and fertility of the land for irrigation purposes. The flood condition can occur due to various reasons depending upon the location of the concerned area and the primary cause of the accumulation of water which cannot be accommodated naturally. For a flat or low-lying land with infiltration or runoff rate lesser than the rate of precipitation, water can accumulate resulting in a flood situation. Due to different natural phenomena like rainfall lasting for a longer period of time, monsoon season, tropical cyclones or a large amount of rapid snowmelt flood situation can occur in rivers or other drainage.

In coastal areas, when the water level is high due to some storm and its combines with the natural high tide the water spills over to the adjoining areas causing a flood. In urban areas due to improper drainage system sometimes due to high precipitation water can accumulate on the streets and maybe sometimes comes back into the building through sewers pipes when rainfall is higher than the drainage capacity. The condition of flood can get worsen in the case of major infrastructure failure like dam failure etc. The consequence of flood can be devastating which includes loss of life and financial losses. The flood can damage the building, roads, bridges etc. affecting the normal life. Disruption of traffic movement leads to further delay in the aid provided to the affected people. Flood disrupts the power and water supply and also the sewage treatment system. Due to the mixing of sewage into the accumulated water there is always a risk of breaking of water borne diseases like typhoid, cholera etc.

In India, more than 12% of total geographical area lies in major flood prone zone. India is a peninsular country as it is surrounded by ocean from three sides namely Arabian sea, Bay of Bengal and Indian ocean (Ahmad *et al.*, 2016).

The monsoon season lasts between June and September and about 80 to 90 percent of the annual rainfall occurs in this season. During this monsoon season various rivers faces flood situation due to the cyclonic precipitation. The flood prone zone in India constituted mainly by Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Kerala, Orissa, Punjab, Rajasthan, Uttar Pradesh and West Bengal (Saqib *et al.*, 2013). During the years 1975 to 1995 around the world, more than 1.5 billion people were affected by floods in which about 318,000 were killed and 81 million losses their homes (IFRCRC, 1997). In recent years the main floods occurs in India includes North India floods 2013, Kashmir floods 2014, Maharashtra flood in July 2015, Gujarat flood in June 2015 etc. Thousands of people were dead and heavy financial losses were reported. Summary of flood losses in India during 1953-2011 are shown in table 1.

**Table 1: Average flood damage / Heavy rains in India**

Average annual flood damage (1953 – 2011)	
Total damage of crops, Houses and Public utilities	Rs. 3612.12 Cr.
Area affected	7.22 million hectare
Population affected	32.43 million
Human lives lost	1653

Flood is a natural event which cannot be ceased to occur, so flood mitigation is a way to be well prepared to avoid heavy losses. The losses of life and properties can be reduced if well preparations are made in advance. Irrespective of all the protective works the flood danger cannot be vanished. The flood losses are becoming several billion US dollars annually worldwide (Kundzewicz and Takeuchi, 1999). The flood preparation works can be categorized into structural and non-structural measures. Dams, dikes, floodways, reservoir for flood control etc. comes into structural measure category;

whereas efficient flood fore-casting warning system, following laws and regulation, awareness raising etc. came into nonstructural approach. Also small scale structural approaches like flood proofing etc. comes into nonstructural approach. Non-structural approaches are found to be in sync with the sustainable development (Kundzewics, 2002). In the present paper, flood resistant domestic buildings are discussed with different methods used for the purpose in some parts of the world.

## II. FLOOD RESISTANT BUILDINGS

Around the world, there are many ways are proposed for making the buildings more capable to resist floods. In here some commonly used methods are discussed

**Raising the elevation:** The elevation of living area is raised above the base flood elevation (B. F. E.). The house is raised on some supports which should be sufficiently strong enough to bear the load of the structure and forces acting by the flood water and have ample space for the passage of flow in case of flood. For an area with a low probability of flood the space below the living area can be utilized for parking the vehicle, laundry or bathroom etc. The B. F. E. is the water surface level for a flood of 100 years return period. There are many methods available for estimation of flood; for some sites with lesser available data or for sites with no data available at all, regional flood frequency analysis can be used (Alam *et al.* 2015,2016).

**Building the lower levels water tight:** The walls and openings of the lower levels are sealed to stop the water from penetrating the house. The sealing should be sufficiently strong to bear the forces in the flood conditions acting in the form of lateral forces and uplift thrust of the flood water. The house for such purpose should be designed by taking all these forces in consideration. Enclosures, sealants, membranes and coatings can be used to make the lower levels water tight.

**Wet flood proofing:** Wet flood proofing involves the controlled and safe passage of flood water through the lower levels of the house. The sewers and water system should be above the water level or should be sealed when the water rises above them to avoid any health hazards. Electrical appliances and outlets should also be at higher levels. The inlets points should be opened well before any pileup of water to avoid pressure at the structure.

## III. AMPHIBIOUS HOUSES

The word amphibious is used for something related to both land and water. Amphibious houses are made in such a way that they are free to float on the flood water and rose with the water level and comes back to their initial position as the flow recedes. Such houses are built in Maasbommel, Netherlands, and at Raccourci Old River, Louisiana, New Orleans and Bangladesh. The foundation in this case is found to be economical, the house is reliable and convenient (English, 2009). Amphibious house can also be called floating house and broadly classified into two types:

- (i) Boat type and (ii) Lift type

**Boat type:** This type of floating house is free to move in both the direction i.e. in vertical direction as well as in horizontal direction. The floor of the house should be water tight so the water does not enter from the base. The house is provided with some anchor system for stopping the house to dislocate with the flow of water from its original position.

**Lift type:** In the case of lift type, the house is free to move in only vertical direction in a controlled way along with the rising water level in flood type situation. The house is restrained to move in horizontal direction by guiding columns at the corners. The house remain on ground surface until the flood water starts lifting it up by buoyant forces. Both the houses can be provided with a suitable base to be supported on and to provide sufficient buoyant forces to initialize the movement. The foundation used in these houses can be termed as buoyant foundation. Underside of the house buoyancy blocks is provided. Buoyancy blocks lift the house in case of flood and can be made of recycled, recapped plastic bottles.

## IV. CONCLUSIONS

A lot of work is going on for flood resistant houses in different parts of the world. It is found to be sustainable in its nature. In India, there is a need of an efficient and exclusive research in this direction as the annual losses due to floods are very high. The amphibious foundation is an economical option for poor rural areas. The recycled materials used for floating houses also help in solid waste management if applied at a larger scale.

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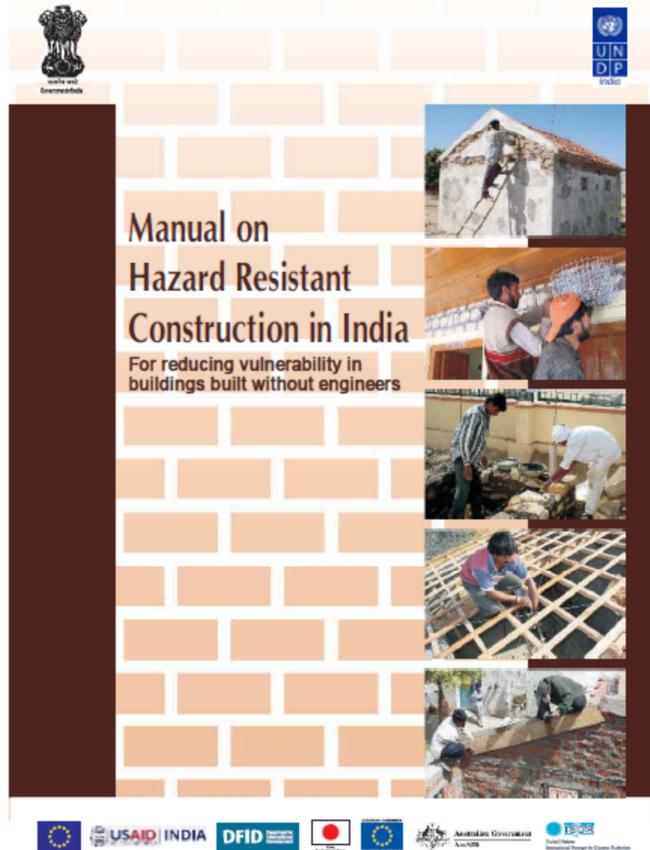
## Further reference from Editor

In India different types of natural disasters like **earthquake, cyclone and flood** bring death and destruction in many places every year. To reduce the impact of disasters, people must

know about the risk of different disasters and destruction they can bring, and building artisans should learn the techniques. To protect human lives and minimize damages to property a Manual prepared by Rajendra Desai & Rupal Desai with the support from NCPDP team under GOI-UNDP DRM Program has been published by –

**National Centre For People's - Action In Disaster Preparedness. (NCPDP)**

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**Save Mother Earth & Nature**



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Begin every day – with big thoughts or small,  
To be humane & conscious, is everyone’s call.

We need *nature*, if we really opt to live,  
Let’s stop squeezing her blood & skin – it’s our turn to give.

Silently she surrendered us, to do all harms to her  
Signaling her pains & sorrows – she taught us ‘massacre’

Without protecting or caring, never lone can survive  
*Nature* as our real MOTHER – can keep us truly alive.

Let’s not be cruel & fool, let us allow *nature* to remain pure,  
Let us protect her & no further pollute – Let us all assure.

Plastic feed-bottle to tooth-brush please,  
Are we at all saving mother earth?

Let us understand facts to its full  
Genuine efforts are only our dearth.

**This Poem was published in World Environment Day at Jamnagar on 5th June 2018**

**Top 10 Monsoon Driving Tips**

At present, all across the country, the almighty *Indra* is showering his blessings to the fullest that you define as “*raining all cats and dogs*”. However, there are always two sides of a coin and the Indian monsoon is no exception. Undoubtedly, it is ecstatic but it also comes with strings attached i.e. “The Road Dangers”.

Especially for the car and bike drivers, this season is full of hurdles and the very obvious reason is the rubble-ridden road conditions in the country that cause fatal road accidents. But no worries, there is always a panacea for the most challenging road ills and here we penned down top 10 monsoon safety tips that will help you ride safely during the showery conditions.



Here are top 10 monsoon driving tips –

**1. Focus on the road:**

Any sort of distraction that leads to the reduction in concentration should be avoided, be it a mobile phone or an

audio player or even unnecessary chitchats with co-passengers.

## 2. Travel in daylight:

You see, this is the most convenient and recommended idea to begin your journey and reach the destination in daytime hours.

## 3. Keep Distance:

Now, this is not the 'traditional' warning, which you have to inscribe on the rear bumper, instead follow yourself. Due to



the limited brake efficiency, the chances of your vehicle bumping into the front vehicle increase. A distance of about 15-20 meters is suggested safe. In layman's

terms, "keep a distance of three cars" between your car and the vehicle running ahead of you.

## 4. Tyre safety:

Do not ignore this one! tyre care in monsoon is very much essential. Make sure that the tyres don't boast deep cracks, check for tyre pressure as the utmost speed you drive depends on the tyre condition. Worn-out tyres are the major cause of slippery road accidents.



## 5. Headlights ON:

Ensure headlights are 'ON', and have a low-beam setting during heavy showers even in daytime, so that you don't temporarily blind the approaching driver with your vehicle's high-beam, thus avoiding any crash.



## 6. Brake check:

Usually rusty/worn brake callipers breakdown in damp conditions. Hence, get them examined. Also be aware that after driving through water logged areas, the impact of brakes reduces to a great extent.

## 7. Refrain cruise-control:

Never use, yes you read it right "Never use" cruise-control (if equipped) during rain as you may lose control of your vehicle in water logging conditions. Instead, it is advised to keep your car in lower gears so that you enjoy better control.

## 8. Watch two-wheelers:

People on bikes are more prone to slips as they have a limited grip on wet surfaces, therefore avoid trailing them. One of the many causes of road accidents is due to tailing of two-wheelers.



## 9. Heavy rain, pull off:

When you are driving and it's pouring heavily, securely park your car under a safe shelter, not under any tree or pole, as they may get uprooted and cause damage to the vehicle, and wait for the harsh rain to depart.



## 10. Say no to 'underpass':

Chances are that your daily routes might have underpass connectivity with roads, which during heavy rains gets flooded. Therefore, avoid travelling through the underpass and seek for alternate routes.



Source: [www.tyremarket.com](http://www.tyremarket.com);

## Important days in Safety, Health and Environmental Calendar of July, 2018

### World Population Day 11 July 2018

World Population Day, which seeks to focus attention on the urgency and importance of population issues, was established by the then-Governing Council of the United Nations Development Program in 1989, an outgrowth of the interest generated by the Day of Five Billion, which was observed on 11 July 1987.

By resolution 45/216 of December 1990, the United Nations General Assembly decided to continue observing World Population Day to enhance awareness of population issues, including their relations to the environment and development.

The Day was first marked on 11 July 1990 in more than 90 countries. Since then, a number of a number of UNFPA country offices and other organizations and institutions commemorate World Population Day, in partnership with governments and civil society.

### Why World Population Day is Celebrated

The aim of the Governing Council of the United Nations Development Program is paying great attention towards the reproductive health problems of the community people as it is the leading cause of the ill health as well as the death of the pregnant women worldwide. It has been distinguished that around 800 women are dying daily in the procedure of giving birth to a baby. The campaign of the World Population Day every year increases the knowledge and skills of the people worldwide towards their reproductive health and family planning.

Around 1.8 billion youngsters are entering to their reproductive years and it's very necessary to call their attention towards the primary part of the reproductive health. According to the statistics, it is noted that the world

population on 1<sup>st</sup> of January 2014 has been reached to 7,137,661,030. The annual celebration of world population day is planned with lots of activities and events to make aware people about the reality.

Through this great awareness celebration, people are encouraged to take part in the event to know about population issues like importance of family planning towards the increasing population, gender equality, maternal and baby health, poverty, human rights, right to health, sexuality education, use of contraceptives and safety measures like condoms, reproductive health, adolescent pregnancy, girl child education, child marriage, sexually transmitted infections and so many.

Sexuality related issues are very necessary to get solved among youths especially between 15 to 19 years of age as according to the statistics it is noted that around 15 million women of this age give birth every year as well as around 4 million goes through for abortion. **Some of the objectives of celebrating the world population day are mentioned below:**

- It is celebrated to protect and empower youths of both gender like girls and boys.
- To offer them detail knowledge about the sexuality and delay marriages till they become able to understand their responsibilities.
- Educate youths to avoid unwanted pregnancies by using reasonable and youth friendly measures.
- Educate people to remove the gender stereotypes from society.
- Educate them about the pregnancy related illnesses to raise the public awareness about dangers of early childbirth.
- Educate them about STD (sexually transmitted diseases) to get prevented from various infections.
- Demand for some effective laws and policies implementation in order to protect girl child rights.
- Make sure about the access of equal primary education to both girls and boys.
- Make sure the easy access of reproductive health services everywhere as part the basic primary health for each couple.

**Source:** [www.indiacelebrating.com](http://www.indiacelebrating.com);

### **World Youth Skill Day 15 July 2018**

*The aim of World Youth Skills Day is to encourage youth to celebrate the value of acquiring skills like building, making, and creating as a way to achieve personal success and fulfillment.*

Through empowering young people, they can better advance the broader mission of the United Nations (UN) for lasting peace, sustainable development and human rights for all, according to UN Secretary-General, Ban Ki-moon.

A UN resolution to establish a World Youth Skills Day was adopted by the General Assembly on December 18, 2014.

### **Training Is Key**

On the UN's website, they state that education and training are the keys to success in the workforce. However, unfortunately, existing systems are failing to address the learning needs of many young people. A large number of youths have low levels of achievement in basic literacy and numeracy, according to surveys. Skills and jobs for youth feature prominently in the 2030 Agenda for Sustainable Development.

UNESCO-UNEVOC follows the United Nations' stride in celebrating the World Youth Skills Day every year on 15th July, and continues to call for increased prospects for the youth to gain access to quality training and skills development through Technical and Vocational Education and training (TVET), globally.

Productive participation in the current and emerging dynamic labor markets have placed a unique focus on TVET as a critical source of responsively skilled human capital. Employment trends and outlooks signify that the youth of today need to functional competencies as well as higher order transversal skills that enable them to respond to continuing changes in the world of work. Amid a growing consensus in support of TVET's potential to grapple with these challenges, a recurring issue has been its relative unattractiveness of vis-à-vis the academic education for students. Why do these views and attitudes persist?

On the World Youth Skills Day 2018, in UNESCO-UNEVOC call for **"Improving the image of TVET"** and build a shared understanding of its true prospects.

**Source:** <https://unevoc.unesco.org>

### **World Hepatitis Day 28 July 2018**

Hepatitis is a most serious health disorder of an important body organ called liver. Without liver or liver with any chronic disease, one cannot imagine his/her healthy life. So, it is very necessary to eradicate the problems of liver and other body organs to live healthy live as well as making world, a disease free world. This article is a small and great message to everyone to be aware about the hepatitis.

### **World Hepatitis Day History**

World Hepatitis Day is being celebrated every year on 28<sup>th</sup> of July aiming to make aware the common people globally about hepatitis. It is the world level awareness program launched as a global public health campaign by the World Health Organization to make the world a hepatitis free world.

Earlier it was being celebrated as an international Hepatitis C Awareness day by the patient groups of European and Middle Eastern regions on 1<sup>st</sup> of October in 2004 however in some regions it was mark as a hepatitis day on different dates. In order to make this a best awareness campaign in 2008, the World Hepatitis Alliance has declared 19<sup>th</sup> of May as the first World Hepatitis Day in association with the patient groups.

However, the date was changed to 28<sup>th</sup> of July after the adoption of earlier declaration in the 63<sup>rd</sup> World Health Assembly in the month of May 2010. It was titled as the World

Hepatitis Day focusing to raise the awareness on national and international level through great efforts. 28<sup>th</sup> of July was declared as the final date for the celebration of World Hepatitis Day globally to honor the “Nobel Laureate Baruch Samuel Blumberg” on his birthday anniversary (28<sup>th</sup> of July) as he discovered the hepatitis B virus.

World Hepatitis Day was established to be celebrated on 28<sup>th</sup> of July in order to expand the educational areas as well as provide opportunities to new generations to get better understandings about viral hepatitis to enhance global public health by solving problems. It is being celebrating very actively in more than 100 countries worldwide by organizing lots of effective activities.

### What is Hepatitis?

Hepatitis is the liver infection and inflammation caused by the virus. Five types of the hepatitis have been detected caused by different viruses and named as hepatitis A, B, C, D, E. A and E type are short term infection and known as acute infection however B, C and D type are long-term infection and called as chronic hepatitis. Second one may lead to some life threatening complications including cirrhosis means liver scarring, liver cancer, liver failure and so many. More than 1.5 million people are getting die every year because of this dangerous disease whereas 4.4 million Americans are living with the infection of this chronic hepatitis.

People may be infected with the hepatitis A due to the food and water contamination with fecal matter. Hepatitis B is most common problem caused in many regions of the world especially in the Asian and African countries. Vaccines are available for both type hepatitis A and B. Hepatitis C can be caused by the sharing of needles, equipment injecting cosmetic substances, steroids or drugs.

Know More Hepatitis is a national Hepatitis C education campaign designed to decrease the burden of chronic Hepatitis C. The campaign is aimed at increasing awareness about this hidden epidemic and encouraging people who may be chronically infected with Hepatitis C to get tested. Most of the persons suffering from the viral hepatitis do not develop any obvious symptoms in the starting period which may lead to the some serious liver problems like liver damage, liver cancer and failure which needs liver transplant.

### Why World Hepatitis Day is Celebrated?

World hepatitis day is celebrated annually to encourage the common public for the early diagnosis, prevention and treatment from the hepatitis. Millions of people have been affected worldwide with the acute and chronic hepatitis and getting die in large number every year. People get stimulated through the celebration activities and know in detail about all the preventive and control measures of the hepatitis. It needs a broad level of awareness worldwide which is possible by getting participated in the events and activities in the nearest areas with the help of WHD toolkit. Some of the objectives of celebrating world hepatitis day are mentioned below:

- To provides an opportunity to all focusing together on this issue.

- To raise common public awareness about various forms of the hepatitis including means of transmission.
- To strengthen people by letting them know about different measures like prevention, early diagnosis, screening, control and etc.
- To increase the awareness about hepatitis A and B vaccines.
- To get global response of the people in order to implement some solid steps towards the hepatitis.
- To expand the educational areas for immunization, prevention, diagnosis and control.
- To enhance the awareness about comprehensive care and treatment of people suffering from hepatitis.
- To increase public awareness about the risk factors, remove social stigma and promote for early testing.
- To implement new training methods and number of skilled medical professionals in order to enhance the quality care.
- To promote various health and governments organizations worldwide for their active involvement in the event to create new strategies against hepatitis.
- To promote professional staff members to actively participate in the event.

### Theme



Source: [www.indiacelebrating.com](http://www.indiacelebrating.com)

### International Day of Friendship 30<sup>th</sup> July 2018

**World Friendship Day**, also known as **International Day of Friendship** takes place on 30th July.

The original idea for a day of friendship came from Hallmark cards in the 1930's. Originally celebrated on 2nd August, the day was largely viewed cynically by the public as a money making exercise, sales of friendship day cards did not take off in Europe and by the mid-1940's the day had faded into obscurity in the USA. The idea of a day to honor friendship was, however, adopted by a number of countries in Asia where it remained a popular custom to reserve a day for celebrating friendships and the exchange of gifts between friends.

The first **World Friendship Day** was proposed for 30 July 1958 by the World Friendship Crusade, an international civil organization that campaigns to foster a culture of peace through friendship. Many years later, in 2011, the 30th July was declared as the International Day of Friendship by the General Assembly of United Nations.

With the growing popularity of social media throughout the world, there has been an increase in celebrating **World Friendship** day and **International Day of Friendship** online as well as with community activities in local communities aimed at bringing those of different backgrounds together.

The UN loves to make an awareness day for pretty much everything, and it's certainly got its corner of the market by picking the vaguest themes. Therefore, the wonderfully wide-reaching "**International Day of Friendship**" exists, and with an interesting and understandable concept: by making friends with more people, there's less chance of injustice, war, poverty and much more.

"Through friendship — by accumulating bonds of camaraderie and developing strong ties of trust — we can contribute to the fundamental shifts that are urgently needed to achieve lasting stability," explains the UN. So why not make your community, pub or just your living room that little more stable by getting together with your mates and celebrating each other's company?

Source: [www.awarenessdays.com](http://www.awarenessdays.com)

## Health Tips



## Most Common Monsoon Diseases, Their Treatment & Prevention

The monsoons bring a relief from the scorching heat during the summers but with their respite, they also bring along with them various maladies. Every monsoon season, the risk of catching various diseases is extremely high due to unhygienic conditions and not adhering to basic preventive measures. Many of these monsoon diseases remain undiagnosed until they progress to undesirable complications. This is why early diagnosis and treatment of diseases in rainy season is important making the difference between life and death. Here are some common diseases which are highly prevalent during this season that you should be aware about. It is also advisable to understand the preventive measures of these diseases and precautions that you and your family can take as well.

### Influenza (Cold and Flu):

Common cold is one of the most commonly occurring during the monsoon season. It is highly contagious disease due to the spread of virus in the air which infects the upper respiratory tract and thus affects the nose and the throat. Symptoms involve runny or stuffy nose, body ache, throat irritation and soreness and fever. It is always advisable to consult a physician and get the required medicines prescribed for getting cured from the infection

The best way to prevent common cold is to have a healthy, balanced and nutritious diet regular which will develop the immune system of the body and improves the body resistance.

### Typhoid:

"Typhoid" is another waterborne bacterial infection caused by bacteria called Salmonella. This disease is caused by contaminated food or drinking food or water contaminated with the faeces of an infected person. Diagnosis is made by

any blood, bone marrow or stool cultures and with the Widal test.

Symptoms of the diseases are prolonged high fever, severe abdomen pain, headache; vomits are common symptoms of this disease. The worst part is that the infection of this disease can remain in the gall bladder of the patient even after he/she is cured.

Preventive measures include providing clean drinking water, better sanitation, and better hand washing.

Treatments of typhoid include antibiotics such as azithromycin, fluoroquinolones or third generation cephalosporin.

### Hepatitis A:

Hepatitis A is a highly contagious liver infection caused by the hepatitis A virus. It is a waterborne viral infection is generally caused by contaminated drinking water or food with the stool of someone with the virus, it can spread through flies. Eating fruits, vegetables, or other foods that were contaminated during handling can cause spread of infection. The symptom of this disease is directly related to the inflammation of the liver that's caused by a virus.

Symptoms include, Jaundice (yellow eyes and skin, dark urine), stomach pain, Loss of appetite, Nausea, Fever, Diarrhoea and Fatigue. Blood tests are used to detect the presence of hepatitis A in your body.

No specific treatment exists for hepatitis A.. In most cases of hepatitis A, the liver heals within six months with no lasting damage .Management involves, Rest, treatment of nausea and rest to liver.

Practicing good hygiene, including washing hands frequently, is one of the best ways to protect against hepatitis A. Vaccines are available for people most at risk.

### Dengue:

Dengue fever is a disease caused by a family of viruses that are transmitted by mosquitoes. It is spread by what's known as the tiger mosquito (Aedes Aegypti), which has black and white stripes and typically bites early in the morning or at dawn. Dengue goes by other names, including "break bone fever.

Symptoms of dengue fever include severe joint and muscle pain, swollen lymph nodes, headache, fever, exhaustion, and rash. Complication of dengue fever is called Dengue hemorrhagic fever (DHF). It is a specific syndrome that tends to affect children under 10 years of age. This complication of dengue causes abdominal pain, hemorrhage (bleeding), and circulatory collapse (shock).

There are no specific antibiotics or antiviral medication to treat it. For typical dengue, the treatment is concerned with relief of the symptoms and signs. Rest and fluid intake (oral rehydration) are important. Pain relievers such as aspirin and nonsteroidal anti-inflammatory drugs should only be taken under a doctor's supervision because of the possibility of worsening bleeding complications. Pain killers can be given for headache and for joint and muscle pain (myalgia). Platelet

count should be monitored through the course of the illness. Sometimes hospitalization for dengue maybe advised depending upon the patient's condition receive IV fluids.

#### Preventive measures

-As it's transmitted via mosquitoes, one should wear a strong insect repellent containing DEET to prevent getting bitten.

-People should also wear full sleeve clothing when out in the day.

- It is important to remember that the dengue mosquito usually bites only in the day time and breeds in clean, fresh water. So any water accumulation should be avoided.

#### Malaria:

One of the most common monsoon-related diseases, malaria, is caused by certain species of mosquitoes breeding in the dirty water. Since, there is a problem of water logging during the rainy season, mosquitoes get conducive conditions to breed .This disease is spread by Female Anopheles mosquito. Most deaths are caused by P. falciparum and is the most dangerous type of malaria also known as Cerebral malaria. Other forms of malaria are P. vivax, P. ovale, and P. malariae

Malaria is typically diagnosed by the microscopic examination of blood using blood films, or with antigen-based rapid diagnostic tests.

It is characterized by fever, body ache, chills, and sweating. If untreated, it can lead to complications like jaundice, severe anaemia or even liver and kidney failure. Malaria is treated with antimalarial medications successfully.

#### Preventive measures –

- Take an antimalarial drug as a precautionary measure in mosquito prone areas.
- Also take measures to prevent mosquito bites such as wearing full sleeve clothing.
- Application of antirepellant mosquito creams and Electronic mosquito repellent devices can be used during the monsoon season to avoid mosquito's at home.
- Accumulation of dirty water must be kept in check to prevent malaria mosquito breeding.
- Insecticide-treated mosquito nets (ITNs) and indoor residual spraying (IRS) have been shown to be highly effective in preventing malaria in your neighborhood and can reduce breeding of mosquitos also.

#### Viral fever:

Sudden weather change often causes viral fever characterized by fatigue, chills, body aches and fever. The illness is contagious and spreads through infection droplets in the air or by coming into physical contact with infected secretions. General duration of a viral fever lasts from 3 to 7 days, with the severity of the fever being the highest in the first three days.

The general treatment if side effects and symptoms using OTC drugs in consultation with their doctor, antihistamines, decongestants and antipyretic drugs are usually recommended, Viral disease are generally self-limiting and

generally do not need antibiotic unless there is a secondary infection.

#### Some Preventive measures –

-One must ensure that they do not get wet in the rain or stay in wet clothes for a long period

-Wash their hands often,

-Boost their immunity by eating Vitamin C rich foods and green leafy vegetables. They must also keep a distance from an infected person.

#### Gastroenteritis:

Gastroenteritis and food poisoning are quite common during the monsoon season, and the high humidity helps in the growth of disease-causing bacteria. The general symptoms of gastroenteritis are stomach cramps, nausea, vomiting or diarrhoea. Fever can develop and one may feel sense of malaise and weakness through the course of the illness.

It is very important that you keep yourself hydrated at all times and bland diet is recommended such as rice, curds, fruits such as banana, apple. Rice kanji water or coconut water is also good line of treatment for hydration. ORS is generally recommended. Course of treatment is mainly to prevent dehydration, control fever. Antibiotics are prescribed after evaluation of the condition of the patient. Antiprotozoal can also be prescribed accordingly.

#### Preventive measures:

- Try and avoid eating raw food like salads because it is difficult to ascertain whether they have been washed, cleaned and stored at the right temperature
- Avoid roadside food which may be made in contaminated water and trigger diarrhoea.

Some general overall Preventive health tips during monsoon season that we would like to share with you during this monsoon season for your wellbeing:

- Drink only clean water as a preventive measure against water borne diseases like typhoid, jaundice, gastroenteritis and diarrhoea which are common due to contamination of drinking water source. It is a good idea to drink only boiled water or water cleaned by a purifier.
- Use separate hand towels to avoid the transmission of disease causing bacteria.
- Cover your mouth and nose with a handkerchief while coughing or sneezing.
- Use mosquito repellents and nets as dengue transmitting mosquitoes usually bite during day time -either early morning or late evening, while those that cause malaria tend to bite at night.
- Keep your garments dry to avoid catching fungal skin infections.
- Consume freshly prepared food and avoid eating out as much as possible.
- Avoid visiting crowded places such as theatres or exhibitions.
- Use hand sanitisers regularly.

Source: [www.wockhardhospitals.com](http://www.wockhardhospitals.com);

## HSE Quiz

1. Which of the following gases, released due to the un-controlled burning of plastic, can be carcinogenic?

- A Phenol  
B Dioxin  
C Mirex  
D Carbon Monoxide

2. The most neglected type of pollution is –

- A Soil  
B Air  
C Water  
D Noise

3. “Bonding” a flammable liquid dispensing can refers to the process of:

- A Touching it to the floor  
B Connecting it to the earth  
C Connecting it to the conductive object  
D Attaching to a grounding strap

4. A disposable dust mask has a protection factor of approximately:

- A 20  
B 10  
C 5  
D 2

5. What would be the average temperature of the Earth’s surface, if there were no greenhouse gases present?

- A  $-18^{\circ}$   
B  $-8^{\circ}$   
C  $8^{\circ}$   
D  $18^{\circ}$

Watch out the next issue for correct answer

Answers from last issue’s (May / 2018) Quiz: 1 (C); 2 (B); 3 (A); 4 (D); 5 (B)

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Selected articles shall be published in next publication

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