

**Steps to Conserve the Water Quality
of
River Ganga
(Upto Kanpur)
2016-17**



**UP Pollution Control Board
TC-12V, Vibhuti Khand, Gomti Nagar, Lucknow**

31-08-2016

Steps taken in U.P. for overall improvement of Ganga river water quality as on 31-08-2016.

River Ganga enters in U.P. in District Bijnor and after passing through major districts Meerut, Hapur, Bulandshahar, Aligarh, Kanpur Allahabad, Varanasi, Balia, it goes to Bihar onwards. Hon'ble National Green Tribunal, New Delhi is also monitoring the progress of improvement of river Ganga in Phased manner. Steps taken to improve river Ganga water quality are as follows :

Grossly Polluting Industries (GPI) in U.P. **(upto Kanpur)**

- Total GPI 746
- Operational Units 564
- Self Closed 81
- Closed by Board 101

All operational units have either installed their own ETP or member of CETP.

Riverwise breakup of Grossly Polluting Industries upto Kanpur is as follows

Name of River	No. of Operational Units	E.T.P. installed/member of CETP	Discharge (MLD)
Ganga	453	453	121.04
Ram Ganga	35	35	30.31
Kali East	76	76	52.93
Total	564	564	204.28

Regarding Action Plan for 05 Sector Grossly Polluting Industries **(upto Kanpur)**

Pulp & Paper units:-

➤ Total units-	35
➤ ETP installed in all Operational units-	30
➤ Self Closed-	03
➤ Closed by Board	02

Agro waste based units which generate black liquor have installed Chemical Recovery Plant (CRP). All paper units have submitted action plan for reduction of water consumption and effluent discharge.

Action Point

- 1- As per charter black liquor discharge should be stopped, CRP should be installed and ZLD should be achieved for black liquor.
- 2- Action plan for achieving time bound reduction with respect to prescribed fresh water requirement, effluent generation and treated effluent quality norms. This action plan should be approved through CPPRI and other institute and submitted to SPCB/CPCB.
- 3- Commissioning of continuous online effluent monitoring system.

Sugar Units:-

➤ Total units	59
➤ ETP installed in all Operational units-	47
➤ Self Closed-	11
➤ Closed by Board	01

Sugar units have been directed to recycle the treated waste water in the process and use remaining treated waste water for irrigation purposes.

Action Point

- 1- Establishment of cooling arrangement and polishing tank for recycling the excess condensate water to process or utilities or allied units.
- 2- Effluent Treatment Plant to be stabilized one month prior to the start of the crushing season and continue to operate one month after the crushing season.
- 3- During no demand period for irrigation, the treated effluent to be stored in a seepage proof lined pond having 15 days holding capacity only.
- 4- Flow meter to be installed in all water abstraction points and usage of fresh water to be minimized.
- 5- Suitable Air pollution control devices to be installed to meet the particulate matter emission standard.
- 6- Final treated effluent discharge restricted to 100 litre per tonne of cane crushed and Waste water from spray pond overflow or cooling tower blow down to be restricted to 100 litre per tonne of cane crushed and only single outlet point from unit is allowed
- 7- Installation of continuous online effluent monitoring system.

Distilleries & Fermentation Units:-

➤ Total units-	27
➤ Operational -	21
➤ Self Closed -	04
➤ Closed by Board/NGT-	02
• MEE, RO, Inceneration Boiler and Bio Composting-	03
• MEE, Incineration Boiler and Bio Composting-	01
• MEE and Inceneration Boiler -	01
• RO, MEE and Bio Composting-	09
• RO and Bio Composting-	05
• MEE and Bio Composting-	04
• Only Bio Composting-	03
• RO (Only bottling without distillation)-	01

All the distilleries are achieving ZLD of Spent Wash. by installing technology comprising of combination of MEE, RO, Incineration Boiler and Bio Composting.

Action Point

- 1- Installing systems for volume reduction of spent wash by RO and MEE or MEE.
- 2- Adopting advanced process technology for reduction of spent wash to 6-8 Kl/Kl of alcohol produced.
- 3- Achieving ZLD.
- 4- Installation of Web Camera at strategic points.

Textile Units:-

➤ Total units-	155
➤ ETP installed in all Operational units-	103
➤ Self Closed-	37
➤ Closed by Board	15

(* Total units having discharge more than or equal to 25 KLD are 18 with complete ETP)

Action Point

- 1- All small scale units having discharge more than 25 KLD have been directed to install Online Effluent Quality Monitoring System and discharge treated effluent for irrigation purpose.
- 2- All Large and Medium scale units having more than 25 KLD discharge have been directed to install ZLD system by December 2016 and also install Web Camera at strategic points.
- 3- All small scale units having discharge less than 25 KLD have been directed to achieve effluent quality standard by conventional treatment and discharge treated effluent for irrigation purpose.

Tannery Units:-

➤ Total units-	413
➤ ETP installed-	15
➤ PETP installed & member of CETP-	398
➤ Total tannery CETPs-	03

Action Point

1- CETP should submit proposal for ZLD and install online effluent monitoring system.

Note- 361 units are member of CETP Jajmau.

02 units have own ETP in Kanpur.

14 units are member of CETP Site-II, Ind. Area Unnao.

23 units are member of CETP Banthar, Unnao.

11 units have own ETP in Unnao(8 in operation+03 Self closed)

02 units have own ETP in Meerut. (02 Self closed)

- There are 3 CETPs operational in the state of UP, 01 at Jajmau, Kanpur, 01 at Banthar and 01 at site-2, industrial area, Unnao. All these 03 CETPs have installed online effluent monitoring system. Board is regularly monitoring the CETPs .
- Board has issued direction U/s 33-A of Water (Prevention and Control of Pollution) Act 1974 to CETP, Banthar and Site-II industrial area Unnao for upgradation and effective operation of CETP to achieve ZLD vide letter dated 01-01-2016. CETP operator has submitted long term action plan consisting of bio augmentation of conveyance system and modification of CETP.
- In case of CETP Jajmau, it has been decided in the meeting chaired by Chief Secretary, U.P. on 06-04-2016 that CETP of 25 MLD (20 MLD tannery effluent and 5 MLD inseparable domestic effluent) will be installed at Jajmau Kanpur. This treated effluent will be mixed with treated domestic sewage in a ratio of 1:10 and this mixed treated effluent will be used for irrigation purpose.

Regarding Seriously Polluting Industries (SPI)

(upto Kanpur)

- Total 1072
- Self Closed 155
- Closed by Board 185
- Operational Units 732
- *All GPI units are covered in SPI list.*

All operational units have either installed their own ETP or member of CETP.

**Regarding Action Plan for 05 Sector Seriously
Polluting Industries
(upto Kanpur)**

Pulp & Paper units:-

➤ Total units-	41
➤ ETP installed in all Operational units-	31
➤ Self Closed-	08
➤ Closed by Board	02

Agro waste based units which generate black liquor have installed Chemical Recovery Plant (CRP). All paper units have submitted action plan for reduction of water consumption and effluent discharge.

Action Point

- 1- As per charter black liquor discharge should be stopped, CRP should be installed and ZLD should be achieved for black liquor.
- 2- Action plan for achieving time bound reduction with respect to prescribed fresh water requirement, effluent generation and treated effluent quality norms. This action plan should be approved through CPPRI and other institute and submitted to SPCB/CPCB.
- 3- Commissioning of continuous online effluent monitoring system.

Sugar Units:-

➤ Total units	62
➤ ETP installed in all Operational units-	47
➤ Self Closed-	14
➤ Closed by Board	01

Sugar units have been directed to recycle the treated waste water in the process and use remaining treated waste water for irrigation purposes.

Action Point

- 1- Establishment of cooling arrangement and polishing tank for recycling the excess condensate water to process or utilities or allied units.
- 2- Effluent Treatment Plant to be stabilized one month prior to the start of the crushing season and continue to operate one month after the crushing season.
- 3- During no demand period for irrigation, the treated effluent to be stored in a seepage proof lined pond having 15 days holding capacity only.
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Action Point

- 1- Installing systems for volume reduction of spent wash by RO and MEE or MEE.
- 2- Adopting advanced process technology for reduction of spent wash to 6-8 Kl/Kl of alcohol produced.
- 3- Achieving ZLD.
- 4- Installation of Web Camera at strategic points.

Textile Units:-

➤ Total units-	174
➤ ETP installed in all Operational units-	115
➤ Self Closed-	40
➤ Closed by Board	19

(* Total units having discharge more than or equal to 25 KLD are 18 with complete ETP)

Action Point

- 1- All small scale units having discharge more than 25 KLD have been directed to install Online Effluent Quality Monitoring System and discharge treated effluent for irrigation purpose.
- 2- All Large and Medium scale units having more than 25 KLD discharge have been directed to install ZLD system by December 2016 and also install Web Camera at strategic points.
- 3- All small scale units have having discharge less than 25 KLD have been directed to achieve effluent quality standard by conventional treatment and discharge treated effluent for irrigation purpose.

Tannery Units:-

➤ Total units-	452
➤ ETP installed-	15
➤ PETP & member of CETP-	437
➤ Total tannery CETPs-	03

Action Point

1- CETP should submit proposal for ZLD and install online effluent monitoring system.

Note- 400 units are member of CETP Jajmau.

02 units have own ETP in Kanpur.

14 units are member of CETP Site-II, Ind. Area Unnao.

23 units are member of CETP Banthar, Unnao.

11 units have own ETP in Unnao(8 in operation + 3self closed)

02 units have own ETP in Meerut. (02 Self closed)

- There are 3 CETPs operational in the state of UP, 01 at Jajmau, Kanpur, 01 at Banthar and 01 at site-2, industrial area, Unnao. All these 03 CETPs have installed online effluent monitoring system. Board is regularly monitoring the CETPs .
- Board has issued direction U/s 33-A of Water (Prevention and Control of Pollution) Act 1974 to CETP, Banthar and Site-II industrial area Unnao for upgradation and effective operation of CETP to achieve ZLD vide letter dated 01-01-2016. CETP operator has submitted long term action plan consisting of bio augmentation of conveyance system and modification of CETP.
- In case of CETP Jajmau, it has been decided in the meeting chaired by Chief Secretary, U.P. on 06-04-2016 that CETP of 25 MLD (20 MLD tannery effluent and 5 MLD inseparable domestic effluent) will be installed at Jajmau Kanpur. This treated effluent will be mixed with treated domestic sewage in a ratio of 1:10 and this mixed treated effluent will be used for irrigation purpose.

Report on Ganga River Water Quality Monitoring

Average values for the year 2015 are as follows:-

- UPPCB is monitoring river Ganga at 24 points in U.P.
- U/s Kanpur Ganga water having BOD 2.93 mg/l, DO 8.38 mg/l and coliform 5200 MPN/100ml. (fit for outdoor bathing).
- D/s Kanpur Ganga water having BOD 5.52 mg/l, DO 6.51 mg/l, coliform 56500 MPN/100ml.(fit for irrigation).
- Comparative values 03 years and for 10 years depicts slight improvement in terms of DO and BOD. At few points increase in coliform level.
- Dolphin count has improved due to improvement in Ganga river quality.

Water Quality of River Ganga in UP **Year 2016 (January to July)**

The **Ganga River** is a trans-boundary river of Asia which flows through the nations of India and Bangladesh. The 2,525 km river rises in the western Himalayas in the Indian state Uttaranchal, and flows south and east through the Gangetic Plain of North India into Bangladesh, where it empties into the Bay of Bengal. It is the third largest river by discharge.

Uttar Pradesh Pollution Control Board has been continuously conducting water monitoring of River Ganga at 21 sampling points in UP under National Water Quality Monitoring Programme(NWMP) and 03 sampling points through Boards own resources. These sampling stations are located at Bijnore,Muzaffarnagar, Ghaziabad, Bulandshahar, Badaun, Farrukhabad, Kannauj, Kanpur, Raibareli, Kaushambi, Allahabad, Mirzapur and Varanasi.

Average data of Dissolved Oxygen (D.O.), Biochemical Oxygen Demand (B.O.D.) and Total Coliform (T.C.) obtained from water quality monitoring during 2016 (Jan to May) indicates that :-

- Water Quality Of River Ganga at U/S Near Railway Bridge Gangaghat Balawali and D/S Near Village Rasolpur

Bhawar, Amroha a/c with Chhuuiya River - Bijnore falls under category –A.(Drinking Water Source without conventional treatment but after disinfection.)

- Water Quatity Of River Ganga at Shukratal-Muzaffarnagar and Ghatiya Ghat- Farrukhabad falls under category –B(Outdoor Bathing).
- Water Quatity Of River Ganga at D/s Brij Ghat Garhmukteshwar, U/s & D/s Annapshahar-Bulandshahar, Kachhla Ghat-Badaun, Bithoor-Kanpur, U/s & D/s Mirzapur falls under category-C(Drinking Water Source with conventional treatment and after disinfection).
- Water Quatity Of River Ganga at Rajghat, D/s Narora, U/s & D/s Kannauj, U/s & D/s Kanpur, Dalmau- Raibareli, Kala Kankar-Pratapgarh, Kada Ghat- Kaushambi U/s & D/s Allahabad, U/s & D/s Varanasi and Tarighat D/s Ghazipur falls under category-D(Fish Culture and wild life propagation).
- River water was found most polluted at Kanpur downstream & least polluted at Bijnore.

Report on Ramganga River Water Quality Monitoring

Average values for the year 2015 are as follows:-

- UPPCB is monitoring river Ram Ganga at 06 points in U.P.
- U/s at Moradabad Ram Ganga water having BOD 3.4 mg/l, DO 6.3 mg/l, coliform 29200 MPN/100ml. (fit for irrigation purposes).
- D/s at Moradabad after meeting Dhela river from Kashipur Uttarakhand and drains of Moradabad city Ram Ganga having BOD 8.72 mg/l, DO 3.4mg/l, coliform 8,74,400 MPN/100ml.(fit for irrigation).
- D/s at Rampur after meeting Dhela river from Kashipur Uttarakhand and drains of Moradabad city at Moradabad and Kosi river from Kashipur Uttarakhand and drains of Rampur in Ramganga having BOD 8.9 mg/l, DO 4.1 mg/l, coliform 72,555 MPN/ 100ml.(fit for irrigation).
 - At Moradabad and Rampur water is fit for irrigation purposes.
 - At remaining 04 locations water is fit for fish propagation.

Status of Water Quality of River Ramganga in Uttar Pradesh **Year 2016 (Jan - July)**

- The River Ramganga originates from Paudi Garhwal of Uttarakhand and finally meets in River Ganga at Kannauj. During its course it flows through Moradabad, Rampur, Bareilly and Shahjahanpur.
- Uttar Pradesh Pollution Control Board has been continuously conducting water quality of River Ramganga through Boards own resources at 05 stations and at 01 station under National Water Quality Monitoring Programme.
- These sampling points are located in Moradabad, Rampur, Bareilly, Shahjahanpur and Kannauj district.
- Average data of Dissolved Oxygen (DO), Biochemical Oxygen Demand (BOD) and Total Coliform (TC) values obtained from Water Quality Monitoring during 2016 (Jan - July) indicates that-Water quality at almost all sampling stations falls under category-D.

Report on Kali (East) River Water Quality **Monitoring**

Average values for the year 2015 are as follows:-

- UPPCB is monitoring river Kali (East) at 10 points in U.P.
- River is dry just after origin point at Daurala, Lawar Road, Meerut.
- U/s Kannauj just before meeting river Ganga having BOD 4.2 mg/l, DO 7.2 mg/l and coliform 4533 MPN/100ml.
- At remaining 08 locations from Meerut to Kannauj due to low values of DO (below 4mg/l) water quality is suitable only for irrigation purposes.

Status of water quality of River Kali (East) in U.P.

Year-2016 (January to July)

- River Kali (East) is a tributary of River Ganga. River Kali originates from Antwada village of Muzaffarnagar and passes through Meerut, Bulandshahar, Aligarh, flows approximately 500 Km and finally meets river Ganga near Madhopur village at Kannauj. Initially river flows like a small drain with water from seepage and natural resources, with minimum water and flourish only in rainy season.
- UPPCB is monitoring River Kali at station under NWMP and at 10 stations through Board resources, monthly.
- These sampling stations are located in Meerut, Ghaziabad, Bulandshahar, Aligarh, Kasganj and Kannauj district.
- Result obtained during 2016 (Jan to July) water quality Monitoring through Board indicates :-
 - According to D.O., B.O.D. and T.C. values water quality at Daurala-Lawar road, Meerut and U/S Kannauj is suitable for fish propagation and irrigation purposes only.
 - At remaining 08 monitoring stations, Saini Mawana Road, Garh Road Meerut, Kharkhoda, Parikshit-Garh Road Meerut, Babugarh Ghaziabad, Devipura, Bulandshahar, Mohan Kuteer Bulandshahar, Ramghat Road (Before Bridge), Atrauli Aligarh and Nadrai gate, Kasganj, water quality is suitable for irrigation purposes.
 - Total Coliform Bacteria are found in large concentration due to discharge of urban sewage and domestic waste.

Status of water quality of River Kosi in Uttar Pradesh

Year 2016 (January to May)

- Kosi River flows through Ramnagar of Uttarakhand region and travels under Moradabad –Bareilly Highway (NH-24) and finally meets Ramganga in Tahseel Shahabad at upstream Ramganga River.
- The total stretch of River Kosi is approximate 44 Kms. In Rampur.
- U.P. Pollution Control Board has been regularatory monitoring one sampling station monthly.
- Average data of River Kosi Year 2016 (January to May) indicates that river is polluted. River falls under Category-D.

Status of water quality of River Dhela in Uttar Pradesh

Year 2016 (January to May)

- Dhela River flows through Kashipur region of Uttarakhand and enter into Uttar Pradesh at Tehseel Thakurdwara, Moradabad at Merges upstream of Ramganga River at Moradabad city.
- Untreated sewage & domestic water of city and effluents of various industries are discharged into river Dhela.
- Dhela River travels approximate 34 Kms. In Moradabad city.
- U.P. Pollution Control Board has been regularatory monitoring one sampling station monthly.
- Average data of River Dhela Year 2016 (January to May) indicates that river is polluted. River falls under Category-D.

Regarding- CETP Jajmau Kanpur

- For **tanneries at Jajmau, Kanpur** upgradation and modification of CETP is proposed and its DPR is being prepared by CLRI Chennai. District Administration has physically surveyed all the tanneries of Jajmau, Kanpur from 03-11-15 to 07-11-15 and its report has been compiled. It has been decided in the meeting chaired by Chief Secretary, U.P. on 06-04-2016 that CETP of 25 MLD (20 MLD tannery effluent and 5 MLD inseparable domestic effluent) will be installed at Jajmau Kanpur. This treated effluent will be mixed with treated domestic sewage in a ratio of 1:10 and this mixed treated effluent will be used for irrigation purpose.
- At present out of 400 tannery units at Jajmau, Kanpur 271 are operational, 42 are self closed and rest 87 are closed by Board. Electro Magnetic Flow Meters have been installed at water source and PETP outlet in operating 264 units.

Regarding- CETP in Uttar Pradesh

- In the State of U.P. 5 CETPs for cluster of industries are operational. 2 CETPs are for textile sector and 3 CETPs are for tannery sector. Brief Status is as follows

S.N	Name of CETP	Sector	Capacity	ETP Status
1	CETP Industrial Area, Site-A, Mathura	Textile	6.25 MLD	Achieving Norms
2	Appral Park Tronica City, CETP, Phase-I, Ghaziabad	Textile	4 MLD	Not Achieving Norms
3	CETP Jajmau, Kanpur	Tannery	36 MLD	Not Achieving Norms
4	Banthar Industrial Pollution Control Company, CETP Banthar, Unnao	Tannery	4.5 MLD	Not Achieving Norms
5	Unnao Tanneries Pollution Control Company, Site-2, Unnao	Tannery Sector	2.15 MLD	Not Achieving Norms

Beside above 3 CETPs for Textile sector and 1 CETP for brassware units are constructed but not commissioned due to various reasons and one CETP for Textile Sector is proposed.

Municipal Solid Waste Status in U.P. **(upto Kanpur)**

- | | |
|--|----------------------|
| ➤ Total Nagar Nigam/Nagar Palika Parishad/ Nagar Panchayat :- | 31 |
| ➤ Total M.S.W. Generation :- | 3363 MTD |
| ➤ Treatment facility installed for:- (Kanpur Nagar, Moradabad & Kannauj) | 1825 MTD |
| ➤ At present operational :- | 01 |
| | (in Kannauj -25 MTD) |

Local bodies existing on the bank of river Ganga and its tributaries (31 towns) have been issued notices dated 19-11-15, 16-12-15, 26-02-16 & 04-04-16 to comply MSW rule 2000 with time bound action plan.

Regarding Ban on Plastic (Polythene)

- Complete ban is Notified vide notification dated 22.12.2015 banning manufacturing, transportation, import, and its sale and uses, which is effective from 21-01-2016. 78 plastic carry bags manufacturing units are identified in U.P. with capacity of 391 MTA. These units are being checked by Board to ensure strict compliance of Plastic notification dated 22-12-2015. Principal Secretary, Environment has given directions to all District Magistrates vide letter dated 22.12.15 and 25.02.16 for effective implementation of above notification through Govt. agencies. District level committee have been constituted by respective DMs for awareness and confiscating the illegal sale, use and manufacturing of plastic carry bags. These committees have till now confiscated 14 Ton and 3 trucks carry bags and collected penalty of Rs. 4,08,500.

- Ministry of Environment, Forest and Climate Change Government of India has notified the Plastic Waste Management Rules, 2016, regarding management of plastic waste by banning manufacturing of plastic carry bags having thickness less than 50 micron vide notification dated 18 March 2016.
- Earlier notification was also issued on dt. 02-02-2011 to ban use and sale of polythene within 2 KM radius from mid streams of Ganga and notification issued on 08-10-2012 to ban use and sale of polythene in Allahabad.

Suggestions to improve water quality of river Ganga

- 1- It has been observed that except rainy season flow in Ganga river in the down stream of Narora Barrage, District Bulandshahar remains very low, due to diversion of Ganga water into various canals in the upstreams of Narora. There is extreme need to maintain optimum flow regularly in river Ganga in the down stream of Narora Barrage.
- 2- To tap all the drains joining river Ganga and construction of STP to treat upto the standards prescribed by CPCB. After treatment this treated water should be recycled for horticulture/irrigation, for washing in Bus Depot and Locomotive sheds, in new construction activities.
- 3- The CETP at Jajmau, Unnao and Banthar should be upgraded to meet the new standard prescribed vide notification dated 01-01-2016 for Fixed Dissolved Solids (FDS) and Chromium at first instance within 12 months and followed by tertiary treatment (may be Reverse Osmosis/Evaporation).
- 4- Continuous online monitoring system/Web camera should be installed in all large & medium Grossly Polluting Industries, especially in 5 sector of Sugar, Pulp & Paper, Distillery, Textile, and Tannery units.
- 5- In 5 Sector of industries i.e. Sugar, Pulp & Paper, Distillery, Textile, and Tannery units action should be taken for reduction

of water consumption mentioned in charter prepared by Central Pollution Control Board.

- 6- All the Group Housing Projects should install their separate STP for sewage treatment and this treated water should be recycled in flushing, Horticulture & dust suppression etc.
- 7- Continuous Effluent Quality Monitoring Station should be developed with online data submission arrangement to CPCB/SPCB at major confluence point of two rivers on upstream and downstream side.
- 8- River front development project should be encouraged in major cities and towns on both banks of river so that no drain directly meets river. These drains should be diverted on downstream of major town and STP should be constructed at end point. The treated effluent should be used for irrigation and other suitable purposes.
- 9- Irrigation department should come out with proposals so that sufficient amount of water is available in the river throughout the year. Irrigation pattern should be adopted in such manner that wastage of water could be minimized.
