INSTITUTION OF WATER & ENVIRONMENT (INDIA)

COMMITTED TO SUSTAINABLE ENVIRONMENT.....

IWE News/Chronicle

Volume -2 , 1 Number **1st February, 2019**

Introduction:

"Institution of Water & Environment (India)" registration no S – E /150 /District South-East/2013 dated 13.12.2013.is an institution dedicated for the cause of society's concern for environment. The Institution has 255 members from all over the country.

The institution has 6 State centers viz Uttarakhand, Delhi, Madhya Pradesh, Punjab, Chhattisgarh & Jharkhand.40 founder members are members of Governing body for 12 years after the first Council meeting held on 9th March, 2014 i.e till 31stMarch, 2026. In addition State chairmen who are not founder members are also members of the Governing Council. The Executive body of the Institution consisting of President, all the three Vice Presidents, Secretary & Director General, Director General (Finance); Director General (Activity); Director General (Publication); Director General (Coordination) is responsible for day to day work of the Institution. The term of the Executive body in office is three years.





Current Affairs:

20.05.2018

13th Council meeting was held in forenoon of 20.05.2018 at Hotel "Park Inn by Radisson",I.P.Ext. Delhi under the chairmanship of Vice President-II of IWE (India). The Council discussed the Agenda and approved minutes of 12th reconvened Council meeting held on 06.03.2018, recommended Annual report 2017-18 and Agenda for AGM for approval in AGM and extended one more term of SDG with thumping majority



20.05.2018

Fourth AGM of the Institution held on 20.05.2018 at Hotel "Park Inn by Radisson, I.P. Ext. Delhi was attended by 27 Council members/ members. With the consent of all members and provision in MoA of the Institution, the meeting was. Chaired by the Vice President-II as the President could not join the meeting due to his personal reasons. The house was adjourned for half an hour due to lack of quorum. The house reassembled after half an hour.



"*Four million people die each year due to water-borne disease*." Don't pollute it

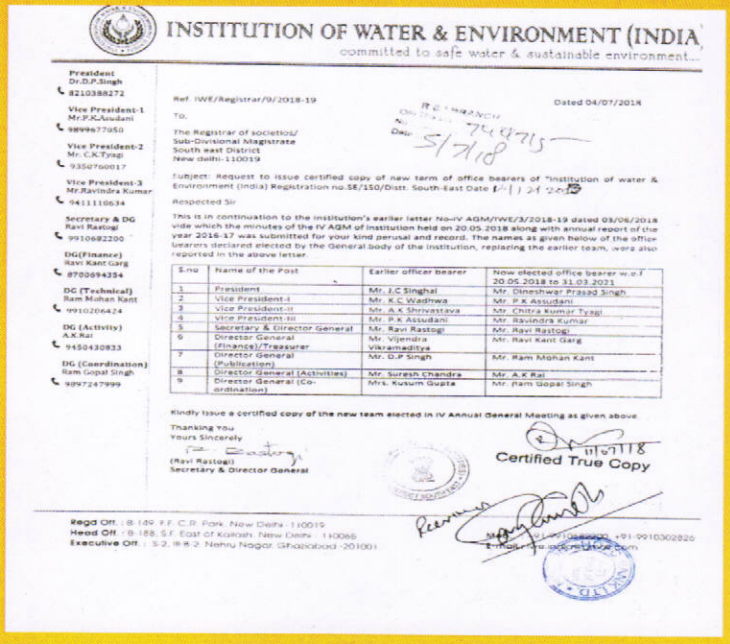
The minutes of the 3rd AGM, balance sheet for the year 2016-17 along with proposal for appointing auditor for the year 2017-18 were approved after long discussions and with the remark to make correction in financial years. SDG informed the house that the term of the first Executive Body in office h expired on 31.03.2017; therefore he proposed to elect a new team and regularising the term of ongoing Executive body till the end of the election process. With thumping majority of the members, the house passed electing new team by raising hand in favour or against. With consensus of all members present, the house elected a new team of office bearers for a term ending on 31st March, 2021. The new team as given below was installed in the office with effect from 20.05.2018. and also the term of the first Executive body was regularised.



president	Er. Dineshwar Prasad Singh	8210388272
Vice Presidents-I	Er.P.K.Aassudani	9899677050
Vice Presidents-II	Er. C.K. Tyagi	9350760017
Vice Presidents-III	Er. Ravindra Kumar	9911110634
Secretary & DG	Er. Ravi Rastogi	9910682200
DG (Finance)	Er.Ravi Kant Garg	9910815451
DG (Coordination)	Ram Gopal	Post vacant due to his sudden demise
DG (Publication)	Er. Ram Mohan Kant	98102206424
DG (Activities)	Er. A.K.Rai	9450430833



Information as regard to newly elected team was forwarded to the Registrar of socoeties along with minutes of the IV AGM.



INSTITUTION OF WATER & ENVIRONMENT (INDIA)
committed to safe water & sustainable environment

Ref. IWE/Registrar/9/2018-19 Dated 04/07/2018

To,
The Registrar of societies/
Sub-Divisional Magistrate
South east District
New delhi-110019

Subject: Request to issue certified copy of new term of office bearers of "Institution of water & Environment (India) Registration no.SE/150/Distt. South-East Date 1/1/2013

Respected Sir

This is in continuation to the institution's earlier letter No-IV AGM/IWE/3/2018-19 dated 03/06/2018 vide which the minutes of the IV AGM of institution held on 20.05.2018 along with annual report of the year 2016-17 was submitted for your kind perusal and record. The names as given below of the office bearers declared elected by the General body of the institution, replacing the earlier team, were also reported in the above letter.

S.no	Name of the Post	Earlier officer bearer	Now elected office bearer w.e.f 20.05.2018 to 31.03.2021
1	President	Mr. J.C Singhal	Mr. Dineshwar Prasad Singh
2	Vice President-I	Mr. K.C Wadhwa	Mr. P.K Assudani
3	Vice President-II	Mr. A.K Shrivastava	Mr. Chitra Kumar Tyagi
4	Vice President-III	Mr. P.K Assudani	Mr. Ravindra Kumar
5	Secretary & Director General	Mr. Ravi Rastogi	Mr. Ravi Rastogi
6	Director General (Finance)/Treasurer	Mr. Vijendra Vikramaditya	Mr. Ravi Kant Garg
7	Director General (Publication)	Mr. D.P Singh	Mr. Ram Mohan Kant
8	Director General (Activities)	Mr. Suresh Chandra	Mr. A.K Rai
9	Director General (Co-ordination)	Mrs. Kusum Gupta	Mr. Ram Gopal Singh

Kindly issue a certified copy of the new team elected in IV Annual General Meeting as given above

Thanking You
Yours Sincerely
(Ravi Rastogi)
Secretary & Director General

Certified True Copy

Regd Off. : B-149, F.F. C.R. Park, New Delhi-110019
Head Off. : B-188, S.F. East of Kailash, New Delhi - 110065
Executive Off. : S-2, IIIrd F. Nehru Nagar, Ghaziabad-201001

15.08.2018

IWE celebrated Independence Day ON15th August,2018 by planting tree in S.R. College of Law situated in rural area of District Ghaziabad

05.06.2018

World water DAY was celebrated on 5th June, 2018 by insertion of 15000pamphlets to educate the masses were got inserted in leading newspapers in Delhi, NOIDA and Ghaziabad. The cost of this was borne by 12Coucil members



"A drop of water is worth more than a sack of gold to a thirsty man."

Invitation for Plantation activity by the Institution Of Water & Environment (India)

To all members of the Institution by e-mail

Dear All,
You are invited to participate in plantation activity being organised by the Institution of Water & Environment as per programme below

Venue: S.R. College of Law, Dosa Banjarpur, Muradnagar, Ghaziabad
Date and time: 15th August, 9 AM onward up to 11AM
Route : Ghaziabad -Meerut Road - cross upper Ganga Canal Bridge drive towards meerut up to few yards from Ram Manohar Lohiya College of Pharmacy take right turn on road to Dosa banjarpur - drive about 4 km to reach the destination.

Members from NCR are specially requested to participate in the programme

With Best Regards
Ravi Rastogi
Secretary & Director General (I W E)
+91-9910682200



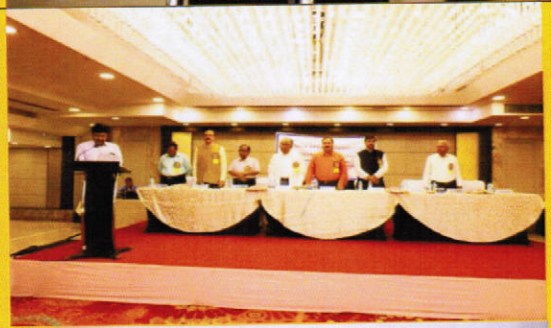




15.09.2018

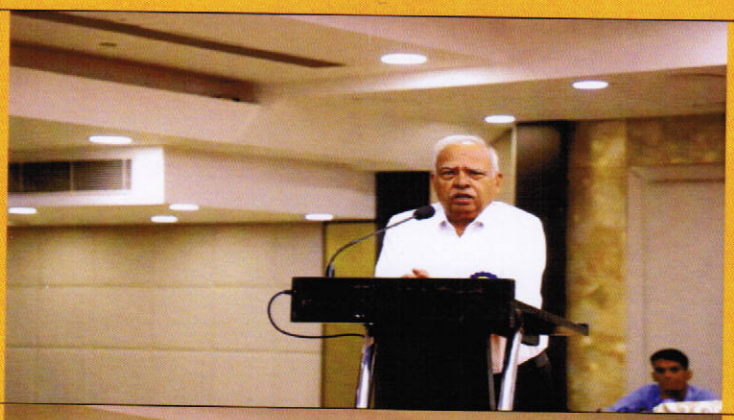
IWE celebrated Engineers day on 15th September, 2018 at Hotel Radisson Blue, Kaushambi. Er. R.K.garg (DG Finance,IWE) Anchor of the day welcomed the participants and got conducted the Engineers day celebration programme by calling the dignitaries on dais. Er. C.K. Tyagi (VP-2, IWE) invited the dignitaries for Deep Prajwalan and Malya Arpan on the photo of Sir Mokshdagundam Vishwavarayya ji. After Malya Arpan he gave oath to all the Engineers. TheTheme of the day was" Engineers: Inspiring Wonder". Eminent speakers illuminated the Gathering on the theme were Dr. Anoop Kumar Mittal (CMD, NBCC), Er. P.C.Tyagi(Ex. Chairman Central Pollution Control Board), Mr. Ajay Puthiya, (Ex. GM, Indian Railways), Er. Dineshwar Prasd Singh, President, IWE(India), Er. Durga Prasad Singh (Council Member & Ex. Chief Engineer, UPJN), Er. Vijendra Vikramaditiya (Council Member & Ex. Chief Engineer, UPJN). Er. Ravi Rastogi (Secretary & Director General, IWE) presented the Vote of Thanks.



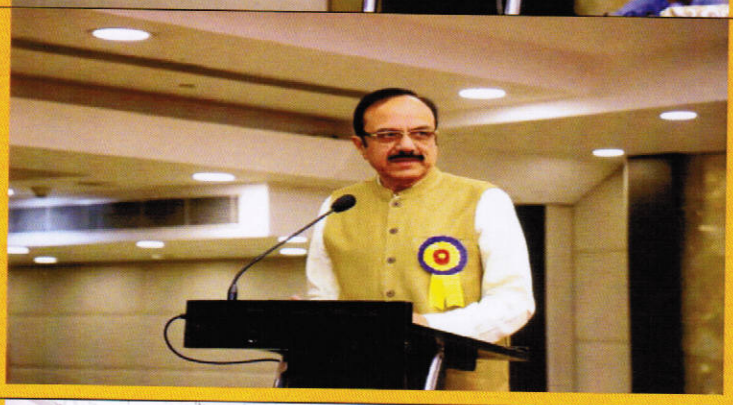


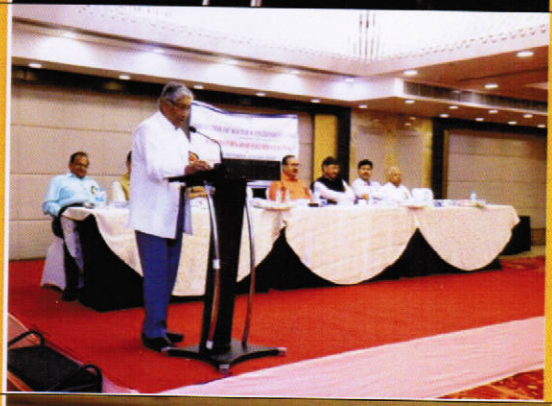




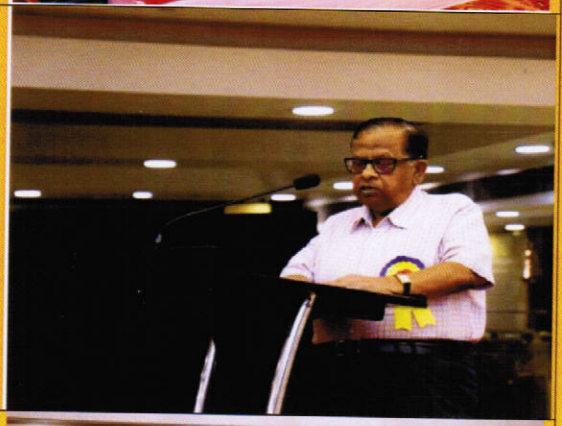


















The celebration was followed by the cultural programme, got organised by Er. Ram Mohan Kant (DG, Publication, IWE). Beautiful songs were presented by ladies and guests with cheers and clapping. Dinner was served after the cultural programme. The entire programme was sponsored by M/S Magma Infrastructure private Ltd. A company engaged in Soil testing and soil retention works, M/S S.S. Infratech. Pvt.Ltd. a company engaged in construction of high rise buildings and M/S Rajshree RMC





14.10.2018

The 15th Council meeting of the "Institution of Water & Environment (India)" was held on 14th October, 2018 in Executive Office of IWE, Nehru Nagar, Ghaziabad, to discuss the Agenda circulated to the Council Members through Email & in hard copy. Following Council members were present:

S. No.	Name of the Council Member	
1	Er. C.K.Tyagi	(V.P.2)
2	Er. Ravi Rastogi	(SDG)
3	Er. Ravi Kant Garg	(DG-F)
4	Er. A.K. Rai	(DG-C)
5	Er. Vijendra Vikrmaditya	
6	Er. V. P. Singh	
7	Er. D. Prasad	
8	Er. R. K. Agrawal	

12 agenda points were discussed. Council approved election of 10 in the Institution. The Council showed it.s gratitude to Er. Ani Engineer, LKo. Zone, UPJN, Lucknow and Er. R. K .Agarwal, GM, for their efforts in getting new members enrolled. The counci proposal for launching of U.P Chapter of the Institution at Luc Kumar Chief Engineer, Lucknow was nominated Chairman of U.P.Centre and he was advised to form his team. The council gave his approval for change of Auditors approved in IV AGM due to his non co-operation subject to bring the proposal in next AGM.The Council decided that seeding money fro HQ be given on receipt of fresh demand from centers to whom it could not be given earlier.The chairman of various committees were advised to form their team and send their names to the HQ. Council advised the SDG to communicate theChairman, DSC to call AGM and get elected new tream. Similar letter be also forwarded to other States. The Council decided to get prepred Activity Chart for the year 2018-19 and the same be followed in future..DG(F) was advised to prepare the budget for the current year and should get approved the same from Executive Committee. For purchase of a new coputer with printer, the council confirmed the decision taken earlier meeting.

The Council members were deeply grief strchen on sudden demise of the Founder member and LF Er.DVS Chaudhary and observed MAUN to pray the almighty to keep his soul in Pease and rest.

An approach to assessment of storm water
By Er. R.M.Kant, D.G.(Publication)IWE (India)

Every year during rainy season vast losses in terms human as well as animal life, crops, private and public properties etc is seen due to heavy floods caused by heavy rains. The losses are in several million rupees which put a very heavy burden on public as well as on Government's exchequer. Almost more than half of the total earth area encounters considerable flood situation. An article explaining the estimation of rainfall is produced as under:

Computation and estimation of Roff.

For calculation of rainfall intensity of particular place, there is a table available in Manual for Sewerage and Sewage Treatment, published by CPHEEO, MoUD, Government of India. That table is an example but it is not known as to how it has been arrived at and for which place or region it relates to. It leads confusion in the minds of designers and it can't be used for every place.

Thus, here we present a case study in which authentic rainfall data for the storms of lesser

On contacting the Meteorology department's Pune office, it was found that they have the rainfall data on hourly basis only. Rainfall data for duration less than an hour, which is the prime requirement for assessment of run-off in designs of projects, was not under the scope of their assessment

However, the concerned officers of Mausam Bhawan New Delhi told that the department of meteorology has installed 'Self Recording Rain Gauges' (SRRG) at certain places in the country. Safdarjung Airport, New

durations have been arrived at. One can work out rainfall intensity of its region on the basis of the following example.

This exercise was done for preparation of "Storm Water Drainage Projects" for different towns of western U.P. (National Capital Region) under Jawahar Lal Nehru National Urban Renewal Mission (JNNURM) programme of MoUD, Government of India. For the rainfall data Department of Meteorology, Government of India located at Mausam Bhawan, New Delhi was contacted. They did not have rainfall data available with them. However, they informed that it can be obtained from their office in Pune, where the rainfall data for whole of the country is preserved.

Delhi is one of the stations where SRRG is installed and functional. The rainfall pattern of New Delhi matches with the western U.P. districts. They also informed that the 'Charts' which are plotted at SRRG can be made available, for previous 23 years, and no more help is possible from their side. They charged fee for the same and took an affidavit stating that this data will be used for project preparation only and note down the data from the charts in their office. The 'Chart' plotted at SRRG is shown in figure -1.

The duration on the chart had hourly distribution. One hour duration in the chart had four divisions, i.e. 15 minutes each. In order to get rainfall data for 5 minutes, 10 minutes or 20 minutes duration, a very minute approximation on the basis of this chart had to be done. The team of design engineers was given a register to note down the divisions only and were advised not to waste time in calculation of duration or rainfall, in that office, because there were chances of committing error.

All the 'Charts' available in their office plotted at SRRG, installed at Safdarjung Airport, were studied. The total number of charts were 23 x 365 = 8395, a huge chunk of papers. After noting down the divisions, the calculation of duration of storm and quantity of rainfall was done, as shown in table –1.

Table -1

Tabulation Sheet for the Storm data

(a) One Horizontal Division = 15 min. Duration							(b) One Vertical Division = 0.50 mm. Rainfall		
Year	Month	Date	Sl.No of Storm in a particular day	Duration of Storm			Qty. of Rainfall		Rainfall Intensity 'i' (mm/hr)
				No. of Horizontal Divisions	Time (min)	Time (hrs)	No. of Vartical Divisions	Rainfall in (mm)	
1	2	3	4	5	7	8	6	9	10
1984	January	16/1/84	1	0.50	7.50	0.13	0.40	0.20	1.60
	February	19/2/84	1	0.50	7.50	0.13	0.50	0.25	2.00
			2	1.00	15.00	0.25	0.50	0.25	1.00
			3	0.50	7.50	0.13	1.50	0.75	6.00
-	-	-	-	-	-	-	-	-	-
continued									
			5	2.00	30.00	0.50	2.50	1.25	2.50
		15	1	0.50	7.50	0.13	10.00	5.00	40.00
		22	1	0.50	7.50	0.13	9.00	4.50	36.00
2006	December	26	1	2.00	30.00	0.50	0.50	0.25	0.50
			2	4.50	67.50	1.13	4.50	2.25	2.00

After getting the data of number of storms, their duration and quantity of rainfall, the whole data was analyzed and the storm intensity was arranged in the increasing order for duration of storm up-to 5 minutes, 5 to 10 minutes, 10 to 20 minutes, 20 to 30 minutes, 30 to 40 minutes, 40 to 50 minutes, 50 to 60 minutes, 60 to 80 minutes, 80 to 100 minutes and 100 to 180 minutes. This is tabulated as shown in table -2

Table -2

Storm Intensity Arranged in Increasing order (Duration of Storm upto 5 min)

Sl. No.	Time (min)	Time (Hrs)	Rainfall in (mm)	Intensity (mm/hr)
1	1.50	0.03	0.50	20.00
2	1.50	0.03	0.50	20.00
3	3.00	0.05	1.00	20.00
4	3.00	0.05	1.00	20.00
5	3.00	0.05	1.00	20.00
----------Continued----------				
56	1.5	0.03	6.10	244.00

Storm Intensity Arranged in Increasing order (Duration of Storm 5 min to 10 min)

Sl. No.	Time (min)	Time (Hrs)	Rainfall in (mm)	Intensity (mm/hr)
1	7.50	0.13	2.50	20.00
2	7.50	0.13	2.50	20.00
3	7.50	0.13	2.50	20.00
4	7.50	0.13	2.50	20.00
5	7.50	0.13	2.50	20.00
----------Continued----------				
167	7.50	0.13	10.00	80.00

Storm Intensity Arranged in Increasing order (Duration of Storm 10 min to 20 min)

Sl. No.	Time (min)	Time (Hrs)	Rainfall in (mm)	Intensity (mm/hr)
1	15.00	0.25	5.00	20.00
2	15.00	0.25	5.00	20.00
3	15.00	0.25	5.00	20.00
4	15.00	0.25	5.00	20.00
5	15.00	0.25	5.00	20.00
----------Continued----------				
201	11.25	0.19	30.00	160.00

Storm Intensity Arranged in Increasing order (Duration of Storm 20 min to 30 min)

Sl. No.	Time (min)	Time (Hrs)	Rainfall in (mm)	Intensity (mm/hr)
1	22.50	0.38	7.50	20.00
2	22.50	0.38	7.50	20.00
3	22.50	0.38	7.50	20.00
4	22.50	0.38	7.50	20.00
5	22.50	0.38	7.50	20.00
----------Continued----------				
151	30.00	0.50	40.00	80.00

Storm Intensity Arranged in Increasing order (Duration of Storm 30 min to 40 min)

Sl. No.	Time (min)	Time (Hrs)	Rainfall in (mm)	Intensity (mm/hr)
1	37.50	0.63	18.25	29.20
2	37.50	0.63	20.00	32.00
3	37.50	0.63	20.00	32.00
4	37.50	0.63	20.00	32.00
5	37.50	0.63	20.00	32.00
----------Continued----------				
12	37.50	0.63	41.00	65.60

Storm Intensity Arranged in Increasing order (Duration of Storm 40 min to 50 min)

Sl. No.	Time (min)	Time (Hrs)	Rainfall in (mm)	Intensity (mm/hr)
1	45.00	0.75	20.00	26.67
2	45.00	0.75	20.00	26.67
3	45.00	0.75	20.00	26.67
4	45.00	0.75	20.00	26.67
5	45.00	0.75	20.00	26.67
----------Continued----------				
10	45.00	0.75	50.00	66.67

Storm Intensity Arranged in Increasing order (Duration of Storm 50 min to 60 min)

Sl. No.	Time (min)	Time (Hrs)	Rainfall in (mm)	Intensity (mm/hr)
1	60.00	1.00	20.00	20.00
2	60.00	1.00	20.00	20.00
3	52.50	0.88	19.50	22.29
4	52.50	0.88	19.50	22.29
5	60.00	1.00	30.00	30.00
----------Continued----------				
25	60.00	1.00	110.00	110.00

Storm Intensity Arranged in Increasing order (Duration of Storm 60 min to 80 min)

Sl. No.	Time (min)	Time (Hrs)	Rainfall in (mm)	Intensity (mm/hr)
1	75.00	1.25	30.00	24.00
2	67.50	1.13	29.75	26.44
3	67.50	1.13	30.00	26.67
4	75.00	1.25	40.00	32.00
5	75.00	1.25	40.00	32.00
6	75.00	1.25	40.00	32.00
----------Continued----------				
12	75.00	1.25	52.00	41.60

Storm Intensity Arranged in Increasing order (Duration of Storm 80 min to 100 min)

Sl. No.	Time (min)	Time (Hrs)	Rainfall in (mm)	Intensity (mm/hr)
1	90.00	1.50	30.00	20.00
2	82.50	1.38	30.00	21.82
3	90.00	1.50	44.50	29.67
4	97.50	1.63	70.00	43.08
5	90.00	1.50	70.00	46.67
----------Continued----------				
8	93.75	1.56	78.50	50.24

Storm Intensity Arranged in Increasing order (Duration of Storm 100 min to 180 min)

Sl. No.	Time (min)	Time (Hrs)	Rainfall in (mm)	Intensity (mm/hr)
1	165.00	2.75	55.00	20.00
2	105.00	1.75	44.00	25.14
3	142.50	2.38	60.00	25.26
4	135.00	2.25	60.00	26.67
5	180.00	3.00	90.00	30.00
----------Continued----------				
8	172.50	2.88	102.00	35.48

On the basis of these data 'Analysis of frequency of storms' for frequency of flooding 'Twice a year', 'once a year' or as needed could be worked out. This is tabulated for frequency once a year, for example, and shown in table -3

Table – 3

FREQUENCY - ONCE A YEAR

Analysis of Frequency of Storms

Duration in minute	Intensity of Storm in mm/hr												
	20	25	30	35	40	45	50	55	60	75	90	120	150
	No. of storms of intensity or more for a period of 23 Year												
5	650	445	356	273	238	111	96	75	69	47	12	9	4
10	594	406	318	240	206	88	75	57	52	35	2	1	1
20	427	287	220	170	149	43	37	24	23	17	2	1	1
30	226	136	96	82	70	35	29	16	15	9	1	0	0
40	75	67	55	41	33	17	12	6	5	2	1	0	0
50	63	55	44	34	28	15	11	5	4	2	1	0	0
60	53	45	39	30	24	13	10	4	3	2	1	0	0
80	28	24	18	12	10	4	1	0	0	0	0	0	0
100	16	13	9	6	5	4	1	0	0	0	0	0	0
120	8	7	4	1	0	0	0	0	0	0	0	0	0

The table -3 is the table which is required for calculation of rainfall intensity in and around Delhi for flooding frequency once a year. Similarly, table for flooding frequency twice a year or once in two years or so can be prepared.

On the basis of this, the Intensity Duration Curve is plotted, as shown in figure – 2.

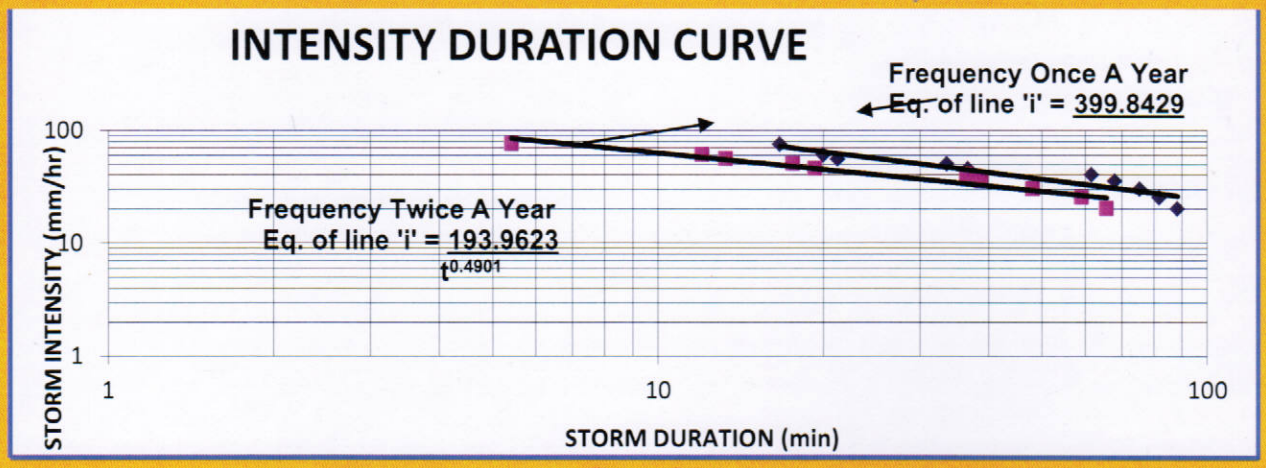


Figure-2

The intensity of rainfall is thus obtained. Thereafter, considering the coefficient of run off and the area of drainage basin (catchment area), the runoff reaching the drain can be calculated using the Rational Method ie Q=10 CiA (Q=runoff in cum/hour, C=coefficient of runoff, i=intensity of rainfall in mm/hour and A=area of drainage basin in hectare.)

This exercise and the method to assess the intensity of rainfall has been recognized by the CPHEEO, Ministry of Urban Development, Government of India

Ram Mohan Kant
Life Fellow Member (0029)
Retd. Chief Engineer
U.P Jal Nigam

FUNDAMENTAL DUTIES OF INDIAN CITIZENS

By Er. C.K. TYAGI
Life Fellow, IWE(India)

Most of us know that we, the citizens of India, have been provided with so many fundamental rights by our constitution. These fundamental rights cannot be waived because these rights are kept in Part-III of the Constitution, not only for the benefit of the Individual, but as a matter of policy and in public interest. This part of the constitution consists of 26 articles, which can be divided into 6 sub heads, namely right to equality, right to freedom, right against exploitation, right to freedom of religion, cultural and educational rights and right to constitutional remedies. These fundamental rights are the backbone of our constitution, because these are essential for the attainment of full intellectual, moral and spiritual individual status for we, the people of india. Most of us are aware, alert and vigilant towards our fundamental rights provided by the constitution.

The rights and duties are correlative with each other for the proper functioning of any system, but somehow the framers of our constitution omitted and did not prescribe or define any fundamental duties for the citizens of India. This omission was rectified by the State through Constitution 42nd amendment Act, 1976. This constitution amendment act is now Part IV-A of the Indian Constitution.

According to newly and singly added Art. 51-Ain Part IV-A of our Constitution, the following are the fundamental duties of the citizens of India –

a) To abide by the Constitution and respect its ideals and institutions, the National Flag and the National Anthem.
b) To cherish and follow the noble ideals, which inspired our national struggle for freedom.
c) To uphold and protect the sovereignty, unity and integrity of India.
d) To defend the country and render national service, when called upon to do so.
e) To promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic and regional or sectional diversities, to renounce practices derogatory to the dignity of the women.
f) To value and preserve the rich heritage of our composite culture.
g) To protect and improve the natural environment including forests, lakes, rivers, wild-life, and to have compassion for living creatures.
h) To develop the scientific temper, humanism and spirit and inquiry and reform.
i) To safeguard public property and abjure violence.

j) To strive towards excellence in all spheres of individual and collective activity, so that the nation constantly rises to higher levels of endeavor and achievement.

k) Who is a parent or guardian to provide opportunities for education to his child or, as the case may be, ward between the age of six and fourteen years.

It is to be noted that the fundamental duties have been incorporated in the Constitution to remind every citizen that they should not only be conscious of their rights but also of their duties, since the rights and duties are correlative with each other, hence while the Constitution specifically conferred on them certain fundamental rights, it also requires citizens to observe certain basic norms of democratic conduct and democratic behavior. These fundamental duties are the duties of the individual citizens. In ancient India the performance of one's duties has been traditional, Since time immemorial, the emphasis in Indian Society in accordance with the dictates of the ancient scriptures has been in the individual's **"Kartavya"**, this is, performance of one's duties towards society, the country and especially towards one's parents. The Gita and the Ramayana enjoin people to perform their duties without caring for their rights or (fruits).

These traditional duties have now been accorded constitutional sanction. So now, if one takes care to see, he will discover in the Constitution not only his rights but also his duties towards society and the Nation.

So as important stakeholders and responsible citizens of India, let us pledge to be more sensitive towards the wellbeing of our Nation and act according to the duties defined for us in the constitution of India, so that we collectively are able to make a better and greater India for our generations to come.

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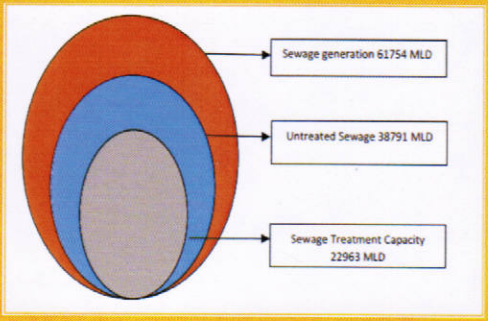
Efficiency and reliability of domestic waste water treatment

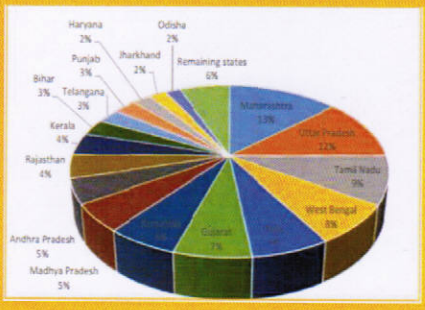
BY

Ravi Rastogi,(B.Tech. Civil Eng. FIE, LFIWE)

GENERAL

70% population of India lives in semi-Rural, Rural and small hamlets while 30% lives in class-1,2,3 and small towns. Total and State wise sewage generation from the urban sector has been shown in the following graphs:





(ENVIS MOEF, GoI)

Total sewage generation from urban area in the country is 61754 MLD. Out of which 37%(22963 MLD is being treated through 920 STPs and remaining 63% (38791 MLD sewage remains untreated and which is polluting surface water and is also responsible to spread many diseases as well as foul environment in various pockets of a city. Poor SWM / open defecation has further increased the poor sanitation in our cities.

State wise generation show that Maharashtra (13%), U.P. (12%), Tamil Nadu (9%), West Bengal (8%), Delhi and Gujrat (7% each) only produce 56% of sewage generated /day in the country. Rest states produce only 44% of total sewage. The on-going scenario of pollution has put our Governments in pressure as a large amount is required for the development of infrastructure to handle the day by day worsening situation. Appreciable steps have been taken by GoI by launching Swach Bharat Abhiyan to stop open defecation by providing public toilets, awakening urban masses for keeping their environment clean and providing funds to local bodies for developing infrastructure for a better SWM.The need of hour is to operate the available infrastructure efficiently. The city wise monitoring committees should become active to look after to look after the benefits to the citizens of the city who are the real stakeholders.

In addition to the domestic waste 764 industrial units are producing 501 MLD Industrial waste. A total 193 CETPs are installed in various States.

From the above it is clear that a lot need to be done by our Governments in future to provide sewerage network for door to door collection and sewage treatment. In entire urban as well as semi urban area (An area adjacent to a city's Municipal limits). The Government of India has already started the concept of Smart cities all over the country. A heavy budget is to be allocated for providing sewerage infra-structure in remaining cities and for strengthening in cities already having this facility which has become inadequate due to the population increase.

It is in this context that as an Engineer we should work with a long vision and propose an efficient /Reliable sewage treatment technology, keeping in mind the part of the country and habits of the residents of a particular city. The basic purpose should be to completely stop pollution of surface water and 100% improvement in the Environment of every part of the city.

Sewerage projects should include provision of a high class of public toilets, no matter they are located in area of the city where poor people live. These public toilets be provided with shallow wells so as to have their own arrangement of water. Where this is not possible 24 hours municipal water should be made available. The cost of public toilets should not be the criteria, rather such provisions to keep them usable, clean should be the criteria to make their full use. For companies manufacturing toilet goods or creams/ oils for human beings it should be made mandatory to donate funds directly to the city sanitation monitoring committees nominated out of the known residents like Doctors/ social workers/

public representatives/ people from education field etc. by the District Magistrate. Every public toilet should be provided with mechanical means of cleaning like jets may be provided for intermittent cleaning per day . Similarly audio visual system may be provided for educating the stakeholders for using the services and for advertisement of companies engaged in the field of manufacturing toilet goods. This will result in zero budget from the local bodies and the Government to maintain these public toilets and open defecation which is a shame for the country can be completely stopped. The location /architectural and surroundings of a public toilet in the city should be developed to give an impressive look.

WASTE WATER TREATMENT

A clean solution

Water is our number-one resource. Highly efficient wastewater treatment plants are essential for improving the water quality of our rivers, lakes and oceans and increasing the extremely small proportion of usable water. Above all, energy-intensive, complex wastewater treatment calls for energy-efficient, environmentally friendly and straight forward operations management of all areas of the plant. Whether we are planning new construction or modernization, use of hardware and software systems, comprehensive services and specialized expertise – for an efficient, sustainable waste water industry is essential..

Clean water through high technology.

The level of contamination of domestic and industrial wastewater differs greatly chemically, biologically and with regard to solid matter. This makes reprocessing extremely costly and time-consuming. As a planner and operator, our challenge is to design and operate a plant that is both economical and fit for the future. Comprehensive range of products and individual solutions should be explored.

Digitalization of the wastewater industry

The wastewater industry of the future is smart and energy-efficient. Intelligent, interconnected systems help increase energy efficiency and minimize resource consumption. The key components of Water are digitalized solutions that optimally complement our proven automation and drive technology. They help generate and make available data relevant for the water industry and provide fact-based data analysis – throughout the entire lifecycle.

Protect plants against unauthorized access

Modern water and wastewater plants are generally connected to the Internet for monitoring and control purposes. Although this provides greater transparency and flexibility, it also involves certain risks: Processes that were previously protected are now exposed to attacks from cyberspace. With our defence in Depth concept, we have to protect our plant on three levels: plant security (for example, access control), network security (for example, using firewalls) and system integrity (for example, by authenticating and authorizing specific users). Thus holistic approach will protects the plant against unwanted access.

Efficient energy management in the wastewater industry

Energy consumption represents one of the biggest cost factors in water and wastewater plants. the identification and elimination of energy guzzlers is therefore one of the central challenges to optimizing a plant. Transparency in terms of energy demand and to significantly reduce costs, there include the scalable cross-location SIMATIC Energy Manager PRO energy management solution, which operates on three levels: With energy monitoring and controlling, steps can be taken to increase efficiency; contract analyses and energy forecasts enable the purchase of energy at a lower cost; and energy management can be simplified, for example, through flexible reporting.

Products, solutions, and services throughout the entire plant lifecycle

The parallelization and automation of work processes, their simplification and standardization, as well as digitalization and electrification are all important factors for improving the efficiency of a waste water treatment plant. Competing in the international market requires constant innovative strength and efficiency as well as increased productivity and quality – throughout the entire plant lifecycle With integrated plant management.

Thus by following a modern approach for design of a waste water plant with predictive maintenance for optimal operation and minimum downtime has become essential.

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