

केवल सरकारी प्रयोग हेतु
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जल गुणवत्ता आँकड़े
वर्ष पुस्तिका
जून-2017 से मई-2018
(गोमती बेसिन)

WATER QUALITY DATA
YEAR BOOK
JUNE-2017 TO MAY-2018
(GOMTI BASIN)



केन्द्रीय जल आयोग
जल विज्ञानीय प्रेक्षण परिमंडल
देहरादून

CENTRAL WATER COMMISSION
HYDROLOGICAL OBSERVATION CIRCLE
DEHRADUN

केवल सरकारी प्रयोग हेतु

गोमती बेसिन

जल गुणवत्ता आँकड़े वर्ष पुस्तिका

जून-2017 से मई-2018

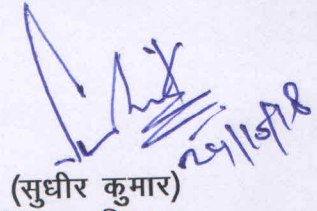
केन्द्रीय जल आयोग
जल विज्ञानीय प्रेक्षण परिमंडल
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प्रस्तावना

सदियों से भारत की नदियाँ इस देश की आस्था और संस्कृति के किनारों को स्पर्श कर प्रवाहित होती रही हैं तथा उत्थान और पतन के क्रम में उलझी मानव सभ्यता के विकास की मूक साक्षी रही हैं। इनमें से ही एक नदी है गोमती, जोकि गंगा की प्रमुख सहायक नदियों में से एक है। समय के साथ-साथ मानव का जीवन जटिल हुआ है, कुछ आवास और रोजगार की सतत मांग के कारण तो कुछ भौतिक आवश्यकताओं में निरन्तर वृद्धि के कारण शहरीकरण और औद्योगीकरण की गति तीव्र हुई है। दुर्भाग्यवश मनुष्य की प्रगति और प्रकृति के अपरिहार्य संरक्षण में सामंजस्य नहीं रह पाया है और नदियों व जल स्रोतों का प्रदूषण एक विकराल समस्या बनकर हमें चुनौती दे रहा है। ज्ञान और शिक्षा के प्रसार से प्राकृतिक संसाधनों के विवेकपूर्ण दोहन की आवश्यकता महसूस हुई है। उपलब्ध जल स्रोतों और नदियों पर एक वैज्ञानिक सूझ भरी निगरानी हमें न केवल आसन्न खतरों की चेतावनी देती है, वरन् जल की उपादेयता और गुणवत्ता पर भी कभी हताश तो कभी उत्साहित परन्तु सदैव उपयोगी टिप्पणी करती है। नदियों के गुणवत्ता के आँकड़ों का प्रेक्षण, संकलन और विश्लेषण भी इसी जागरूक प्रयास का एक आवश्यक पहलू है। अच्छी गुणवत्ता वाले जल की माँग में जबरदस्त वृद्धि के कारण यह आवश्यक हो गया है कि जल की गुणवत्ता का प्रबोधन एवं प्रबन्धन किया जाए। जल की गुणवत्ता के आँकड़े का समुचित विश्लेषण प्रबन्धन एवं मूल्यांकन सुनियोजित जल गुणवत्ता प्रबोधन कार्यक्रम का एक महत्वपूर्ण घटक है। भारतवर्ष में सभी प्रमुख नदियों एवं उनकी सहायक नदियों के जल गुणवत्ता आँकड़ों का एकत्रीकरण, विश्लेषण, मूल्यांकन एवं संकलन जैसा महत्वपूर्ण कार्य केन्द्रीय जल आयोग द्वारा इसके क्षेत्र-स्थलों एवं विभिन्न प्रयोगशालाओं के नेटवर्क के माध्यम से निष्पादित किया जा रहा है।

जल गुणवत्ता आँकड़े वर्ष पुस्तिका, 2017-2018 के वर्तमान अंक में जून-2017 से मई-2018 तक की अवधि हेतु गोमती बेसिन के जल के "भौतिक, रासायनिक एवं जैविक अभिलक्षणों" का संकलन किया गया है।

यह आशा की जाती है कि यह अंक गोमती बेसिन के जल गुणवत्ता प्रबोधन से जुड़े वैज्ञानिकों, अभियन्ताओं एवं पर्यावरणविदों के लिए लाभदायक सिद्ध होगा।



(सुधीर कुमार)

अधीक्षण अभियन्ता

जल विज्ञानीय प्रेक्षण परिमंडल

देहरादून

अभिस्वीकृति

जल गुणवत्ता आँकड़े वर्ष पुस्तिका, 2017-2018 का यह प्रकाशन ऊपरी गंगा बेसिन में जल विज्ञानीय एवं जल-मौसम विज्ञानीय प्रेक्षणों पर कार्यरत केन्द्रीय जल आयोग के अनेक अभियन्ताओं तथा वैज्ञानिकों के अथक एवं समर्पित प्रयासों की देन है। केन्द्रीय जल आयोग के जल विज्ञानीय प्रेक्षण परिमण्डल, देहरादून व इसके अधीनस्थ मध्य गंगा मण्डल- द्वितीय, लखनऊ तथा जल विज्ञानीय प्रेक्षण परिमण्डल, वाराणसी व इसके अधीनस्थ मध्य गंगा मण्डल- तृतीय, वाराणसी एवं इनके अधीनस्थ सम्बन्धित उपमण्डलों तथा क्षेत्र-स्थलों पर कार्यरत समस्त अधिकारी एवं कर्मचारी आँकड़ों के एकत्रीकरण व संकलन में अपने समर्पण एवं सहयोग के लिये प्रशंसा के पात्र है।

ऊपरी गंगा बेसिन संगठन, केन्द्रीय जल आयोग, लखनऊ के मुख्य अभियन्ता, श्री भोपाल सिंह का उनके द्वारा प्रदान किए गए बहुमूल्य मार्ग दर्शन एवं प्रेरणा के लिए आभार व्यक्त किया जाता है।

समन्वय एवं संकलन का यह महत्वपूर्ण कार्य अधिसासी अभियन्ता, मध्य गंगा मण्डल द्वितीय, लखनऊ तथा सम्बन्धित सभी अधिकारियों एवं कर्मचारियों के समर्पित प्रयासों के फलस्वरूप ही संभव हो पाया है। इस परिमण्डल में कार्यरत श्री पवन कुमार नगायच, अवर अभियन्ता का गोमती नदी के जल गुणवत्ता आँकड़े वर्ष पुस्तिका 2017-18 को तैयार करने में एवं पुस्तिका के प्रकाशन में महत्वपूर्ण योगदान रहा है।



(सुधीर कुमार)
अधीक्षण अभियन्ता
जल विज्ञानीय प्रेक्षण परिमण्डल
देहरादून

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1. प्रस्तावना

1.1 विषय क्षेत्र

सिंचाई, औद्योगिक एवं घरेलू उपयोग हेतु स्वच्छ एवं ताजे जल की लगातार बढ़ती मांग के कारण उपलब्ध ताजे जल, जिसके भारतवर्ष में मुख्य स्रोत नदियाँ ही हैं, की गुणवत्ता का निरन्तर प्रबोधन करना अति आवश्यक हो गया है। इसी परिप्रेक्ष्य में जल गुणवत्ता आँकड़े वर्ष पुस्तिका के इस अंक में जून-2017 से मई-2018 तक की अवधि हेतु गोमती नदी बेसिन के जल गुणवत्ता आँकड़ों का संकलन किया गया है।

1.2 सूचना स्रोत

ऊपरी गंगा बेसिन संगठन, लखनऊ के तत्वावधान में जल विज्ञानीय प्रेक्षण परिमंडल, देहरादून के अधीनस्थ मध्य गंगा मंडल – द्वितीय, लखनऊ गोमती बेसिन में तीन स्थलों पर एवं जल विज्ञानीय प्रेक्षण परिमंडल, वाराणसी के अधीनस्थ मध्य गंगा मंडल – तृतीय, वाराणसी में दो स्थलों पर जल गुणवत्ता आँकड़ों के प्रेक्षण का कार्य कर रहे हैं। इस पुस्तिका में वर्ष 2017-18 के लिए प्रेक्षित तथा निर्धारित जल गुणवत्ता आँकड़े प्रस्तुत किए गए हैं। विभिन्न प्रेक्षण स्थलों का विवरण तालिका संख्या-1 में नीचे दिया गया है। इन प्रेक्षण स्थलों में से क्रम संख्या 1, 2 व 5 जल विज्ञानीय प्रेक्षण परिमंडल, देहरादून के कार्य क्षेत्र में हैं तथा क्रम संख्या 3, व 4 जल विज्ञानीय प्रेक्षण परिमंडल, वाराणसी के कार्य क्षेत्र में हैं।

तालिका संख्या- 1

क्रम संख्या	स्थल का नाम	स्थल कोड
1	गोमती – नीमसार	005-mgd2lkn
2	गोमती – लखनऊ	014-mgd2lkn
3	गोमती – सुल्तानपुर	009-mgd3vns
4	गोमती – माईघाट	018-mgd3vns
5	सई – रायबरेली (गोमती की सहायक नदी)	016-mgd2lkn

1.3 प्रेक्षण की विधि

प्रत्येक माह के प्रथम कार्य दिवस को सभी जल गुणवत्ता प्रेक्षण स्थलों से जल नमूने एकत्र करके मण्डलीय प्रयोगशाला में पहुँचाए जाते हैं, जहाँ पर इनका विभिन्न अवयवों जैसे पी0एच0 मूल्य, विशिष्ट चालकता, पोटेशियम (K^+ के रूप में), सोडियम (Na^+ के रूप में), कैल्शियम (Ca^{++} के रूप में), मैग्नीशियम (Mg^{++} के रूप में), आयरन (Fe^{+++} के रूप में), अमोनियाकृत नाइट्रोजन (NH_4^+ के रूप में), कार्बोनेट (CO_3^{--} के रूप में), बाईकार्बोनेट (HCO_3^- के रूप में), क्लोराइड (Cl^- के रूप में) फ्लोराइड (F^- के रूप में), सल्फेट (So_4^{--} के रूप में), नाइट्रेट (No_3^- के रूप में), नाइट्राइट (No_2^- के रूप में), फॉस्फेट (PO_4^{---} के रूप में), एवं सिलिका (SiO_2 के रूप में) आदि के निर्धारण हेतु व्यवस्थित ढंग से विश्लेषण किया जाता है।

पी०एच० मूल्य एवं विशिष्ट चालकता का निर्धारण क्रमशः डिजिटल पी०एच०मापी एवं चालकता मापी द्वारा किया जाता है। Cl^- , CO_3^{--} , Ca^{++} एवं Mg^{++} का निर्धारण अनुमापन विधि द्वारा किया जाता है। SO_4^{--} का निर्धारण नेफेलोमीटर के द्वारा टरबिडिमीट्रिक विधि से किया जाता है। Na^+ एवं K^+ का आकलन फ्लेम फोटोमीटर की सहायता से ज्वाला उत्सर्जन विधि द्वारा किया जाता है। अन्य सभी प्राचलों का निर्धारण पराबैंगनी स्पेक्ट्रोफोटोमीटर द्वारा रंगमापीय आकलन की विधि से किया जाता है।

ऊपर वर्णित प्राचलों के अतिरिक्त लगभग सभी स्थलों पर घुलित ऑक्सीजन का भी आकलन किया जाता है। कुछ निश्चित स्थलों पर जैवरसायनिक ऑक्सीजन माँग (बी०ओ०डी०) का भी आकलन किया जाता है।

जल गुणवत्ता के विभिन्न प्राचलों के आकलन हेतु अपनाई गई तकनीकें सारणी संख्या-2 में नीचे दी गई हैं।

सारणी संख्या-2

प्राचल	विधि	यन्त्र/औजार
भौतिक अभिलक्षण		
तापक्रम	तापमापक विधि	तापमापी
रंग	चाक्षुष	—
पी०एच०मूल्य	विद्युतीय	पी०एच०मापी
चालकता	विद्युतीय	चालकतामापी
टरबिडिटी	टरबिडिमापक	नेफेलोमीटर
अवशेष	भारमापक	आयतनमापी / ग्लासवेयर
रासायनिक अभिलक्षण		
कैल्शियम	अनुमापन	आयतनमापी / ग्लासवेयर
मैग्नीशियम	अनुमापन	आयतनमापी / ग्लासवेयर
सोडियम	ज्वाला उत्सर्जन	फ्लेम फोटोमीटर
पोटेशियम	रंगमापीय	फ्लेम फोटोमीटर
आयरन	अनुमापन	कलरीमीटर / स्पेक्ट्रोफोटोमीटर
कार्बोनेट	अनुमापन	आयतनमापी / ग्लासवेयर
बाईकार्बोनेट	टरबिडिमीट्रिक	नेफेलोमीटर
सल्फेट	अनुमापन	आयतनमापी / ग्लासवेयर
फ्लोराइड	रंग परिवर्धन	कलरीमीटर / स्पेक्ट्रोफोटोमीटर
नाइट्रेट	रंग परिवर्धन	कलरीमीटर / स्पेक्ट्रोफोटोमीटर
सिलिका	रंग परिवर्धन	कलरीमीटर / स्पेक्ट्रोफोटोमीटर
फॉस्फेट	रंग परिवर्धन	कलरीमीटर / स्पेक्ट्रोफोटोमीटर
जैविक अभिलक्षण		
घुलित ऑक्सीजन	योगीकरण एवं अनुमापन	आयतनमापी / ग्लासवेयर
जैवरसायनिक ऑक्सीजन माँग (बी०ओ०डी०)	योगीकरण एवं अनुमापन	आयतनमापी / ग्लासवेयर

2. जल गुणवत्ता आँकड़े

2.1 व्याख्यात्मक टिप्पणी

नीचे दी गई व्याख्यात्मक टिप्पणी संकलित आँकड़ों में प्रस्तुत जल वैज्ञानिक प्राचलों को समझने के लिए दी गई है।

- (i) जल वर्ष 2017–2018 को 01.06.2017 से 31.05.2018 तक माना गया है।
- (ii) प्रत्येक माह में केवल एक बार, सामान्यतः प्रथम कार्य दिवस को नदी के मुख्य बहाव वाले भाग से जल नमूने एकत्र किए जाते हैं।
- (iii) नदी जल नमूनों के साथ नदी में मिल रहें तल प्रवाह की रसायनिक संरचना के बारे में जानकारी प्राप्त करने हेतु निकटस्थ कुएँ से भूमिगत जल नमूने भी एकत्र किए जाते हैं।
- (iv) नदी जल नमूने एकत्र करने के एक घन्टे के अन्दर स्थल प्रयोगशाला में घुलित ऑक्सीजन का आकलन कर लिया जाता है।
- (v) अन्य सभी जल गुणवत्ता प्राचलों का विश्लेषण मण्डलीय प्रयोगशाला में किया जाता है।
- (vi) कठोरता संख्या(एच0 एन0), सोडियम प्रतिशतता(एस0पी0), सोडियम एडजोर्पशन अनुपात(एस0ए0आर0) एवं अवशिष्ट सोडियम कार्बोनेट(आर0एस0सी0) आदि रासायनिक सूचकों की गणना निम्नानुसार की जाती है:
- (क) जल नमूने में निहित Ca^{++} एवं Mg^{++} के कुल योग को $CaCO_3$ के तुल्यांकी भागों के रूप में व्यक्त करके कठोरता संख्या की गणना की जाती है।

$$\text{कठोरता संख्या (एच0एन0)} = (Ca^{++} + Mg^{++}) \times 50$$

- (ख) सोडियम प्रतिशतता(एस0पी0) = $(Na^+ \times 100) / (Ca^{++} + Mg^{++} + Na^+ + K^+)$ %, जहाँ आयनों की सान्द्रता मिली इक्यूइवैलेन्ट/लीटर में है।
- (ग) सोडियम एडजोर्पशन अनुपात(एस0ए0आर0) = $Na^+ / \{(Ca^{++} + Mg^{++}) / 2\}^{1/2}$, जहाँ आयनों की सान्द्रता मिली इक्यूइवैलेन्ट/लीटर में है।
- (घ) अवशिष्ट सोडियम कार्बोनेट(आर0एस0सी0) = $(CO_3^{--} + HCO_3^-) - (Ca^{++} + Mg^{++})$ जहाँ आयनों की सान्द्रता मिली इक्यूइवैलेन्ट/लीटर में है।

- (vii) विशिष्ट चालकता एवं सोडियम एडजोर्पशन अनुपात(एस0ए0आर0) के आधार पर जल नमूनों का यू0एस0 सैलिनिटी प्रयोगशाला द्वारा निर्दिष्ट मानकों के अनुसार वर्गीकरण किया जाता है।
- (viii) सिलिका (SiO_2) की सान्द्रता मिलीग्राम/लीटर में दर्शायी गयी है तथा इसको ऋणायनिक योग में सम्मिलित नहीं किया गया है।
- (ix) मापक प्राधिकारी का सन्दर्भ उस क्षेत्र मण्डल से है जोकि जल नमूनों के एकत्रीकरण एवं विश्लेषण के लिए जिम्मेदार है। मण्डल के नाम को उसके नाम में निहित प्रत्येक शब्द के प्रथम अक्षर लिखने के बाद मं0 जोड़कर संक्षिप्त कर दिया गया है। उदाहरणार्थ 'मध्य गंगा मण्डल - 2, को म0गं0मं0-2' के द्वारा निरूपित किया गया है। इन संक्षिप्ताक्षरों का 'सन्दर्भ-निरूपण' की सूची में दिया गया है।

2.2 प्रस्तुतीकरण विधि

आगे के पृष्ठों में, स्थलानुसार इतिहास पृष्ठ तथा जल गुणवत्ता विश्लेषण तालिकाओं सहित जल गुणवत्ता आँकड़ों का प्रस्तुतीकरण किया गया है। इतिहास पृष्ठ जल गुणवत्ता प्रेक्षण स्थल का संक्षिप्त विवरण दर्शाता है। जिन स्थलों पर प्रेक्षण हेतु कुआँ उपलब्ध है, उन स्थलों हेतु नदी जल एवं कुआँ जल, दोनों के लिए अलग-अलग जल गुणवत्ता विश्लेषण तालिकाएं दी गयी हैं।

जल गुणवत्ता विश्लेषण तालिकाओं में दैनिक प्रेक्षित निस्सारण एवं जल नमूनों के निम्नलिखित भौतिक, रासायनिक तथा जैविक अभिलक्षण प्रस्तुत किए गए हैं।

भौतिक प्राचल:

- निस्सारण, पी0एच0मूल्य, विशिष्ट चालकता।

रासायनिक प्राचल:

- K^+ , Na^+ , Ca^{++} , Mg^{++} , Fe^{+++} , NH_4^+ की सान्द्रताएं एवं धनायनिक योग की सान्द्रता मिलीग्राम/लीटर में है।
- CO_3^{--} , HCO_3^- , Cl^- , F^- , SO_4^{--} , NO_3^- , NO_2^- , PO_4^{--} की सान्द्रताएं एवं ऋणायनिक योग की सान्द्रता मिली इक्व्यूइवैलेन्ट/लीटर में तथा सिलिका (SiO_2) की सान्द्रता मिलीग्राम/लीटर में है।

जैविक एवं जीवाण्विक प्राचल :

- घुलित ऑक्सीजन एवं बी0ओ0डी0 के मान मिलीग्राम/लीटर में है।

रासायनिक सूचक:

- कठोरता संख्या(एच0एन0), सोडियम प्रतिशतता(एस0पी0), सोडियम एडजोर्पशन अनुपात(एस0ए0आर0) एवं अवशिष्ट सोडियम कार्बोनेट(आर0एस0सी0) में सभी आयनों की सान्द्रताएं मिली इक्व्यूइवैलेन्ट/लीटर में है।

HISTORY SHEET

&

W.Q. DATA

(GOMTI BASIN)

2.3 GOMTI- NEEMSAR

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Station Name: Neemsar(005-mgd2lkn)

Division: Middle Ganga Division-II(MGD-II), Lucknow

Local River: Gomti

Sub Division: Gomti Sub-Division, Lucknow

HISTORY SHEET (WATER QUALITY)

Water Year	: 2017 - 2018
Site	: Neemsar
Code	: 005-mgd2lkn
State	: Uttar Pradesh
District	: Sitapur
Basin	: GANGA
Independent River	: Ganga
Tributary	: Gomti
Sub Tributary	: -
Sub-Sub Tributary	: -
Local River	: Gomti
Division	: Middle Ganga Division-II(MGD-II), Lucknow
Sub-Division	: Gomti Sub-Division, Lucknow
Drainage Area	: 3590.0 Sq. Km.
Bank	: Left
Latitude	: 27°20'44"
Longitude	: 80°28'49"
Current Zero of Gauge (m)	: 115

CATEGORY	Opening Date	Closing Date
Gauge	: 21/07/1976	
Discharge	: 21/07/1976	
Sediment	:	
Water Quality	: 15/01/1977	

Reduced Level	Opening Date	Closing Date
115.0	03/06/2014	14/05/2017
115.0	14/05/2017	-
115.0	01/05/2004	03/06/2014
115.0	21/07/1974	01/05/2004

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Division: Middle Ganga Division-II(MGD-II), Lucknow
Sub Division: Gomti Sub-Division, Lucknow

Station Name: Neemsar(005-mgd2|kn)

Local River: Gomti

PARAMETERS	01/06/2017	01/07/2017	01/08/2017	01/09/2017	03/10/2017	01/11/2017	01/12/2017	01/01/2018	01/02/2018	05/03/2018	02/04/2018	01/05/2018
Q (cumec)	6.72	9.51	15.48	42.88	61.03	42.3	16.09	15.8	14.87	13.66	9.1	8.91
CHEMICAL												
K(mg/L)	9	10	9.2	6.2	5.4	6.8	7.4	7	7.4	8.2	11.8	10.2
F(mg/L)	0.44	0.48	0.4	0.28	0.32	0.34	0.38	0.36	0.38	0.4	0.46	0.42
NH3-N(mgN/L)	0.68	0.75	0.7	0.56	0.58	0.62	0.66	0.64	0.66	0.7	0.84	0.68
HCO3(mg/L)	205	224	210	175.68	185.44	200.08	214.72	209.84	214.72	219.6	288.42	204.56
B(mg/L)	0.35	0.4	0.32	0.24	0.26	0.28	0.32	0.3	0.32	0.38	0.42	0.38
Mg(mg/L)	35.1	37.2	33	27.86	29.93	30.2	36.12	34.06	34.57	38.18	42.16	38.04
ALK-TOT(mgCaCO3/L)	168.03	183.61	172.13	144	152	164	176	172	176	180	236.41	167.67
Cl(mg/L)	18	20	15	8	10	12	14	14	18	20	28	27
Alk-Phen(mgCaCO3/L)	0	0	0	0	0	0	0	0	0	0	0	0
Ca(mg/L)	40	45	40	30.95	34.4	37.84	43	41.28	42.14	48.16	53.28	44.32
P-Tot(mgP/L)	0.48	0.54	0.48	0.36	0.4	0.44	0.48	0.46	0.5	0.56	0.73	0.62
Na(mg/L)	10.8	12.2	9.8	5.9	6.6	8.2	9	8.8	11.5	12.8	18.18	18.2
SiO2(mg/L)	5.2	5.4	5	5.4	6	6.4	7	6.6	7.4	8	9.8	8.8
NO2-N(mg/L)					23.6	24.2	26.6	26.2	27	29.5	38.13	32.89
SO4(mg/L)	27.6	34.2	30	22.4	0	0	0	0	0	0	0	0
CO3(mg/L)	0	0	0	0	0	0	0	0	0	0	0	0
TRACE & TOXIC												
PESTICIDES												
BIOLOGICAL/												
BACTERIOLOGICAL												
DO_SAT%(Percentage)	5.7	5.3	5.3	6.08	5.88	7.64	6.86	7.45	7.45	6.27	4.31	2.35
FCoI-MPN(MPN/100mL)	3500	80000	3000	2000	2200	1200	1100	900	1000	800	5000	8000
COD(mg/L)	8	9	7	10	8	5	6	7	16	7	12	13
Chl-a(ug/L)												
TcoI-MPN(MPN/100mL)	6000	120000	5500	3500	4000	2500	2700	2000	2500	2000	8000	14000
BOD3-27(mg/L)	2.9	3.1	3.9	3.14	3.33	2.54	2.35	1.96	2.16	2.35	3.9	3.81
PHYSICAL												
Temp(Degrees Celsius (ec))	28	30	30	30	30	28	20	17	17	18	19	25
EC_FLD(umho/cm)												
Odour_Code(-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
pH_FLD(pH unit)	8	8	7.5	8.1	8	8	8	8	8	8	8.5	8.5

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Division: Middle Ganga Division-II(MGD-II), Lucknow

Sub Division: Gomti Sub-Division, Lucknow

Station Name: Neemsar(005-mgd2lkn)

Local River: Gomti

[illegible]

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Station Name: Neemsar(005-mgd2lkn)

Division: Middle Ganga Division-II(MGD-II), Lucknow

Local River: Gomti

Sub Division: Gomti Sub-Division, Lucknow

PARAMETERS	No. of Observations	Maximum	Minimum	Mean
Q (cumec)	365	99.17	5.08	20.37
CHEMICAL				
Cl	12	28	8	17
HCO3	12	288.42	175.68	212.67
SiO2	12	9.8	5	6.75
F	12	0.48	0.28	0.39
P-Tot	12	0.73	0.36	0.5
B	12	0.42	0.24	0.33
Na	12	18.2	5.9	11
Alk-Phen	12	0	0	0
ALK-TOT	12	236.41	144	174.32
SO4	12	38.13	22.4	28.53
K	12	11.8	6.2	8.3
CO3	12	0	0	0
Mg	12	42.16	27.86	34.7
Ca	12	53.28	30.96	41.7
NH3-N	12	0.84	0.56	0.67
TRACE & TOXIC				
PESTICIDES				
BIOLOGICAL/ BACTERIOLOGICAL				
Tcol-MPN	12	120000	2000	14391.67
COD	12	16	5	9
BOD3-27	12	3.9	1.96	2.95
FCol-MPN	12	80000	800	9058.33
DO_SAT%	12	7.64	2.35	5.88
PHYSICAL				
TDS	12	295	145	216.33
pH_GEN	12	8.5	7.7	8.07
EC_GEN	12	490	240	358.92
pH_FLD	12	8.5	7.5	8.05
Temp	12	30	17	24.33
CHEMICAL INDICES				
HAR_Total	12	327.4	198.65	260.5
HAR_Ca	12	818.5	496.62	651.24

2.4 GOMTI - LUCKNOW

HISTORY SHEET (WATER QUALITY)

		Water Year	: 2017 - 2018
Site	: Lucknow (Hanuman Setu)	Code	: 014-mgd2lkn
State	: Uttar Pradesh	District	Lucknow
Basin	: GANGA	Independent River	: Ganga
Tributary	: Gomti	Sub Tributary	: -
Sub-Sub Tributary	: -	Local River	: Gomti
Division	: Middle Ganga Division-II(MGD-II), Lucknow	Sub-Division	: Gomti Sub-Division, Lucknow
Drainage Area	: 10503.0 Sq. Km.	Bank	: Left
Latitude	: 26°51'41"	Longitude	: 80°56'47"
Current Zero of Gauge (m)	: 100		
CATEGORY	Opening Date	Closing Date	
Gauge	: 05/09/1969		
Discharge	: 09/09/1969	02/05/2017	
Sediment	: 30/10/1976	02/05/2017	
Water Quality	: 02/07/1973		
Reduced Level	Opening Date	Closing Date	
100.0	01/01/2016	08/02/2017	
100.0	05/09/1969	31/05/2015	
100.0	01/09/2016	21/09/2016	
100.0	01/06/2015	31/05/2030	
100.0	04/06/2014	21/09/2016	
100.0	09/02/2017	03/05/2017	
100.0	01/07/1998	03/06/2014	
100.0	01/04/2017	14/05/2017	

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Division: Middle Ganga Division-II(MGD-II), Lucknow
Sub Division: Gomti Sub-Division, Lucknow

Station Name: Lucknow (Hanuman Setu)(014-mgd2lkn)

Local River: Gomti

PARAMETERS	01/06/2017	01/07/2017	01/08/2017	01/09/2017	03/10/2017	01/11/2017	01/12/2017	01/01/2018	01/02/2018	05/03/2018	02/04/2018	01/05/2018
Q (cumec)												
CHEMICAL												
NO ₂ -N(mg/L)	45	48	34	25.8	27.52	29.24	32.68	39.56	36.98	51.6	62.4	72.84
Ca(mg/L)	0.7	0.75	0.56	0.42	0.44	0.46	0.5	0.56	0.48	0.6	0.68	0.82
F(mg/L)	361	371	239	180.56	195.2	204.96	219.6	331.84	312.32	356.24	400.18	508.27
HCO ₃ (mg/L)	0.54	0.6	0.44	0.32	0.34	0.36	0.38	0.44	0.4	0.5	0.58	0.62
B(mg/L)	33	36	22	16	20	22	24	44	40	48	65	72
Cl(mg/L)	0.86	0.9	0.78	0.62	0.66	0.46	0.72	0.8	0.7	0.74	0.83	1.08
NH ₃ -N(mgN/L)	0	0	0	0	0	0	0	0	0	0	0	0
Alk-Phen(mgCaCO ₃ /L)	25	28.4	22	18.4	19.2	20	23.6	32.2	30.1	38	54.12	62.09
SO ₄ (mg/L)	40.3	42.3	23.7	19.61	20.64	22.7	25.8	36.12	31.99	41.5	48.13	53.18
Mg(mg/L)	0	0	0	0	0	0	0	0	0	0	0	0
CO ₃ (mg/L)	8	8.6	6.8	5.6	6	6.2	6.6	7.4	7	8.4	10.5	9.6
SiO ₂ (mg/L)	1.26	1.32	0.86	0.62	0.66	0.68	0.72	0.8	0.74	0.92	1.18	1.07
P-Tot(mgP/L)	26.2	27.5	18.2	15.8	11.4	11.8	12.6	15.1	12.8	16.8	18.9	22.16
K(mg/L)	295.9	304.1	195.9	148	160	168	180	272	256	292	328.02	416.61
ALK-TOT(mgCaCO ₃ /L)	21	22.4	14.8	10.5	12.1	14.2	16	30.2	27.1	31.5	38.12	44
Na(mg/L)												
TRACE & TOXIC												
PESTICIDES												
BIOLOGICAL/ BACTEOROLOGICAL												
FCol-MPN(100mL)	70000	80000	80000	90000	15000	6000	4000	4000	3000	11000	9000	65000
BOD ₃₋₂₇ (mg/L)	13.7	15.7	11.7	12	3.9	3.9	3.9	7.9	5.7	11.7	15.7	19.86
COD(mg/L)	22	27	22	25	10	11	15	22	15	26	38	58
Tcol-MPN(100mL)	110000	120000	120000	200000	70000	22000	15000	20000	12000	30000	15000	80000
DO_SAT%(Percentage)	1.4	1	2	0	3.14	4.31	4.9	2.16	3.33	2.16	1.96	1.18
Chl-a(µg/L)												
PHYSICAL												
EC_GEN(µmho/cm)	642	670	450	270	300	330	380	510	420	600	740	870
EC_FLD(µmho/cm)												
Temp(Degrees Celsius (°C))	30	31	30	27	26.5	25	19	16.5	19	22	24	27
Odour_Cod(-)	odour free	odour free	odour free	odour free	odour free		odour free	odour free	odour free	odour free	odour free	odour free
Colour_Cod(-)	Clear	Clear	Brown	Brown	Light Brown	Clear	Other	Other	Other	Other	Other	Other
pH_GEN(pH unit)	7.7	7.7	7.5	7.2	7.4	7.7	8	7.45	7.8	7.8	7.7	7.5
TDS(mg/L)	387	402	270	164	180	199	230	306	255	360	445	605

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Division: Middle Ganga Division-II(MGD-II), Lucknow
Sub Division: Gomti Sub-Division, Lucknow

Station Name: Lucknow (Hanuman Setu)(014-mgd2lkn)

Local River: Gomti

pH_FLD(pH unit)	7.5	7.5	8	8	8	8	7.5	8	8	8	8	8	8	8
SS(mg/L)														
CHEMICAL INDICES														
HAR_Ca(mgCaCO3/L)	720.62	764.38	502.29	391.31	415.67	446.46	501.67	637.83	585.15	796.88	950.81	1091.12		
HAR_Total(mgCaCO3/L)	288.25	305.75	200.92	156.52	166.27	178.58	200.67	255.13	234.06	318.75	380.33	436.45		

Water Quality Summary (River Water Summary) for the period : 2017 - 2018

Station Name: Lucknow (Hanuman Setu)(014-mgd2lkn)

Division: Middle Ganga Division-II(MGD-II), Lucknow

Local River: Gomti

Sub Division: Gomti Sub-Division, Lucknow

PARAMETERS	No. of Observations	Maximum	Minimum	Mean
Q (cumec)				
CHEMICAL				
Cl	12	72	16	36.83
HCO3	12	508.27	180.56	306.68
SiO2	12	10.5	5.6	7.56
F	12	0.82	0.42	0.58
P-Tot	12	1.32	0.62	0.9
B	12	0.62	0.32	0.46
Na	12	44	10.5	23.49
Alk-Phen	12	0	0	0
SO4	12	62.09	18.4	31.09
ALK-TOT	12	416.61	148	251.38
K	12	27.5	11.4	17.44
CO3	12	0	0	0
Mg	12	53.18	19.61	33.83
Ca	12	72.84	25.8	42.13
NH3-N	12	1.08	0.46	0.76
TRACE & TOXIC				
PESTICIDES				
BIOLOGICAL/ BACTEOROLOGICAL				
Tcol-MPN	12	200000	12000	67833.34
COD	12	58	10	24.25
BOD3-27	12	19.86	3.9	10.47
FCol-MPN	12	90000	3000	36416.67
DO_SAT%	12	4.9	0	2.29
PHYSICAL				
TDS	12	605	164	316.92
pH_GEN	12	8	7.2	7.62
EC_GEN	12	870	270	515.17
Temp	12	31	16.5	24.75
pH_FLD	12	8	7.5	7.88
CHEMICAL INDICES				
HAR_Total	12	436.45	156.52	260.14
HAR_Ca	12	1091.12	391.31	650.35

2.5 GOMTI- SULTANPUR

HISTORY SHEET (WATER QUALITY)

		Water Year	: 2017 - 2018
Site	: SULTANPUR	Code	: 009-MGD3VNS
State	: Uttar Pradesh	District	Sultanpur
Basin	: GANGA	Independent River	: Ganga
Tributary	: Gomti	Sub Tributary	: -
Sub-Sub Tributary	: -	Local River	: Gomti
Division	: Middle Ganga Division-III(MGD-III), Varanasi	Sub-Division	: Middle Ganga Choti Saryu Sub- Division, Varanasi
Drainage Area	: 15481.0 Sq. Km.	Bank	: Right
Latitude	: 26°17'0"	Longitude	: 82°8'0"
Current Zero of Gauge (m)	: 76		
CATEGORY	Opening Date	Closing Date	
Gauge	: 17/9/1969		
Discharge	: 17/9/1969		
Sediment	:		
Water Quality	: 11/5/1994		
Reduced Level	Opening Date	Closing Date	
76.0	02/06/2014	12/01/2018	
76.0	12/01/2018	-	
76.0	17/09/1969	02/06/2014	

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Station Name: SULTANPUR(009-MGD3VNS)
Local River: Gomti

Division: Middle Ganga Division-III(MGD-III), Varanasi
Sub Division: Middle Ganga Choti Saryu Sub-Division, Varanasi

PARAMETERS	01/06/2017	01/07/2017	01/08/2017	01/09/2017	03/10/2017	01/11/2017	01/12/2017	01/01/2018	01/02/2018	01/03/2018	02/04/2018	01/05/2018
Q (cumec)	19.31	20.4	75.08	245.35	137.08	45.75	25.78	37.79	39.29	46.46	24.24	15.52
CHEMICAL												
Na(mg/L)	29	30.2	28.1	29.2	26.8	25.3	29.2	32.5	26.6	28.8	26.9	35.6
NH3-N(mgN/L)	0	0	0	0	0	0	0	0	0	0	0	0
CO3(mg/L)	0	0	0	0	0	0	0	0	0	0	19.67	0
Ca(mg/L)	37.5	40.06	37.67	38.87	39.73	43.52	44.04	42.02	47.83	51.23	47.2	41.71
SiO2(mg/L)	8.7	9.04	9	9.26	8.98	8.79	9.04	8.73	8.85	8.69	8.52	8.34
SO4(mg/L)	44	42.3	41.5	45.8	46.4	46.9	29.2	24.6	18.2	49	47.5	43.3
Alk-Phen(mgCaCO3/L)	0	0	0	0	0	0	0	0	0	0	16.33	0
K(mg/L)	12	12.3	11.6	12	10.2	10.6	8.5	7.4	5.2	5.6	6.2	7.3
ALK-TOT(mgCaCO3/L)	132.95	142.32	136.4	140	132.8	168.4	221.77	229.27	214.22	215.76	225.82	184.08
HCO3(mg/L)	162.2	173.63	166.41	170.8	162.02	205.45	270.56	279.71	261.35	263.23	235.51	224.58
Cl(mg/L)	40	42	40	44	42	38	38.12	37.65	32.25	38.53	40.24	48.02
F(mg/L)	0.3	0.29	0.3	0.3	0.28	0.29	0.27	0.25	0.24	0.32	0.33	0.35
B(mg/L)	0.03	0.03	0.03	0.04	0.03	0.03	0.04	0.03	0.03	0.03	0.03	0.03
Mg(mg/L)	13.83	14.04	12.8	13.21	14.45	19.3	25.31	26.58	23.86	22.19	26.37	28.1
NO2-N(mg/L)												
P-Tot(mgP/L)	0.16	0.16	0.17	0.18	0.17	0.18	0.18	0.17	0.18	0.17	0.16	0.18
TRACE & TOXIC												
PESTICIDES												
BIOLOGICAL/BACTERIOLOGICAL												
FCol-MPN(MPN/100mL)	2400	3200	3000	2300	2600	3100	3900	3100	2800	4300	4000	5700
Tcol-MPN(MPN/100mL)	5000	6000	5500	6800	6100	8000	7800	6300	8200	9500	10200	11800
Chlf-a(ug/L)												
DO-SAT%(Percentage)	4.12	6.08	5.29	5.88	5.49	6.86	6.31	6.33	5.79	5.09	3.67	2.77
BOD3-27(mg/L)	7.04	4.7	4.32	3.52	3.92	3.14	3.57	3.08	6.44	7.04	7.76	11.16
COD(mg/L)	34.2	29.6	26.9	29.3	28.6	28.2	25.4	25.8	28.1	28.3	29.4	31.2
PHYSICAL												
Temp(Degrees Celsius (°C))	29.5	32.5	32	30.5	32	26.5	18.5	16.2	16	23.2	25	27.5
SS(mg/L)												
Odour_Code(-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
pH_FLD(pH unit)	7.9	7.4	7.7	7.6	7.8	7.8	7.9	7.7	7.9	7.5	8.6	8.2
EC_FLD(umho/cm)	580	480	340	320	380	490	600	550	520	510	650	630
pH_GEN(pH unit)	7.85	7.46	7.74	7.63	7.8	7.82	7.92	7.79	7.95	7.58	8.67	8.23

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Station Name: SULTANPUR(009-MGD3VNS)
Local River: Gomti

Division: Middle Ganga Division-III(MGD-III), Varanasi
Sub Division: Middle Ganga Choti Saryu Sub-Division, Varanasi

TDS(mg/L)	336	212	187	178	186	243	300	271	259	296	323	312
EC_GEN(μ mho/cm)	586	476	332	313	372	483	600	542	518	593	646	624
Colour_Cod(-)	Light Brown	Light Brown	Light Brown	Brown	Light Brown	Dark Brown	Light Brown	Light Green	Light Brown	Light Brown	Light Brown	Light Brown
CHEMICAL INDICES												
HAR_Total(mgCaCO ₃ /L)	190.82	202.02	188.96	194.98	201.67	229.58	246.77	241.53	258.94	268.93	262.59	244.04
HAR_Ca(mgCaCO ₃ /L)	477.06	505.04	472.39	487.46	504.17	573.96	616.94	603.83	647.35	672.33	656.48	610.1

Water Quality Summary (River Water Summary) for the period : 2017 - 2018

Station Name: SULTANPUR(009-MGD3VNS) Division: Middle Ganga Division-III(MGD-III), Varanasi

Local River: Gomti Sub Division: Middle Ganga Choti Saryu Sub-Division, Varanasi

PARAMETERS	No. of Observations	Maximum	Minimum	Mean
Q (cumec)	365	254.37	8.85	51.95
CHEMICAL				
Cl	12	48.02	32.25	40.07
HCO3	12	279.71	162.02	214.62
SiO2	12	9.26	8.34	8.83
F	12	0.35	0.24	0.29
P-Tot	12	0.18	0.16	0.17
B	12	0.04	0.03	0.03
Na	12	35.6	25.3	29.02
Alk-Phen	12	16.33	0	1.36
SO4	12	49	18.2	39.89
ALK-TOT	12	229.27	132.8	178.65
K	12	12.3	5.2	9.07
CO3	12	19.67	0	1.64
Mg	12	28.1	12.8	20
Ca	12	51.23	37.5	42.61
NH3-N	12	0	0	0
TRACE & TOXIC				
PESTICIDES				
BIOLOGICAL/ BACTERIOLOGICAL				
Tcol-MPN	12	11800	5000	7600
COD	12	34.2	25.4	28.75
BOD3-27	12	11.16	3.08	5.47
FCol-MPN	12	5700	2300	3366.67
DO_SAT%	12	6.86	2.77	5.31
PHYSICAL				
TDS	12	336	178	258.58
pH_GEN	12	8.67	7.46	7.87
EC_GEN	12	646	313	507.08
Temp	12	32.5	16	25.78
pH_FLD	12	8.6	7.4	7.83
EC_FLD	12	650	320	504.17
CHEMICAL INDICES				
HAR_Total	12	268.93	188.96	227.57
HAR_Ca	12	672.33	472.39	568.93

2.6 GOMTI-MAIGHAT

HISTORY SHEET (WATER QUALITY)

		Water Year	: 2017 - 2018
Site	: MAIGHAT	Code	: 018-mgd3vns
State	: Uttar Pradesh	District	Jaunpur
Basin	: GANGA	Independent River	: Ganga
Tributary	: Gomti	Sub Tributary	: -
Sub-Sub Tributary	: -	Local River	: Gomti
Division	: Middle Ganga Division-III(MGD-III), Varanasi	Sub-Division	: Middle Ganga Choti Saryu Sub- Division, Varanasi
Drainage Area	: 30042.0 Sq. Km.	Bank	: Left
Latitude	: 25°37'59"	Longitude	: 82°50'59"
Current Zero of Gauge (m)	: 62		
CATEGORY	Opening Date	Closing Date	
Gauge	: 7/9/1959		
Discharge	: 7/9/1959		
Sediment	: 19/8/1961		
Water Quality	: 9/6/1963		
Reduced Level	Opening Date	Closing Date	
62.0	01/01/2017	-	
62.0	27/05/2015	27/07/2015	
62.0	27/07/2015	18/06/2016	
62.0	18/06/2016	-	
62.0	19/08/1961	27/05/2015	

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Division: Middle Ganga Division-III(MGD-III), Varanasi
Sub Division: Middle Ganga Choti Saryu Sub-Division, Varanasi

Station Name: MAIGHAT(018-mgd3vns)

Local River: Gomti

PARAMETERS	01/06/2017	01/07/2017	01/08/2017	01/09/2017	03/10/2017	01/11/2017	01/12/2017	01/01/2018	01/02/2018	01/03/2018	02/04/2018	01/05/2018
Q (cumec)	42.01	36.97	234.48	256.49	271.81	49.14	17.59	36.96	38.77	36.04	22.58	18.89
CHEMICAL												
Ca(mg/L)	35.78	39.21	36.64	37.5	35.95	40.25	40.23	39.67	44.76	49.77	41.34	35.59
P-Tot(mgP/L)	0.19	0.17	0.19	0.22	0.2	0.21	197	0.18	0.19	0.18	0.17	0.18
CO3(mg/L)	0.7	0.6	0	0	0	0	0	0	0	5.1	24.62	0
B(mg/L)	0	0	0	0	0.05	0	0	0	0	0	0	0
Cl(mg/L)	26	28	26	28	28	33	36.76	38.01	37.46	43.9	46.28	45.08
HCO3(mg/L)	144.8	105	174.7	177.63	166.41	199.59	132.12	243.29	246.28	249.58	194.71	204.12
F(mg/L)	0.34	0.32	0.35	0.33	0.35	0.35	0.36	0.35	0.32	0.42	0.32	0.34
SO4(mg/L)	32	30.3	30.6	32.5	33.8	35.2	30.2	20.6	16.8	43.5	38.9	39.8
Na(mg/L)	18	20.2	19.1	19.5	20.3	20.6	26.9	32.1	30.7	33.1	30.8	33.4
SiO2(mg/L)	9.34	9.16	9.67	9.78	9.51	9.63	9.48	9.37	9.2	9.32	9.12	9.39
K(mg/L)	8	9.7	9.3	10.4	9.7	10.1	7.7	7.1	5.7	6.2	6	7.1
Alk-Phen(mgCaCO3/L)	0.17	0.66	0	0	0	0	0	0	0	4.23	20.43	0
NO2-N(mg/L)												
NH3-N(mgN/L)	0	0	0	0	0	0	0	0	0	0	0	0
Mg(mg/L)	17.96	19.81	18.58	18.16	17.34	20.85	25.88	26.01	26.31	24.45	26.65	28.2
ALK-TOT(mgCaCO3/L)	145.53	105.68	143.2	145.6	136.4	163.6	108.29	199.42	201.87	213.07	200.63	167.31
TRACE & TOXIC												
PESTICIDES												
BIOLOGICAL/ BACTERIOLOGICAL												
Chl-a(µg/L)	29	28.6	25.4	24.1	25.4	26.1	24.7	25.3	26	27.2	26.5	28
COD(mg/L)	4600	4000	4300	5200	5600	7300	7400	6700	6400	7600	7300	8500
Tcol-MPN(MPN/100mL)	6.66	6.27	6.08	6.27	5.88	6.47	7.89	6.13	7.19	7.24	6.77	5.5
DO_SAT%(Percentage)	3.33	3.73	2.94	3.14	3.52	3.72	3	2.69	3.43	4.84	4.07	6.76
BOD3-27(mg/L)	1500	1800	2000	2500	2500	2900	3400	2800	2600	3000	2600	3800
FCol-MPN(MPN/100mL)												
PHYSICAL												
Temp(Degrees Celsius (°C))	34.5	33.5	31	29	30	24.5	18	20	16.5	24	29	27.5
SS(mg/L)												
pH_FLD(pH unit)	7.7	7.8	7.9	7.8	7.8	8.1	8.2	7.9	7.9	8.4	8.7	7.9
TDS(mg/L)	294	287	175	173	169	208	264	268	263	314	319	252
pH_GEN(pH unit)	7.63	7.86	7.94	7.81	7.88	8.17	8.26	7.94	7.97	8.42	8.79	7.98
EC_FLD(µmho/cm)	510	510	320	310	340	420	530	540	530	630	640	510
Colour_Cod(-)	Clear	Clear	Brown	Brown	Brown	Light Brown	Light Brown	Light Brown	Clear	Light Green	Light Green	Clear
Odour_Code(-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Station Name: MAIGHAT(018-mgd3vns) Division: Middle Ganga Division-III(MGD-III), Varanasi
 Local River: Gomti Sub Division: Middle Ganga Choti Saryu Sub-Division, Varanasi

EC_GEN(μ mho/cm)	514	508	312	306	338	416	528	536	527	628	637	503
CHEMICAL INDICES												
HAR_Ca(mgCaCO ₃ /L)	484.96	532.25	497.79	504.12	482.86	549.58	580.81	575.79	630.69	671.25	597.19	546.98
HAR_Total(mgCaCO ₃ /L)	193.98	212.9	199.12	201.65	193.14	219.83	232.32	230.32	252.27	268.5	238.88	218.79

Water Quality Summary (River Water Summary) for the period : 2017 - 2018

Station Name: MAIGHAT(018-mgd3vns)

Division: Middle Ganga Division-III(MGD-III), Varanasi

Local River: Gomti

Sub Division: Middle Ganga Choti Saryu Sub-Division, Varanasi

PARAMETERS	No. of Observations	Maximum	Minimum	Mean
Q (cumec)	365	288.48	7.15	79.87
CHEMICAL				
Cl	12	46.28	26	34.71
HCO3	12	249.58	105	186.52
SiO2	12	9.78	9.12	9.41
F	12	0.42	0.32	0.35
P-Tot	12	197	0.17	16.59
B	12	0.05	0	0
Na	12	33.4	18	25.39
Alk-Phen	12	20.43	0	2.12
SO4	12	43.5	16.8	32.02
ALK-TOT	12	213.07	105.68	160.88
K	12	10.4	5.7	8.08
CO3	12	24.62	0	2.59
Mg	12	28.2	17.34	22.52
Ca	12	49.77	35.59	39.72
NH3-N	12	0	0	0
TRACE & TOXIC				
PESTICIDES				
BIOLOGICAL/ BACTEOROLOGICAL				
Tcol-MPN	12	8500	4000	6241.67
COD	12	29	24.1	26.36
BOD3-27	12	6.76	2.69	3.76
FCol-MPN	12	3800	1500	2616.67
DO_SAT%	12	7.89	5.5	6.53
PHYSICAL				
TDS	12	319	169	248.83
pH_GEN	12	8.79	7.63	8.05
EC_GEN	12	637	306	479.42
Temp	12	34.5	16.5	26.46
pH_FLD	12	8.7	7.7	8.01
EC_FLD	12	640	310	482.5
CHEMICAL INDICES				
HAR_Total	12	268.5	193.14	221.81
HAR_Ca	12	671.25	482.86	554.52

2.7 SAI- RÆBARELI

HISTORY SHEET (WATER QUALITY)

		Water Year	: 2017 - 2018
Site	: Rae bareli	Code	: 016-mgd2lkn
State	: Uttar Pradesh	District	Rae Bareli
Basin	: GANGA	Independent River	: Ganga
Tributary	: Gomti	Sub Tributary	: Sai
Sub-Sub Tributary	: -	Local River	: Sai
Division	: Middle Ganga Division-II(MGD-II), Lucknow	Sub-Division	: Gomti Sub-Division, Lucknow
Drainage Area	: 7530.0 Sq. Km.	Bank	: Left
Latitude	: 26°11'59"	Longitude	: 81°15'1"
Current Zero of Gauge (m)	: 94.064		
CATEGORY	Opening Date	Closing Date	
Gauge	: 01/07/1970		
Discharge	: 05/07/1970		
Sediment	:		
Water Quality	: 06/08/1977		
Reduced Level	Opening Date	Closing Date	
94.064	01/07/1970	31/05/1991	
94.064	31/05/1991	04/06/2014	
94.064	04/06/2014		

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Station Name: Rae Bareilly(016-mgd2lkn)
Local River: Sai

Division: Middle Ganga Division-II(MGD-II), Lucknow
Sub Division: Gomti Sub-Division, Lucknow

PARAMETERS	01/08/2017	01/09/2017	03/10/2017	01/11/2017	01/12/2017	01/01/2018	01/02/2018	05/03/2018	02/04/2018	01/05/2018
Q (cumec)	11.45	39.85	18.28	4.27	0.48	2.73	0.49	0.63	0.47	0.16
CHEMICAL										
Cl(mg/L)	26	16	22	29	32	22	60	36	74	88
CO3(mg/L)	0	0	0	0	0	0	0	0	0	0
Na(mg/L)	16.7	10.6	14.4	18.6	20.6	14.5	42.5	23.2	38.65	63.12
SO4(mg/L)	18.2	14.4	15.6	20.2	23.6	18.4	280.6	24.6	44.04	68.18
F(mg/L)	0.32	0.24	0.3	0.38	0.44	0.32	0.6	0.4	0.65	0.68
B(mg/L)	0.2	0.1	0.16	0.22	0.26	0.22	0.44	0.3	0.58	0.64
HCO3(mg/L)	156	131.76	165.92	195.2	209.84	180.56	366.96	228.6	508.32	712.35
K(mg/L)	20.5	14.2	15.1	16.2	18.2	10.2	14.2	12.8	24.12	26.14
ALK-TOT(mgCaCO3/L)	127.87	108	136	160	172	148	300.79	187.38	416.66	583.89
Mg(mg/L)	10.8	7.22	12.38	17.54	21.67	19.61	29.93	31.99	48.78	58.17
NH3-N(mgN/L)	0.44	0.34	0.38	0.44	0.48	0.4	0.54	0.44	0.88	1.26
SiO2(mg/L)	8.4	7	7.8	8.4	9.5	7.2	10.2	8	12.9	14
Alk-Phen(mgCaCO3/L)	0	0	0	0	0	0	0	0	0	0
Ca(mg/L)	26	22.36	29.24	37.84	43	41.28	61.92	48.16	64.78	72.82
NO2-N(mg/L)										
P-Tot(mgP/L)	0.46	0.32	0.36	0.42	0.46	0.38	0.52	0.42	0.72	0.96
TRACE & TOXIC										
PESTICIDES										
BIOLOGICAL										
BACTERIOLOGICAL										
Tcol-MPN(MPN/100ml)	7000	10000	8000	6000	6000	7000	7500	8000	11000	25000
DO_SAT%(Percentage)	2.4	4.9	4.31	7.06	4.31	4.12	3.95	1.76	1.96	1.57
COD(mg/L)	17	23	16	14	14	15	16	15	36	52
Chlf-a(µg/L)										
BOD3-27(mg/L)	11.7	12	7.8	3.9	3.54	4.12	4	5.7	15.6	18.12
FCol-MPN(MPN/100ml)	4000	5500	3000	2500	2700	3000	3200	3500	7000	17000
PHYSICAL										
EC_FLD(µmho/cm)										

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Division: Middle Ganga Division-II(MGD-II), Lucknow
Sub Division: Gomti Sub-Division, Lucknow

Station Name: Rae bareli(016-mgd2lkn)

Local River: Sai

Temp(Degrees Celsius (°C))	30	30	28	26	20	15	15	20	27	28
Odour_Code(-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
EC_GEN(μmho/cm)	340	220	310	390	510	300	750	410	880	1170
pH_FLD(pH unit)	7.5	8	7.5	8	7.5	8	7.5	8		
Colour_Cod(-)	Brown	Brown	Brown	Clear	Light Brown	Light Brown	Clear	Clear	Clear	Clear
SS(mg/L)										
pH_GEN(pH unit)	7.5	7.7	7.7	8	8	7.9	8.4	7.9	7.8	7.5
TDS(mg/L)	205	132	188	234	305	180	450	250	525	812
CHEMICAL INDICES										
HAR_Ca(mgCaCO3/L)	338.33	278.04	381.96	503.79	583.35	552.56	832.06	701.6	979.67	1122.1
HAR_Total(mgCaCO3/L)	135.33	111.22	152.78	201.52	233.34	221.02	332.83	280.64	391.87	448.84

Water Quality Summary (River Water Summary) for the period : 2017 - 2018

Station Name: Rae bareli(016-mgd2lkn)

Division: Middle Ganga Division-II(MGD-II), Lucknow

Local River: Sai

Sub Division: Gomti Sub-Division, Lucknow

PARAMETERS	No. of Observations	Maximum	Minimum	Mean
Q (cumec)	365	68.08	0	7.45
CHEMICAL				
Cl	10	88	16	40.5
HCO3	10	712.35	131.76	285.55
SiO2	10	14	7	9.34
F	10	0.68	0.24	0.43
P-Tot	10	0.96	0.32	0.5
B	10	0.64	0.1	0.31
Na	10	63.12	10.6	26.29
Alk-Phen	10	0	0	0
ALK-TOT	10	583.89	108	234.06
SO4	10	280.6	14.4	52.78
K	10	26.14	10.2	17.17
CO3	10	0	0	0
Mg	10	58.17	7.22	25.81
Ca	10	72.82	22.36	44.74
NH3-N	10	1.26	0.34	0.56
TRACE & TOXIC				
PESTICIDES				
BIOLOGICAL/ BACTEOROLOGICAL				
Tcol-MPN	10	25000	6000	9550
COD	10	52	14	21.8
BOD3-27	10	18.12	3.54	8.65
FCol-MPN	10	17000	2500	5140
DO_SAT%	10	7.06	1.57	3.63
PHYSICAL				
TDS	10	812	132	328.1
pH_GEN	10	8.4	7.5	7.84
EC_GEN	10	1170	220	528
Temp	10	30	15	23.9
pH_FLD	8	8	7.5	7.75
CHEMICAL INDICES				
HAR_Total	10	448.84	111.22	250.94
HAR_Ca	10	1122.1	278.04	627.35

**TREND OF
WATER
QUALITY
(GOMTI BASIN)**

3. WATER QUALITY TREND

3.1 Tolerance and Classification

As per ISI-IS: 2296-1982, the tolerance limits of parameters are specified as per classified use of water (Table 1,2,3,4,5 Annexed) depending on various uses of water. The following classifications have been adopted in India.

Classification	Type of use
Class A	Drinking water source without conventional treatment but after disinfection.
Class B	Outdoor bathing.
Class C	Drinking water source with conventional treatment followed by disinfection.
Class D	Fish culture and wild life propagation.
Class E	Irrigation, Industrial cooling or controlled waste disposal.

3.2 Gomti at Neemsar

The variation of average concentration of all the parameters examined during flood, winter and summer season has been shown in the Table No. 6, 7 & 8 respectively.

From the Table 6, 7 & 8 it is evident that average value of pH is within tolerance.

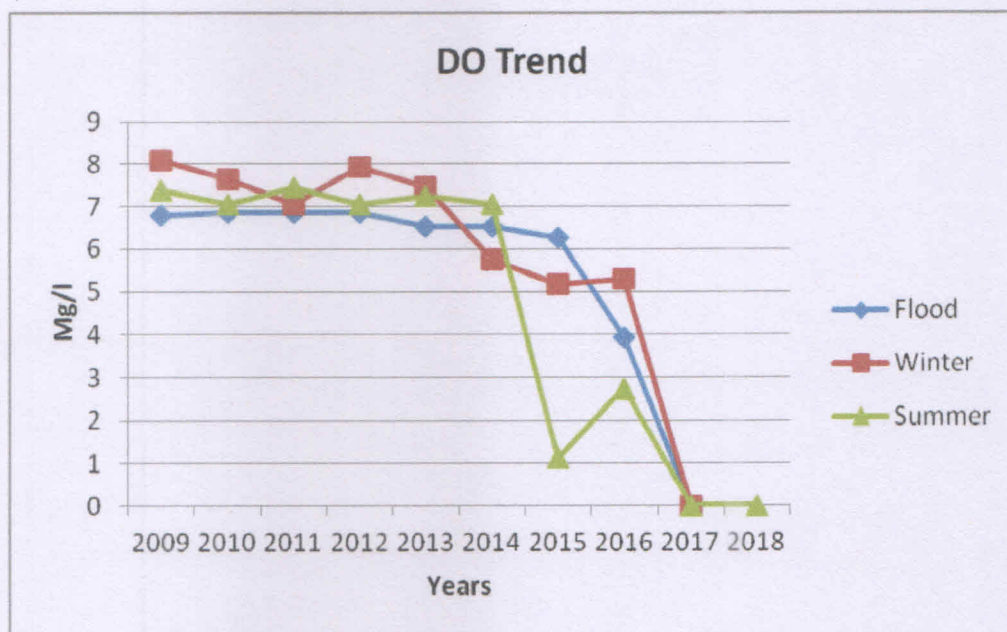
3.2.1 Trends in the variation of Dissolved Oxygen

Table no. 6, 7 & 8 demonstrate the average value of D.O. which is ranged from minimum 3.92 ppm in 2016 to maximum concentration of 7.43 ppm in 2008 during flood season. In winter season the average value of D.O. ranged from minimum 5.17 ppm in the year 2015-16 to maximum 8.11 ppm in the year 2009-10. Minimum value of average D.O. content during summer season was

observed 1.12 ppm in 2015 and maximum of which was 7.45 ppm observed in 2011. It has further been observed that D.O. in the winter season is comparatively high in comparison to other seasons. On an average it can be said that the value of this parameter at the site is not satisfactory.

Seasonal average value of D.O. variation for the flood, winter and summer seasons has been depicted in figure-1.

Figure-1
Average D.O Trend at NEEMSAR
(Season wise)



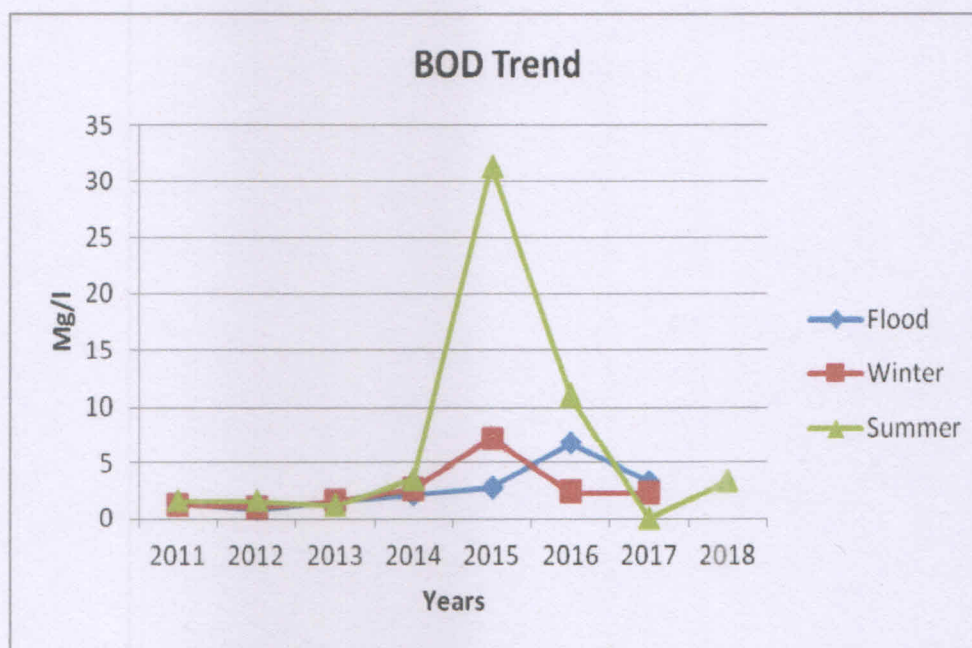
3.2.2 Trends in the variation of Bio-Chemical Oxygen Demand

During Flood season, the average value of this parameter ranged from minimum 0.78 ppm in 2012 to maximum of 6.74 ppm in the year 2016. During winter season, the average value of this parameter ranged from minimum 0.98 ppm in 2012-13 to maximum of 7.17 ppm in the year 2015-16.

During summer maximum value of average B.O.D. was observed 31.3 ppm in 2015 and minimum of 1.18 ppm in 2013.

Season wise (flood, winter and summer) trend of variation of average B.O.D. at this site for the periods 2011 to 2018 has been depicted in figure -2.

Figure-2
Average B.O.D Trend at NEEMSAR
(Season wise)



3.2.3 Trends in the variation of chloride

Perusal of table No. 6, 7 & 8 shows that the average value of this parameter ranged from minimum 8.54 ppm in 2016 to maximum concentration of 32.13 ppm in 2009 during flood season. For winter season minimum value of chloride concentration was found 13.13 ppm in 2016-17 to max 37.53 ppm in 2014-15. During the summer season maximum chloride concentration was found 35.86 ppm in 2015 and minimum was 14.0 ppm in 2016.

3.2.4 Trends in the variation of specific conductance

Perusal of table No.6, 7 & 8 shows that average value of Specific conductance ranged from minimum 190 micro Siemens/cm in the year 2010 & 2013 to maximum 390 micro Siemens/cm in the year 2012 during flood season.

During winter season minimum specific conductance observed was 310 micro Siemens/cm 2009-10 to maximum 443.33 micro Siemens/cm in the year 2014-15. During the summer season of 2015 the maximum value of this parameter was 510 micro Siemens/cm and minimum 340 micro Siemens/cm was observed in summer season of 2016.

3.3 Gomti at Lucknow

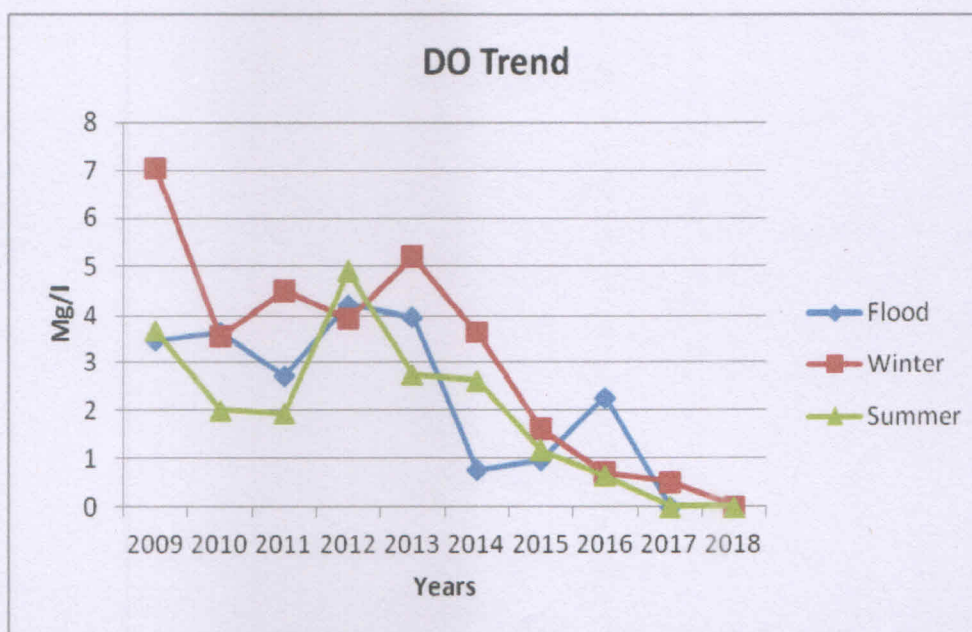
The variation of average concentration of all the examined parameters during flood, winter and summer season has been shown in the Table No. 9, 10 & 11 respectively. From the Table 9, 10 & 11 it is evident that average value of pH is within tolerance limit.

3.3.1 Trends in the variation of Dissolved Oxygen

Table no. 9, 10 & 11 demonstrate the average value of D.O. which is ranging from minimum 0.78 ppm in 2014 to maximum concentration of 5.47 ppm in 2008 during flood season. In winter season the average value of D.O. ranged from minimum 0.52 ppm in the year 2016-17 to maximum 7.06 ppm in the year 2008-09. Minimum value of average D.O. content during summer season was observed 0.65 ppm in 2016 and maximum of which was 4.92 ppm observed in 2012. It has further been observed that D.O. in the winter season is comparatively high in comparison to other seasons.

Seasonal average value of D.O. variation for the flood, winter and summer seasons has been depicted in figure-3.

Figure-3
Average D.O Trend at LUCKNOW
(Season wise)

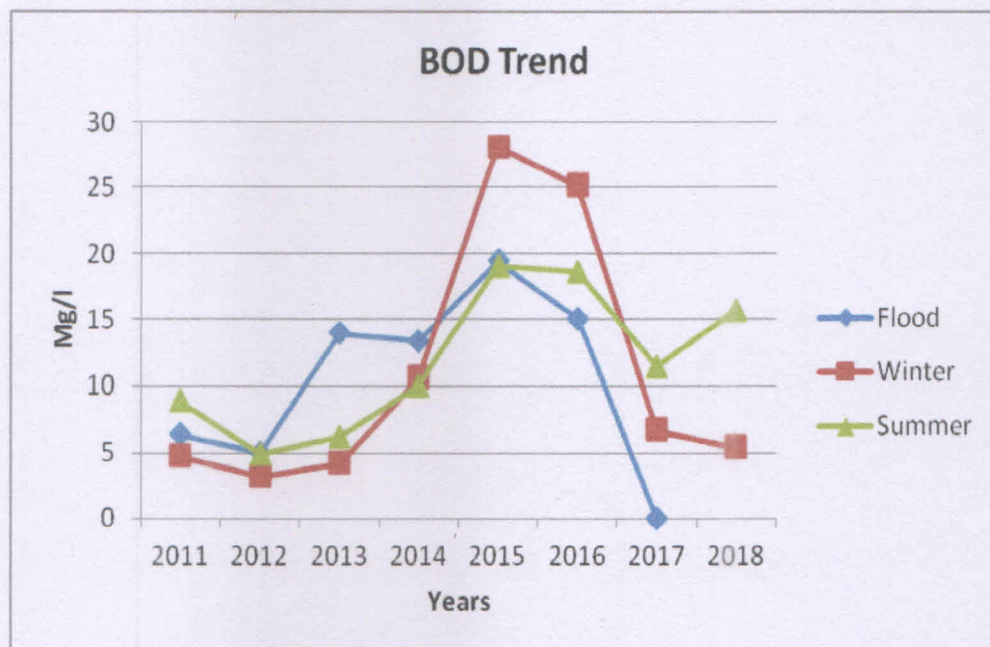


3.3.2 Trends in the variation of Bio-Chemical Oxygen Demand

During flood season, the average value of this parameter ranged from minimum 4.98 ppm in 2012 to maximum of 19.49 ppm in the year 2015. During winter season, the average value of this parameter ranged from minimum 3.18 ppm in 2011-12 to maximum of 28.12 ppm in the year 2014-15. During summer maximum value of average B.O.D. was observed 19.13 ppm in 2015 and minimum of 4.85 ppm in 2012.

Season wise (flood, winter and summer) trend of variation of average B.O.D. at this site for the periods 2011 to 2018 has been depicted in figure -4.

Figure-4
Average B.O.D Trend at LUCKNOW
(Season wise)



3.3.3 Trends in the variation of chloride

Perusal of table No. 9, 10 & 11 shows that the average value of this parameter ranged from minimum 15.55 ppm in 2012 to maximum concentration of 31.26 ppm in 2010 during flood season. For winter season minimum value of chloride concentration was found 13.57 ppm in 2012-13 to max 40.20 ppm in 2014-15. During the summer season maximum chloride concentration was found 61.67 ppm in 2018 and minimum was 20.54 ppm in 2012.

3.3.4 Trends in the variation of specific conductance

Perusal of table No. 9, 10 & 11 shows that average value of Specific conductance ranged from minimum 300 micro Siemens/cm in the year 2011 to maximum 480 micro Siemens/cm in the year 2015 during flood season. During winter season minimum specific conductance observed was 357.5 micro Siemens/cm 2009-10 to maximum 480 micro Siemens/cm in the year 2014-15. During the summer season of 2018 the maximum value of this parameter was 736.67 micro Siemens/cm and minimum 516.67 micro Siemens/cm was observed in summer season of 2011.

3.4 Gomti at Sultanpur

The variation of average concentration of all the examined parameters during flood, winter and summer season has been shown in the Table No. 12, 13 & 14 respectively.

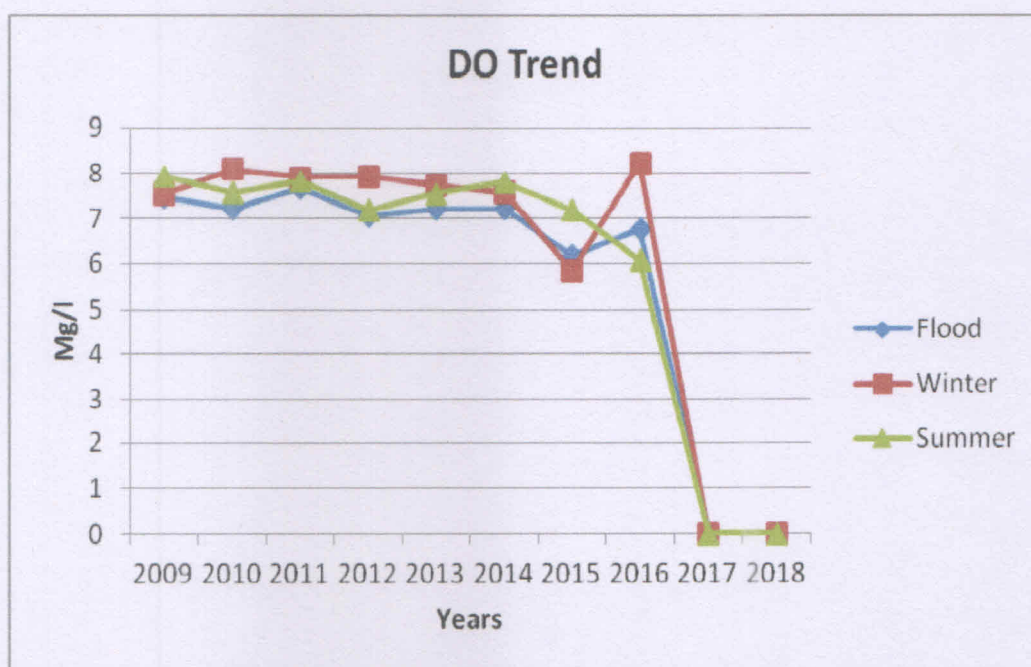
From the Table 12, 13 & 14, it is evident that average values of pH are 7.7 & 8.95 in the flood season of the years 2017 & 2008 respectively. During winter season the min value of pH was 7.86 in 2015-16 and max value of pH was 8.70 in 2008-09. During summer season the min value of pH was 7.90 in 2016 and max value of pH was 8.73 in 2011.

3.4.1 Trends in the variation of Dissolved Oxygen

Table no. 12, 13 & 14 demonstrate the average value of D.O. which is ranged from minimum 6.19 ppm in 2015 to maximum concentration of 7.89 ppm in 2008 during flood season. In winter season the average value of D.O. ranged from minimum 5.86 ppm in the year 2015-16 to maximum 8.11 ppm in the year 2010-11. Minimum value of average D.O. content during summer season was observed 6.08 ppm in 2016 and maximum of which was 7.95 ppm observed in 2009. It has further been observed that D.O. in the winter season is comparatively high in comparison to other seasons.

Seasonal average value of D.O. variation for the flood, winter and summer seasons has been depicted in figure- 5.

Figure-5
Average D.O. Trend at SULTANPUR
(Season wise)

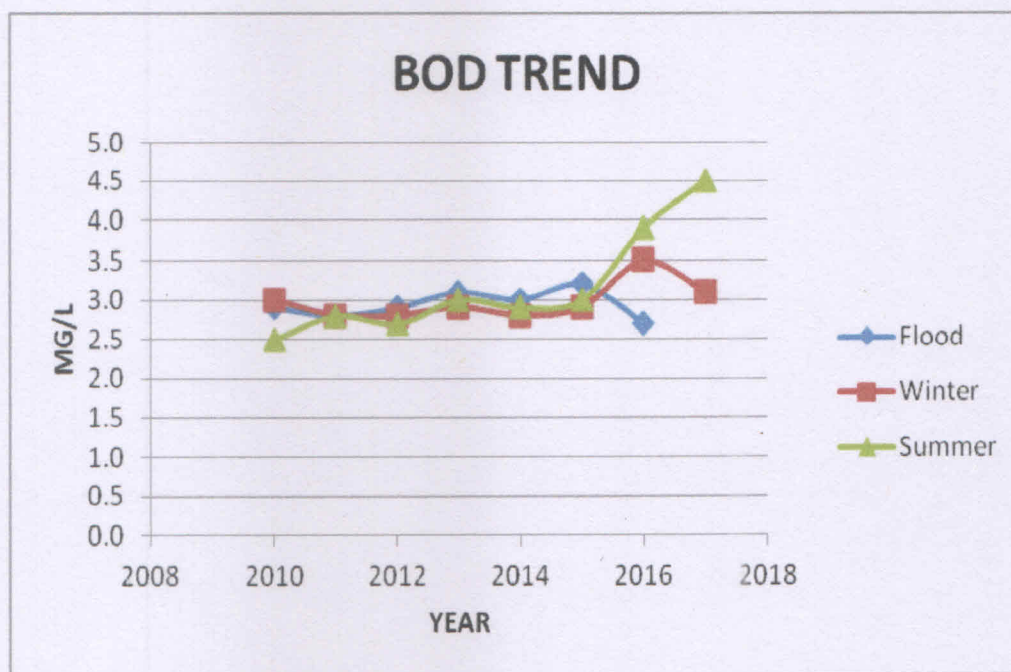


3.4.2 Trends in the variation of Bio-Chemical Oxygen Demand

During flood season maximum value of average B.O.D. was observed 4.7 ppm in 2017 and minimum of 2.71 ppm in 2016. In winter season, the average value of this parameter ranged from minimum 2.43 ppm in 2008-09 to maximum of 4.06 ppm in the year 2017-18. During summer maximum value of average B.O.D. was observed 8.65 ppm in 2018 and minimum of 2.48 ppm in 2010.

Season wise (flood, winter and summer) trend of variation of average B.O.D. at this site for the periods 2010 to 2018 has been depicted in figure- 6

Figure - 6
Average B.O.D Trend at SULTANPUR
(Season wise)



3.4.3 Trends in the variation of chloride

Perusal of table No. 12, 13 & 14 shows that, the average value of this parameter ranged from minimum 22.8 ppm in 2010 to maximum concentration of 86.7 ppm in 2009 during flood season. For winter season minimum value of chloride concentration was found in 27.5 ppm in 2012-13 to max 72.33 ppm in 2009-10. During the summer season maximum chloride concentration was found 207.4 ppm in 2009 and minimum was 24.0 ppm in 2014.

3.4.4 Trends in the variation of specific conductance

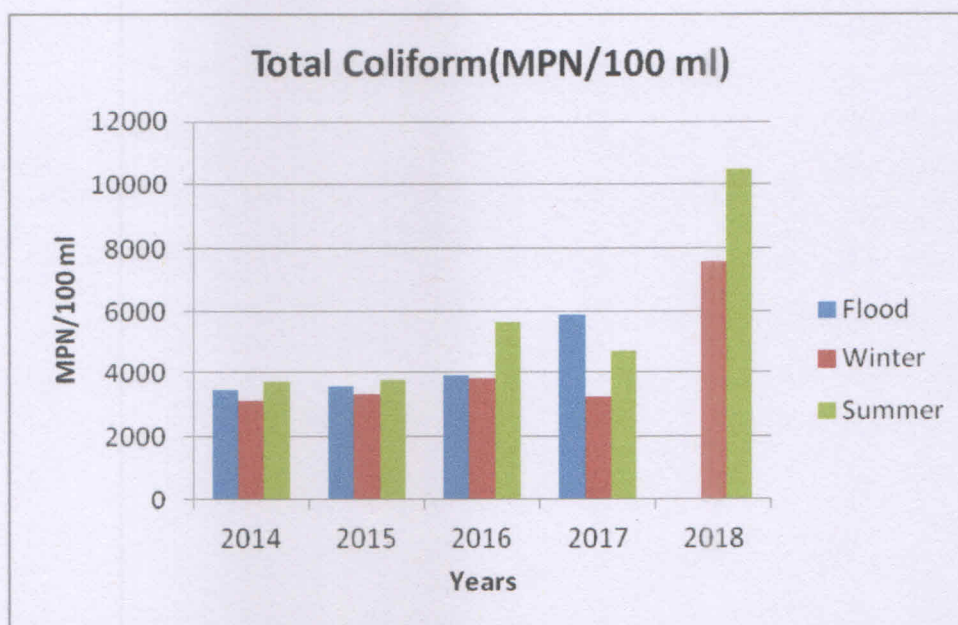
Perusal of table No. 12, 13 & 14 shows that average value of Specific conductance ranged from minimum 281 micro Siemens/cm in the year 2010 to maximum 430 micro Siemens/cm in the year 2015 during flood season.

During winter season minimum specific conductance observed were 316 micro Siemens/cm in 2011-12 and maximum 549.75 micro Siemens/cm in the year 2015-16. During the summer season of 2017 the maximum value of this parameter was 647.33 micro Siemens/cm and minimum 327.33 micro Siemens/cm was observed in summer season of 2012.

3.4.5 Trends in the variation of Total Coliform Concentration

Perusal of table No. 12, 13 & 14 shows that the average value of this parameter ranged from minimum 2200 MPN/100 ml in 2008 to maximum 5880 MPN/100 in 2017 during flood season. For winter season minimum value of Total Coliform was 2875 MPN/100 ml in 2008-09 to maximum 13500 MPN/100 ml in 2009-10. During the summer season maximum Total Coliform is 10500 MPN/100 ml in 2018 and minimum was 2933.33 MPN/100 ml in 2009.

Figure-7
Water Quality Trend of Total Coliform (MPN/100 ml)
(Season wise)



3.5 Gomti at Maighat

The variation of average concentration of all the examined parameters during flood, winter and summer season has been shown in the Table No. 15, 16 & 17 respectively.

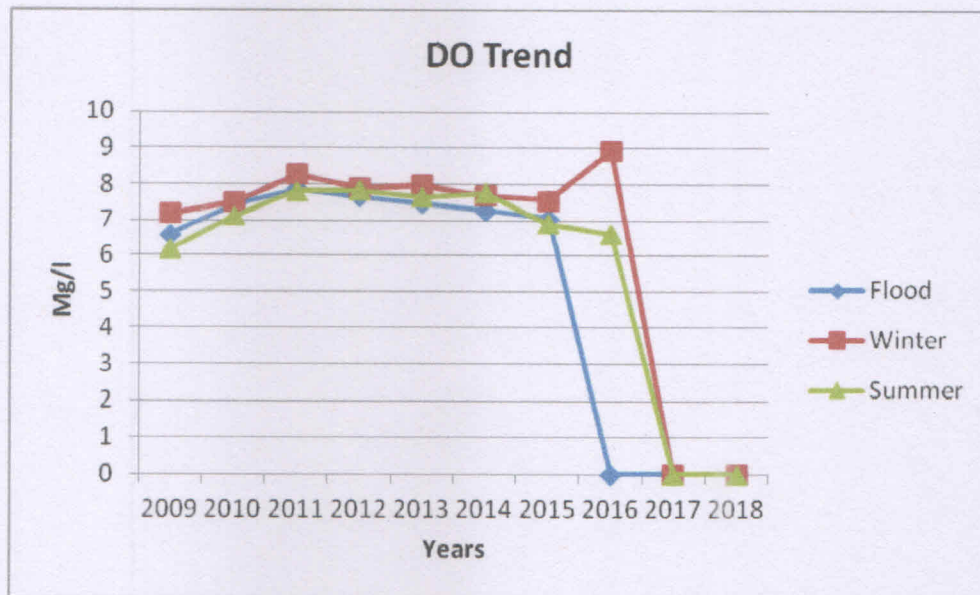
From the Table 15, 16 & 17, it is evident that average value of pH are within tolerance limit except in the flood season of the years 2008 where it is found to be 8.9. In the winter season of the year 2008-09 was 9.0.

3.5.1 Trends in the variation of Dissolved Oxygen

Table no. 15, 16 & 17 demonstrate the average value of D.O. which is ranged from minimum 6.59 ppm in 2009 to maximum concentration of 7.89 ppm in 2008 respectively during flood season. In winter season the average value of D.O. ranged from minimum 7.19 ppm in the year 2008-09 to maximum 8.94 ppm in the year 2015-16. Minimum value of average D.O. content during summer season was observed 6.17 ppm in 2009 and maximum of which was 7.84 ppm observed in 2012. It has further been observed that D.O. in the winter season is comparatively high in comparison to other seasons. On an average it can be said that the value of this parameter at the site is quite satisfactory.

Seasonal average value of D.O. variation for the flood, winter and summer seasons has been depicted in figure- 8.

Figure-8
Average D.O Trend at Maighat
(Season wise)

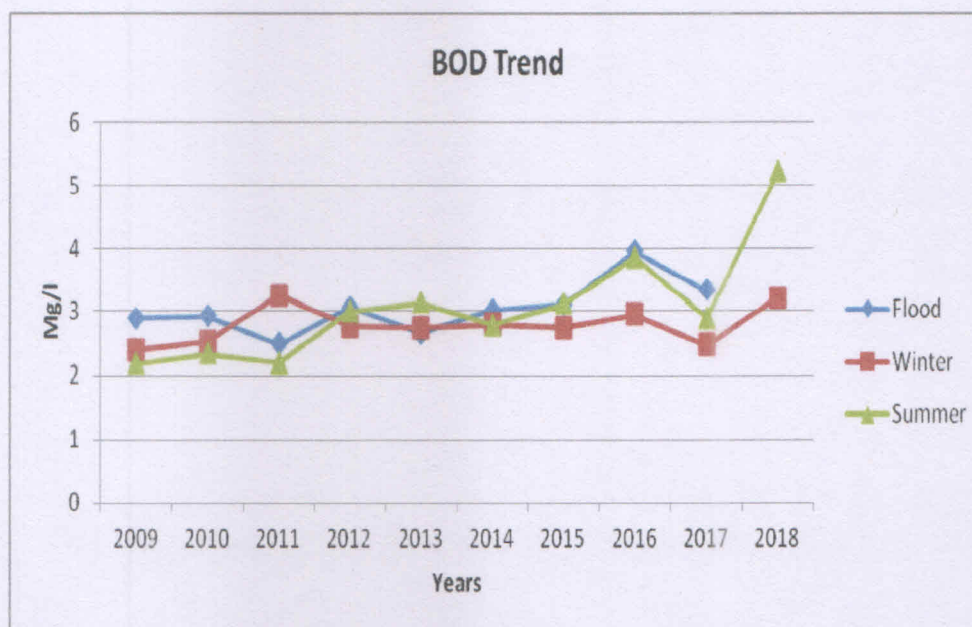


3.5.2 Trends in the variation of Bio-Chemical Oxygen Demand

During flood season, the average value of this parameter ranged from minimum 2.48 ppm in 2011 to maximum of 3.96 ppm in the year 2016. During winter season maximum value of average B.O.D. was observed 3.26 ppm in 2010-11 and minimum of 2.39 ppm in 2008-09. During summer maximum value of average B.O.D. was observed 5.22 ppm in 2018 and minimum of 2.18 ppm in 2009.

Season wise (flood, winter and summer) trend of variation of average B.O.D. at this site for the periods 2010 to 2018 has been depicted in figure- 9.

Figure-9
Average B.O.D Trend at Maighat
(Season wise)



3.5.3 Trends in the variation of chloride

Perusal of table No. 15, 16 & 17 shows that, the average value of this parameter ranged from minimum 27.2 ppm in 2017 to maximum concentration of 98.62 ppm in 2009 during flood season. For winter season minimum value of chloride concentration was found in 32.50 ppm in 2010-11 to maximum of 86.45 ppm in 2009-10. During the summer season maximum chloride concentration was found 127.09 ppm in 2009 and minimum was 34.0 ppm in 2017.

3.5.4 Trends in the variation of specific conductance

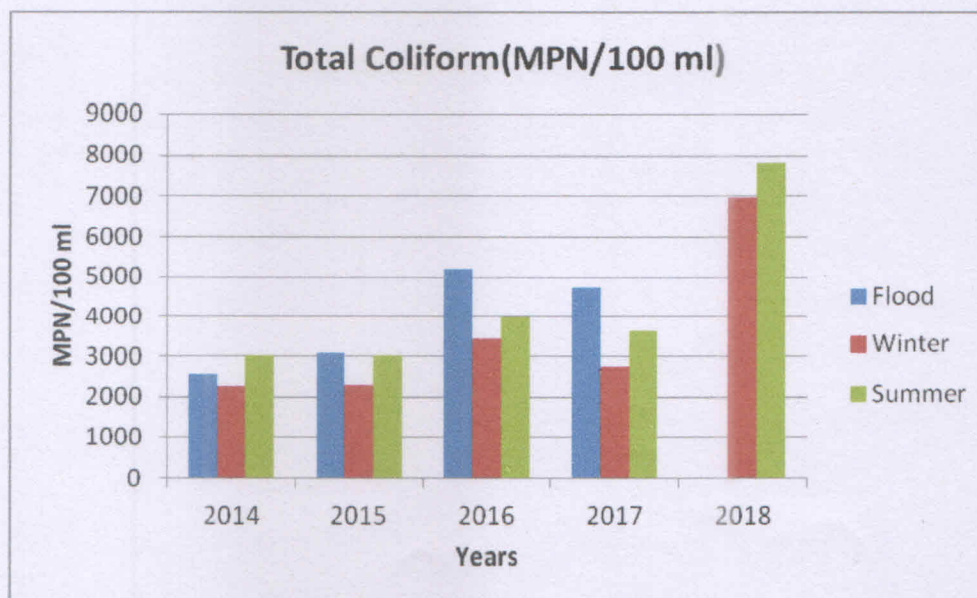
Perusal of table No. 15, 16 & 17 shows that average value of Specific conductance ranged from minimum of 293 micro Siemens/cm in the year 2008 to maximum of 505 micro Siemens/cm in the year 2009 during flood season.

During winter season minimum specific conductance observed was 292 micro Siemens/cm 2013-14 to maximum of 566 micro Siemens/cm in the year 2016-17. During the summer season of 2016 the maximum value of this parameter was 607.67 micro Siemens/cm and minimum 305.67 micro Siemens/cm was observed in summer season of 2011.

3.5.5 Trends in the variation of Total Coliform Concentration

Perusal of table No. 15, 16 & 17 shows that the average value of this parameter ranged from minimum 850 MPN/100 ml in 2008 to maximum 5200 MPN/100 in 2016 during flood season. For winter season minimum value of Total Coliform was 1375 MPN/100 ml in 2008-09 to maximum 8250 MPN/100 ml in 2009-10. During the summer season maximum Total Coliform is 7800 MPN/100 ml in 2018 and minimum was 1333.33 MPN/100 ml in 2009.

Figure - 10
Water Quality Trend of Total Coliform (MPN/100 ml)
(Season wise)



3.6 Sai at Raebareli

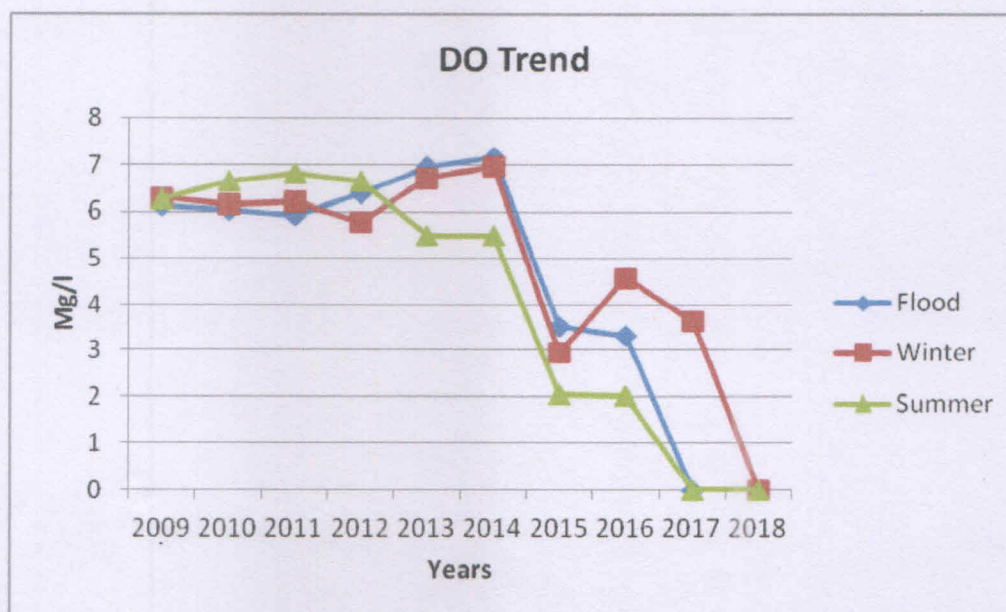
The variation of average concentration of all the examined parameters during flood, winter and summer season has been shown in the Table No. 18, 19 & 20 respectively.

3.6.1 Trends in the variation of Dissolved Oxygen

Table no. 18, 19 & 20 demonstrate the average value of Dissolved Oxygen, which is ranged from minimum 3.32 ppm in 2016 to maximum concentration of 7.16 ppm in 2014 during flood season. In winter season the average value of D.O. ranged from minimum 2.95 ppm in the year 2014-15 to maximum 7.0 ppm in the year 2013-14. Minimum value of average D.O. content during summer season was observed 2.02 ppm in 2016 and maximum of which was 6.82 ppm observed in 2011. It has further been observed that D.O. in the winter season is comparatively high in comparison to other seasons.

Seasonal average value of D.O. variation for the flood, winter and summer seasons has been depicted in figure-11.

Figure-11
Average D.O Trend at RAI BARELI
(Season wise)

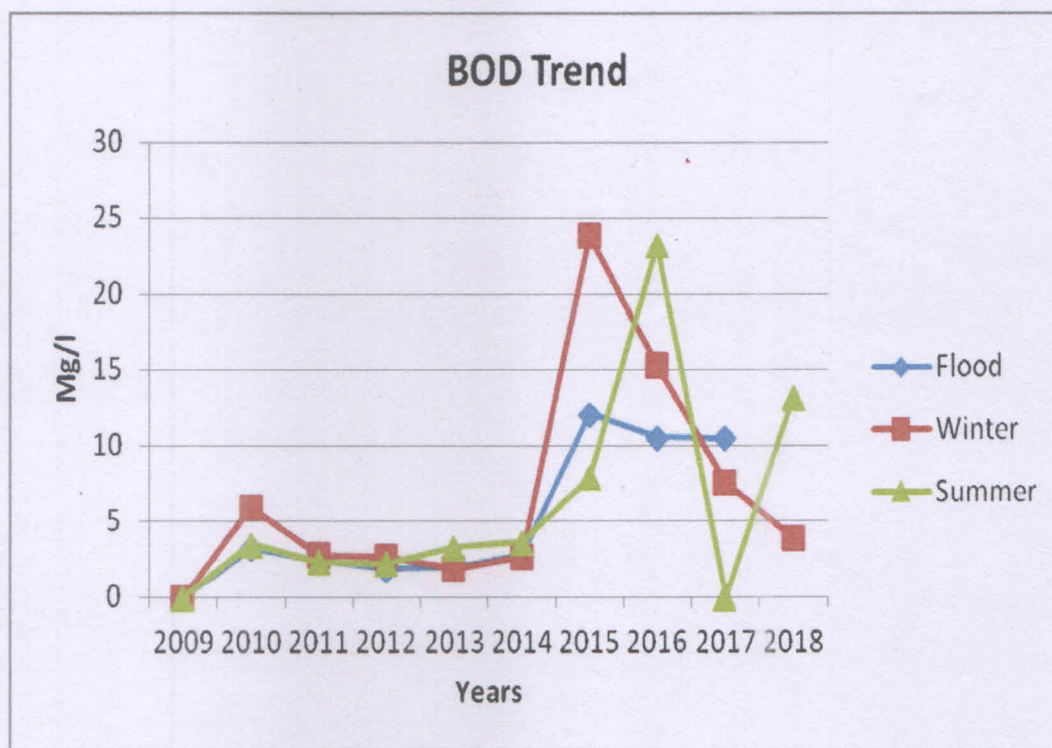


3.6.2 Trends in the variation of Bio-Chemical Oxygen Demand

During winter season, the average value of this parameter ranged from minimum 1.87 ppm in 2012-13 to maximum of 23.81 ppm in the year 2014-15. During summer maximum value of average B.O.D. was observed 23.2 ppm in 2016 and minimum of 2.22 ppm in 2012. During Flood season, the average value of this parameter ranged from minimum 1.84 ppm in 2012 and maximum value of average B.O.D. was observed 12.04 ppm in 2015.

Season wise (flood, winter and summer) trend of variation of average B.O.D. at this site for the periods 2009 to 2018 has been depicted in figure -12.

Figure-12
Average B.O.D Trend at RAI BARELI
(Season wise)



3.6.3 Trends in the variation of chloride

Perusal of table No. 18, 19 & 20 shows that the average value of this parameter ranged from minimum 14.35 ppm in 2012 to maximum concentration of 43.83 ppm in 2015 during flood season. For winter season minimum value of chloride concentration was found in 16.97 ppm in 2012-13 to maximum 57.11 ppm in 2014-15. During the summer season maximum chloride concentration was found 66.0 ppm in 2018 and minimum was 18.68 ppm in 2012.

3.6.4 Trends in the variation of specific conductance

Perusal of table No.18, 19 & 20 shows that average value of Specific conductance ranged from minimum of 290 micro Siemens/cm in the year 2017 to maximum of 574 micro Siemens/cm in the year 2014 during flood season.

During winter season minimum specific conductance observed was 307.50 micro Siemens/cm 2009-10 to maximum of 587.56 micro Siemens/cm in the year 2014-15. During the summer season of 2016 the maximum value of this parameter was 773.33 micro Siemens/cm and minimum 430 micro Siemens/cm was observed in summer season of 2011.

TABLES

TOLERANCE LIMITS FOR INLAND SURFACE WATERS, CLASS – A

TABLE-1

S. No.	Characteristic	Tolerance
(i)	pH value	6.5 to 8.5
(ii)	Dissolved Oxygen, mg/l, ((Min))	6.0
(iii)	Bio-chemical Oxygen Demand ((Max))	2.0
(iv)	Total Coliform Organisms, MPN/100 ml,((Max))	50
(v)	Colour, Hazen units, ((Max))	10
(vi)	Odour	unobjectionable
(vii)	Taste	Agreeable taste
(viii)	Total Dissolved Solids, mg/l, (Max)	500
(ix)	Total Hardness (as CaCO ₃), mg/l, (Max)	300
(x)	Calcium Hardness (as CaCO ₃), mg/l, (Max)	200
(xi)	Magnesium (as CaCO ₃), mg/l, (Max)	100
(xii)	Copper (as Cu), mg/l, (Max)	1.5
(xiii)	Iron (as Fe), mg/l, (Max)	0.3
(xiv)	Manganese (as Mn), mg/l, (Max)	0.5
(xv)	Chlorides (as Cl), mg/l, (Max)	250
(xvi)	Sulphate (as SO ₄), mg/l, (Max)	400
(xvii)	Nitrates (as NO ₂), mg/l, (Max)	20
(xviii)	Fluorides (as F), mg/l, (Max)	1.5
(xix)	Phenolic compounds (as C ₆ H ₅ OH), mg/l, (Max)	0.002
(xx)	Mercury (as Hg), mg/l, (Max)	0.001
(xxi)	Cadmium (as Cd), mg/l, (Max)	0.01
(xxii)	Selenium (as Se), mg/l, (Max)	0.01
(xxiii)	Arsenic (as As), mg/l, (Max)	0.05
(xxiv)	Cyanides (as CN), mg/l, (Max)	0.05
(xxv)	Lead (as Pb), mg/l, (Max)	0.1
(xxvi)	Zinc (as Zn), mg/l, (Max)	15
(xxvii)	Chromium (as Cr ⁶⁺), mg/l, (Max)	0.05
(xxviii)	Anionic detergents, (as MBAS), mg/l, (Max)	0.2
(xxix)	Poly-nuclear aromatic hydrocarbons (PAH),	0.2
(xxx)	(Min)eral oil, mg/l, (Max)	0.01
(xxxi)	Barium (as Ba), mg/l, (Max)	1.0
(xxxii)	Silver (as Ag), mg/l, (Max)	0.05
(xxxiii)	Pesticides	Absent
(xxxiv)	Alpha emitters, µc/ml, (Max)	10 ⁻⁹
(xxxv)	Beta emitters, µc/ml, (Max)	10 ⁻⁸

TOLERANCE LIMITS FOR INLAND SURFACE WATERS, CLASS – B

TABLE- 2

S. No.	Characteristic	Tolerance
(i)	pH Value	6.5 to 8.5
(ii)	Dissolved Oxygen, mg/l,(Min)	5.0
(iii)	Biochemical Oxygen Demand (5 days at 20 °C), (Max)	3.0
(iv)	Total Coliform Organisms, MPN/100 ml, (Max)	500
(v)	Fluorides (as F)<mg/l, (Max)	1.5
(vi)	Colour, Hazen units, (Max)	300
(vii)	Cyanides (as CN), mg/l, (Max)	0.05
(viii)	Arsenic (as As), mg/l, (Max)	0.2
(ix)	Phenolic Compounds (as C ₆ H ₅ OH) mg/l, (Max)	0.005
(x)	Chromium (as Cr ⁶⁺), mg/l, (Max)	1.0
(xi)	Anionic detergents (as MBAS), mg/l, (Max)	1.0
(xii)	Alpha emitters, µc/ml, (Max)	10 ⁻⁸

TOLERANCE LIMITS FOR INLAND SURFACE WATERS, CLASS – C

TABLE- 3

S. No.	Characteristic	Tolerance
(i)	pH Value	6.5 to 8.5
(ii)	Dissolved Oxygen, mg/l (Minimum)	4.0
(iii)	Biochemical Oxygen Demand	3.0
(iv)	Total coliform organisms, MPN/100 ml, (Max)	5000
(v)	Colour, Hazen units, (Max)	300
(vi)	Fluorides (as F), mg/l ,(Max)	1.5
(vii)	Cadmium (as Cd), mg/l, (Max)	0.01
(viii)	Chlorides (as Cl), mg/l, (Max)	600
(ix)	Chromium (as Cr ⁶⁺), mg/l, (Max)	0.05
(x)	Cyanides (as CN), mg/l, (Max)	0.05
(xi)	Total Dissolved Solids, mg/l, (Max)	1500
(xii)	Selenium (as Se), mg/l, (Max)	0.05
(xiii)	Sulphates (as SO ₄), mg/l, (Max)	400
(xiv)	Lead (as Pb), mg/l, (Max)	0.1
(xv)	Copper (as Cu),mg/l,(Max)	1.5
(xvi)	Arsenic (as As), mg/l, (Max)	0.2
(xvii)	Iron (as Fe), mg/l, (Max)	50
(xviii)	Phenolic compounds (as C ₆ H ₅ OH), mg/l, (Max)	0.005
(xix)	Zinc (as Zn), mg/l, (Max)	15
(xx)	Insecticides, mg/l, (Max)	Absent
(xxi)	Anionic detergents (as MBAS), mg/l, (Max)	1.0
(xxii)	Oils and grease, mg/l, (Max)	0.1
(xxiii)	Nitrates (as NO ₃), mg/l,(Max)	50
(xxiv)	Alpha emititers, µc/mg, (Max)	10-9
(xxv)	Beta emitters, µc/ml, (Max)	10-8

TOLERANCE LIMITS FOR INLAND SURFACE WATERS, CLASS -D

Table-4

S. No.	Characteristic	Tolerance
(1)	(2)	(3)
(i)	pH value	6.5 to 8.5
(ii)	Dissolved Oxygen, mg/l, (Min).	4.0
(iii)	Free Ammonia (as N), mg/l, (Max).	1.2
(iv)	Electrical Conductance at 25 °C, μ S, (Max)	1000
(v)	Free Carbon Dioxide (as CO ₂), mg/l, (Max)	6.0
(vi)	Oils and Grease, mg/l, (Max)	0.1
(vii)	Alpha emitters, μ c/ml, (Max)	10^{-9}
(viii)	Beta emitters, μ c/ml, (Max)	10^{-8}

TOLERANCE LIMITS FOR INLAND SURFACE WATERS, CLASS -E

Table-5

S. No.	Characteristic	Tolerance
(i)	pH value	6.0 to 8.5
(ii)	Electrical Conductance at 25°C, μ S, (Max)	2250
(iii)	Sodium Adsorption Ratio, (Max)	26
(iv)	Boron (as B), mg/l, (Max)	2.0
(v)	Total Dissolved Solids, (inorganic), mg/l, (Max)	2100
(vi)	Sulphates (as SO ₄), mg/l, (Max)	1000
(vii)	Chlorides (as Cl), Mg/l, (Max)	600
(viii)	Sodium Percentage, (Max)	60
(ix)	Alpha emitters, μ c/ml, (Max)	10^{-9}
(x)	Beta emitters, μ c/ml, (Max)	10^{-8}

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Station Name: Neemsar(005-mgd2lkn)

Local River: Gomti

Division: Middle Ganga Division-II(MGD-II), Lucknow
Sub Division: Gomti Sub-Division, Lucknow

TABLE- 6

Flood										
PARAMETERS	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Q (cumec)	182.56	94.87	94.02	66.4	36.48	47.45	19.88	22.84	39.03	27.59
BIOLOGICAL/ BACTERIOLOGICAL										
	BOD3-27		1.96	1.37	0.78	1.57	2.16	2.74	6.74	3.27
	COD			6	6	5	9	7	12.8	8.4
DO	7.43	6.79	6.86	6.86	6.86	6.53	6.53	6.27	3.92	
DO_SAT%	98.36	92.9	90.88	93.91	90.75	87.89	89.39	84.39	51.96	5.65
FCol-MPN									1200	18140
Tcol-MPN									6800	27800
CHEMICAL										
ALK-TOT	141.33		76		124	100	140	68	79.03	163.95
Alk-Phen	0		0		23.9	0	0	7.97	5.79	0
B	0.02								0.2	0.31
CO3	0	0	0	0	28.8	0	0	9.6	6.98	0
Ca	29.2	25.8	19	17.2	22.4	25.8	32.6	34.4	24.39	38.07
Cl	28.76	32.13	22.01	12.07	13.85	12.07	15.98	25.92	8.54	14.2
F	1.29	0.47	0.15	0.17	0.17	0.13	0.17	0.89	0.3	0.38
Fe	0.17	0	0							
HCO3	172.43	134.2	92.72	92.72	92.72	122	170.8	63.44	82.22	200.02
K	3.78	4.69	5.86	3.13	1.96	1.96	3.52	4.69	4.3	8.16
Mg	15.07	13.43	6.2	8.26	15.43	14.46	17.5	18.59	13.9	32.62
NH3-N		0.15	0.07	0.1	0.1	0.1	0.2	0.32	0.36	0.65
NO2+NO3	0.61	1.08	0.41	2.06	3.88	5.14	7.76	10.11	7.76	
NO2-N	0.01	0.08	0.06	0.1	0.1	0.1	0.19	0.44	0.46	
NO3-N	0.59	1	0.35	1.96	3.78	5.04	7.57	9.67	7.3	
Na	20.78	23	15.41	7.13	9.66	8.28	11.04	18.17	6.44	9.06
P-Tot									0.32	0.45

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Station Name: Neemsar(005-mgd2lkn)
Local River: Gomti

Division: Middle Ganga Division-II(MGD-II), Lucknow
Sub Division: Gomti Sub-Division, Lucknow

TABLE- 6

Flood										
PARAMETERS	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
SO4	10.72	12.96	6.24	4.32	3.84	5.76	10.08	61.44	24.89	27.56
SiO2	4.57									5.4
o-PO4-P	0.04	0.09	0.03	0.03	0.03	0.31	0.09	0.26		
CHEMICAL INDICES										
HAR_Ca										600.45
HAR_Total	135.77	120.44	73.32	77.43	120.29	124.74	154.4	163.46	120.23	240.18
Na%	24.77	28.52	29.42	16.08	14.7	12.47	13.2	19.01	9.33	
RSC	0.2	0	0.06	0	0.09	0	0	0	0	
SAR	0.78	0.92	0.79	0.35	0.38	0.32	0.39	0.62	0.25	
PESTICIDES										
PHYSICAL										
EC_GEN	290	335	190	220	390	190	250	350	235.18	343.4
Secchi	73	64.5	47.5	43	56	64.5	81.5	86	60.71	
TDS	173.33	200	115	135	235	115	150	175	144.94	207.4
Temp	30	32	30.8	32	30	31	32	31	29.59	29.6
Turb		14.7	5.7	2.6	2.8	4.4	3		5.9	
pH_FLD	8	7.75	7	8	8.5	8.5	8	8.5	8.24	7.92
pH_GEN	7.89	7.85	7.7	8.15	8.4	7.84	8.09	8.4	8.37	7.92
TRACE & TOXIC										

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Station Name: Neemsar(005-mgd2lkn)
Local River: Gomti

Division: Middle Ganga Division-II(MGD-II), Lucknow
Sub Division: Gomti Sub-Division, Lucknow

TABLE- 7

PARAMETERS	Winter										
	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	
Q (cumec)	26.31	23.07	22.31	18.32	20.73	20.4	13.33	10.41	11.1	19.98	
BIOLOGICAL/ BACTERIOLOGICAL											
BOD3-27		2.94	1.17	1.27	0.98	1.55	2.64	7.17	2.32	2.25	
COD				7	4	5.5	3.67	10.67	7	8.5	
DO	7.94	8.11	7.65	7.06	7.93	7.44	5.76	5.17	5.29		
DO_SAT%	91.7	92.62	88.02	80.66	89.61	85.53	63.65	63.27	60.51	7.35	
FCol-MPN									800	1050	
Tcol-MPN									3000	2425	
CHEMICAL											
ALK-TOT	168	164	114	152	124.12	132	193.55	69.16	169	172	
Alk-Phen	9.96	15.94	0	0	0	15.94	37.4	7.97	7.97	0	
B	0.08			0.06	0.06	0.06	0.85	0.17	0.35	0.31	
CO3	12	21.45	0	0	0	19.2	45.06	9.6	9.6	0	
Ca	30.4	20.81	23.2	33.47	32.65	41.19	43.77	37.36	31.8	41.07	
Cl	30.17	25.08	26.98	14.88	14.08	18.94	37.53	27.35	13.13	14.5	
F	0.44	0.32	0.18	0.23	0.19	0.29	0.32	0.4	0.44	0.36	
Fe	0	0	0								
HCO3	180.56	135.88	139.08	192.52	151.43	133.44	144.51	64.85	186.66	209.84	
K	4.3	9.02	5.86	3.71	2.16	3.1	5.28	4.84	10.17	7.15	
Mg	15.43	10.33	10.81	18.5	18.03	23.18	27.57	20.01	34.87	33.74	
NH3-N		0.11	0.04	0.05	0.15	0.34	0.16	0.49	0.63	0.64	
NO2+NO3	0.95	0.97	0.75	3.4	3.5	6.29	15.68	10.57	7.63		
NO2-N	0.05	0.08	0.11	0.19	0.15	0.34	0.39	0.61	0.48		
NO3-N	0.9	0.9	0.64	3.21	3.35	5.96	15.29	9.95	7.15		
Na	22.89	15.79	16.45	10.12	9.7	11.58	19.96	17.55	9.43	9.38	
P-Tot									0.44	0.47	

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Station Name: Neemsar(005-mgd2lkn)

Local River: Gomti

Division: Middle Ganga Division-II(MGD-II), Lucknow
Sub Division: Gomti Sub-Division, Lucknow

TABLE - 7

PARAMETERS	Winter										
	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	
SO4	11.04	9.18	7.68	5.96	10.57	19.14	13.25	72.35	30.24	26	
SiO2	5.1									6.85	
o-PO4-P	0.07	0.06	0.07	0.05	0.05	0.11	0.28	0.27			
CHEMICAL INDICES											
HAR_Ca										638.62	
HAR_Total	140.29	94.53	103.06	160.95	156.93	199.94	223.41	176.59	224.79	255.45	
Na%	25.57	24.6	24.57	11.81	11.73	11.08	16.32	17.27	8		
RSC	0.57	1.04	0.23	0	0	0	0	0	0		
SAR	0.84	0.71	0.71	0.35	0.34	0.36	0.59	0.57	0.27		
PESTICIDES											
PHYSICAL											
EC_GEN	440	310	390	380	410	330	443.33	383.33	370	317.5	
Secchi	76	51.75	58	83.75	81.75	103.25	108.83	93.33	79.5		
TDS	265	187.5	235	232.5	245	198	243.33	252.67	225	191.75	
Temp	22.5	22.5	22.5	21.5	21.5	22	20.67	24.67	22	20.5	
Turb		1.5	1.3	1.5	2.6	1.95			0.6		
pH_FLD	7.5	8.5	8	7.7	8.5	8.5	8.5	8	8	8	
pH_GEN	8.33	8.5	8.44	8.01	8.16	8.59	8.66	8.53	8.33	8.28	
TRACE & TOXIC											

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Station Name: Neemsar(005-mgd2|kn)

Local River: Gomti

Division: Middle Ganga Division-II(MGD-II), Lucknow
Sub Division: Gomti Sub-Division, Lucknow

TABLE- 8

		Summer									
PARAMETERS		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Q (cumec)		14.27	15.43	14.43	12.33	14.01	16.91	10.8	7.51	9.66	8.87
BIOLOGICAL/ BACTERIOLOGICAL											
BOD3-27			1.96	1.57	1.57	1.18	3.53	31.3	10.96		3.35
COD				14	3	7	10	32	20		10.67
DO		7.38	7.06	7.45	7.06	7.25	7.06	1.12	2.74		
DO_SAT%		90.97	93.4	93.5	90.2	95.91	93.4	12.81	35.01		4.31
FCol-MPN											4600
Tcol-MPN											8000
CHEMICAL											
ALK-TOT		168	144	144	172		192	156	88.8		194.69
Alk-Phen		0	11.95	11.95	11.95		19.92	15.94	0.4		0
B		0.12	0.2	0.08	0.04	0.08	0.1	0.2	0.2		0.39
CO3		0	14.4	14.4	14.4	7.2	24	19.2	0.48		0
Ca		32.6	25.8	25.8	29.2	39.6	55	29.2	28.21		48.59
Cl		34.08	28.05	30.17	18.1	18.1	24.14	35.86	14		25
F		0.55	0.4	0.21	3.8	0.23	0.51	0.59	0.42		0.43
Fe		0	0								
HCO3		204.96	146.4	146.4	180.56	161.04	185.44	151.28	107.36		237.53
K		5.47	9.77	8.99	3.91	2.74	3.91	5.86	4.4		10.07
Mg		17.5	13.37	11.3	19.56	20.66	27.82	24.79	22.49		39.46
NH3-N			0.17	0.08	0.2	0.15	0.51	0.35	0.42		0.74
NO2+NO3		1.26	1.33	1.02	4.54	6.64	10.63	15.94	9.82		
NO2-N		0.11	0.15	0.15	0.19	0.19	0.4	0.52	0.62		
NO3-N		1.15	1.18	0.87	4.34	6.45	10.23	15.41	9.2		
Na		24.61	17.25	19.55	10.35	12.65	16.1	23.46	10.4		16.39
P-Tot									0.78		0.64

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Station Name: Neemsar(005-mgd2lkn)
Local River: Gomti

Division: Middle Ganga Division-II(MGD-II), Lucknow
Sub Division: Gomti Sub-Division, Lucknow

TABLE- 8

PARAMETERS	Summer									
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
SO4	14.4	11.52	8.64	6.24	13.92	22.08	7.68	35.5		33.51
SiO2	5.8									8.87
o-PO4-P	0.11	0.08	0.08	0.14	0.06	0.17	0.35			
CHEMICAL INDICES										
HAR_Ca										752.74
HAR_Total	154.4	120.19	111.58	154.51	185.06	253.43	176.27	164.23		301.09
Na%	25.03	22.15	25.79	12.45	12.81	12	21.86	11.83		
RSC	0.29	0.49	0.66	0.37	0	0	0	0		
SAR	0.86	0.69	0.81	0.36	0.41	0.44	0.77	0.35		
PESTICIDES										
PHYSICAL										
EC_GEN	500	490	440	390	480	480	510	340		440
Secchi	81.5	64.5	64.5	73	99	137.5	73	70.52		
TDS	310	295	265	235	290	290	300	209		264
Temp	26	30	27	28	30	30	22	28		20.67
Turb		4.4	1	3.2	2.2	3.8				
pH_FLD	8.5	9	9	8.5	8.5	8.5	8	8.5		8.33
pH_GEN	8.13	8.72	8.83	8.67	8.66	8.58	8.96	8.86		8.07
TRACE & TOXIC										

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Lucknow (Hanuman Setu)(014-mgd2lkn)
 Local River: Gomti
 Division: Middle Ganga Division-II(MGD-II), Lucknow
 Sub Division: Gomti Sub-Division, Lucknow

TABLE- 9

Flood										
PARAMETERS	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Q (cumec)	274.68	103.99	25.61	106.31	85.3	88.27	35.83	48.33	43.75	16.26
BIOLOGICAL/ BACTERIOLOGICAL										
BOD3-27			8.36	6.34	4.98	13.92	13.32	19.49	15.08	
COD			26	11.4	20	52.2	47	22.6	23.38	
DO	5.47	3.46	3.64	2.7	4.23	3.96	0.78	0.98	2.26	
DO_SAT%	72.51	46.31	48.23	35.3	56.62	50.79	10.78	13.17	30.08	
FCol-MPN									6000	
Tcol-MPN									13666.67	
CHEMICAL										
ALK-TOT	120.8	140	94	158.4	142.4	151	155.2	91.7	115.07	0
Alk-Phen	0	0	0	2.39	13.94	0	15.14	11.01	2.57	0
B	0.08								0.21	
CO3	0	4.34	7.26	2.88	16.8	0	18.24	13.26	3.1	0
Ca	33	25.07	25.48	33.04	30.28	47.33	52.96	33.36	34.37	
Cl	17.61	28.39	31.26	18.81	15.55	19.12	26.06	27.62	26.49	
F	0.51	0.62	0.4	0.33	0.33	0.32	0.46	0.59	0.53	
Fe	0.15	0.2								
HCO3	147.38	166.39	151.15	187.39	139.57	189.69	152.26	84.91	134.09	0
K	11.89	12.56	8.24	4.14	2.42	3.09	6.88	6.8	9.96	
Mg	18.13	19.26	13.98	18.35	18.98	24.09	22.89	24.32	17.61	
NH3-N		0.48	0.23	0.12	0.16	0.34	0.44	1.07	0.8	
NO2+NO3	1.28	1.27	1.01	4.07	5.85	11.2	15.26	18.36	11.12	
NO2-N	0.04	0.06	0.08	0.09	0.17	0.35	0.44	0.54	0.49	
NO3-N	1.24	1.2	0.93	3.98	5.69	10.85	14.82	17.82	10.63	
Na	16.33	19.19	20.49	12.1	11.22	12.5	17.66	19.73	17.51	
P-Tot									0.61	

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Lucknow (Hanuman Setu) (014-mgd2lkn) Division: Middle Ganga Division-II (MGD-II), Lucknow
Local River: Gomti Sub Division: Gomti Sub-Division, Lucknow

TABLE- 9

PARAMETERS	Flood									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
SO4	18.43	15.27	9.23	3.55	6.14	14.01	19.01	28.42	36.16	
SiO2	5.24									
o-PO4-P	0.08	0.08	0.4	0.08	0.11	0.11	0.17	0.33		
CHEMICAL INDICES										
HAR_Ca										
HAR_Total	158.03	142.29	123.63	159.04	154.78	219.34	227.78	184.75	159.09	
Na%	17.19	21.06	25.07	13.46	13.1	10.81	13.65	17.64	17.67	
RSC	0	0.2	0.31	0.12	0	0	0	0	0	
SAR	0.56	0.7	0.8	0.41	0.38	0.37	0.5	0.62	0.59	
PESTICIDES										
PHYSICAL										
EC_GEN	322	432	374	300	404	366	458	480	420	
Secchi	82.5	62.4	64.4	82.6	75.7	118.7	132.4	83.4	85.9	
TDS	192	212	251	183.4	246	221	280.8	256.2	257.2	
Temp	30	25.3	30.7	29.4	31.1	28.8	30.6	30.1	30.5	
Turb		6.82	5.62	3.08	6.24	7.9	4.66		1.36	
pH_FLD	7.4	7.5	7.68	7.5	7.6	7.2	8.2	8	8	
pH_GEN	7.64	8.05	8.04	8	8.67	7.87	8.6	8.3	8.07	
TRACE & TOXIC										

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Lucknow (Hanuman Setu)(014-mgd2lkn)
Local River: Gomti

Division: Middle Ganga Division-II(MGD-II), Lucknow
Sub Division: Gomti Sub-Division, Lucknow

TABLE- 10

PARAMETERS	Winter										
	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	
Q (cumec)	60.69	129.17	29.63	41.79	60.55	57.8	34.31	19.39	32.82		
BIOLOGICAL/ BACTERIOLOGICAL											
BOD3-27		8.62	4.71	3.18	4.17	10.59	28.12	25.12	6.65	5.35	
COD				13.62	15.75	27.5	30.6	27.2	10	15.75	
DO	7.06	3.54	4.52	3.92	5.19	3.63	1.61	0.71	0.52		
DO_SAT%	76.62	35.81	52.65	41.75	53.59	36.19	15.92	8.46	6.57	3.67	
FCol-MPN									9333.33	4250	
Tcol-MPN									75666.66	17250	
CHEMICAL											
ALK-TOT	119	133.33		170.86	143.21	192.2	206.47	115.73	198.83	219	
Alk-Phen	0	0		5.2	0	0	28.58	2.33	0	0	
B	0.07			0.06	0.08	0.08	0.26	0.22	0.45	0.4	
CO3	0	0	4.8	9.14	0	5.33	34.43	2.81	0	0	
Ca	24.9	26.32	34.35	34.56	37.52	53.74	45.16	40.8	34.87	34.61	
Cl	17.04	36.12	29.11	14.13	13.57	20.22	40.2	21.96	21.42	32.5	
F	0.49	0.57	0.31	0.3	0.22	0.35	0.28	0.68	0.58	0.5	
Fe	0.13	0.17			0						
HCO3	145.18	161.19	184.22	183.66	174.72	216	181.89	135.47	242.58	267.18	
K	11.53	10.1	6.26	3.14	1.58	4.23	5.55	5.77	15.64	13.07	
Mg	14.94	18.31	15.46	20.18	21.42	26.54	30.23	24.47	31.35	29.15	
NH3-N		0.43	0.3	0.18	0.15	0.33	0.32	0.86	0.73	0.67	
NO2+NO3	1.1	1.24	0.79	5.84	6.03	12.47	18.59	16.68	9.14		
NO2-N	0.05	0.06	0.12	0.18	0.19	0.3	0.4	0.66	0.5		
NO3-N	1.05	1.19	0.67	5.66	5.84	12.17	18.19	16.02	8.64		
Na	15.47	21.77	18.23	9.75	9.54	13.79	27.43	13.96	14.49	21.87	
P-Tot									0.99	0.74	

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Lucknow (Hanuman Setu)(014-mgd2lkn) Division: Middle Ganga Division-II(MGD-II), Lucknow

Local River: Gomti Sub Division: Gomti Sub-Division, Lucknow

TABLE- 10

PARAMETERS	Winter									
	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
SO4	15.72	13.11	6.36	5.55	10.36	15.66	19.82	35.86	34.56	26.47
SiO2	4.8									6.8
α-PO4-P	0.07	0.06	0.06	0.14	0.08	0.11	0.27	0.27		
CHEMICAL INDICES										
HAR_Ca										542.78
HAR_Total	124.52	141.82	150.3	169.78	182.6	242.85	239.06	204.74	217.78	217.11
Na%	19.49	23.53	20.13	10.79	10.04	10.65	19.64	12.72	11.82	
RSC	0	0	0.2	0.01	0	0	0	0	0.05	
SAR	0.6	0.8	0.65	0.32	0.31	0.38	0.78	0.43	0.43	
PESTICIDES										
PHYSICAL										
EC_GEN	372.5	357.5	422.5	405	412.5	442.5	480	443.33	428.85	410
Secchi	62.25	65.62	85.88	86	93.5	133.25	112.7	103.04	87.1	
TDS	227.5	217.5	256.75	246.75	249	266.25	266	269.49	260.62	247.5
Temp	19.5	12.89	17.01	18.62	17.38	15	18	23.09	21.85	19.88
Turb		2.43	1.23	1.7	6.15	1.55			0.45	
pH_FLD	7.5	7.5	7.5	7.5	7.5	8	8	8	8	7.88
pH_GEN	7.9	8	7.97	8.04	8.14	8.3	8.36	8.12	7.78	7.74
TRACE & TOXIC										

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Lucknow (Hanuman Setu)(014-mgd2lkn)
 Local River: Gomti
 Division: Middle Ganga Division-II(MGD-II), Lucknow
 Sub Division: Gomti Sub-Division, Lucknow

TABLE- 11

PARAMETERS	Summer										
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
Q (cumec)	37.96	35.08	28.31	45.11	57.28	53.31		25.33			
BIOLOGICAL/ BACTERIOLOGICAL											
BOD3-27		10.23	8.86	4.85	6.15	9.95	19.13	18.7	11.4	15.75	
COD			44	13.67	21.67	27.33	26	26	21.2	40.67	
DO	3.66	2	1.92	4.92	2.74	2.61	1.18	0.65			
DO_SAT%	43.69	24.23	23.26	58.97	32.1	30.69	12.92	8.64	1.51	1.77	
FCol-MPN									67000	28333.33	
Tcol-MPN									124000	41666.67	
CHEMICAL											
ALK-TOT	148.15	187.08	195	188	170	202.86	180.31	134	220.78	345.54	
Alk-Phen	0	13.41	0	15.94	7.97	17.16	13.24	0	0	0	
B	0.14	0.2	0.1	0.1	0.12	0.1	0.34	0.36	0.45	0.57	
CO3	0	16.15	0	22.19	6.54	20.67	15.95	6.13	0	0	
Ca	30.47	30.97	42.62	41.76	54.42	64.29	41.27	42.47	36.06	62.28	
Cl	28.81	43.48	34.22	20.54	22.61	27.43	37.25	35.71	25.4	61.67	
F	0.7	0.72	0.5	0.38	0.35	0.42	0.49	0.74	0.57	0.7	
Fe	0.3	0.22									
HCO3	180.74	195.39	226.51	190.43	204.23	205.46	187.54	154.91	269.35	421.56	
K	14.09	12.52	8.14	3.51	3.24	5.63	15.35	10.28	19.82	19.29	
Mg	21.35	21.31	18.31	22.36	29.53	28.6	28.09	31.03	29.31	47.6	
NH3-N	0.62	0.53	0.36	0.21	0.4	0.43	0.51	1.06	0.76	0.88	
NO2+NO3	1.4	1.84	1.37	6.65	11.24	14.01	26.05	17.26			
NO2-N	0.09	0.15	0.15	0.22	0.39	0.49	0.44	0.74			
NO3-N	1.31	1.68	1.22	6.43	10.85	13.52	25.61	16.52			
Na	20.04	29.07	21.18	13.33	15.87	18.14	28.92	21.57	16.16	37.87	
P-Tot									0.94	1.06	

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Lucknow (Hanuman Setu)(014-mgd2lkn) Division: Middle Ganga Division-II(MGD-II), Lucknow
Local River: Gomti Sub Division: Gomti Sub-Division, Lucknow

TABLE- 11

PARAMETERS	Summer									
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
SO4	18.42	19.06	7.65	8.74	16.57	20.87	17.27	47.73	22.6	51.4
SiO2	4.16								7	9.5
o-PO4-P	0.55	0.14	0.11	0.14	0.13	0.14	0.38	0.32		
CHEMICAL INDICES										
HAR_Ca									558.85	946.27
HAR_Total	164.76	166.1	182.1	197.65	259.35	279.47	220.45	235.43	223.54	378.51
Na%	19.36	25.9	19.34	12.62	11.62	12.09	21.13	15.94		
RSC	0	0.48	0.08	0	0	0	0	0		
SAR	0.68	0.98	0.68	0.41	0.43	0.47	0.86	0.62		
PESTICIDES										
PHYSICAL										
EC_GEN	556.67	603.33	516.67	563.33	520	546.67	542.5	590	466.4	736.67
Secchi	76	77.33	106.17	104.5	136.17	160.5	103.38	105.82		
TDS	336.67	366.67	310	340	312.33	330	297.5	362	280.6	470
Temp	24.67	26.33	21.09	24.33	24.83	23.33	21	27.33	28.9	24.33
Turb		1.9	1.23	2.33	3.4	1.17				
pH_FLD	7.5	7.4	7.5	7.83	7.5	7.67	8.38	8	7.8	8
pH_GEN	7.89	8.43	8.11	8.51	8.5	8.34	8.43	8.08	7.5	7.67
TRACE & TOXIC										

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: SULTANPUR(009-MGD3VNS)
Local River: Gomti

Division: Middle Ganga Division-III(MGD-III), Varanasi
Sub Division: Middle Ganga Choti Saryu Sub-Division, Varanasi

TABLE- 12

PARAMETERS	Flood										
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
Q (cumec)	494.33	186.96	164.67	205.31	153.3	209.96	82.85	69.57		85.73	
BIOLOGICAL/ BACTEOROLOGICAL											
BOD3-27	3.24	2.98	2.87	2.81	2.91	3.06	3.04	3.18	2.71	4.7	
COD	8.63	9.76	12.82	12.86	12.94	11.37	17.74	12.54	14.22	29.72	
DO	7.89	7.48	7.23	7.68	7.05	7.22	7.21	6.19	6.77		
DO_SAT%	104.86	103.09	100.02	99.29	92.32	92.53	93.16	74.47	91.37	5.37	
FCol-MPN	1000	1640	1320	1380	1340	1480	1840	1960	1660	2700	
Tcol-MPN	2200	4940	2880	3020	2960	2780	3460	3600	3900	5880	
CHEMICAL											
ALK-TOT	106.4	212.2	220.8	170.4	152.08	141.87	140.8	141.78	110.4	136.9	
Alk-Phen	5.98	5.58	23.9	19.92	7.97	5.31	3.98	0	0	0	
B	0	0.06	0.04	0	0.1	0.03	0.02	0.06	0.03	0.03	
CO3	7.2	6.72	28.8	24	9.6	6.4	4.8	0	0	0	
Ca	25.74	30.74	38.08	45.04	49.11	46.68	44.38	35.06	49.95	38.77	
Cl	25.6	86.69	22.8	37.6	27.6	29	28.4	25.71	42	41.6	
F	0.16	0.4	0.66	0.22	0.53	0.41	0.32	0.3	0.35	0.3	
Fe	0.09	0.14	0.28	0.09	0.19	0.19	0.2	0.24	0.24		
HCO3	115.17	245.22	210.82	159.09	166.02	160.06	162.02	172.97	134.69	167.01	
K	9	6.47	7	6.8	7.8	8.2	7.4	6.23	10.8	11.62	
Mg	14.99	28.11	16.47	20.65	17.1	16.98	14.95	14.48	12.47	13.67	
NH3-N	0.05	0.06	0.05	0.05	0.05	0.05	0.05	0	0.05	0	
NO2+NO3	0.07	0.86	0.18	0.3	0.39	0.33	0.3	0.3	0.29		
NO2-N	0.01	0.01	0	0	0.01	0	0	0	0		
NO3-N	0.07	0.84	0.18	0.3	0.38	0.33	0.3	0.3	0.29		
Na	35.4	70.75	25	22.8	21.2	19.6	21.4	17.67	25.4	28.66	
Ni											
Org-N	0.02	0.28	0.01								
P-Tot	0.04	0.25	0.03	0.04	0	0	0.09	0.14	0.13	0.17	

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: SULTANPUR(009-MGD3VNS)

Local River: Gomti

Division: Middle Ganga Division-III(MGD-III), Varanasi
Sub Division: Middle Ganga Choti Saryu Sub-Division, Varanasi

TABLE- 12

Flood										
PARAMETERS	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
SO4	26.6	19.68	12.84	29.6	28.8	25	24.2	23.05	29.4	44
SiO2	5.35	7.75	8.47	8.03	8.6	8.47	8.22	7.61	8.38	9
o-PO4-P							0.03	0.05		
CHEMICAL INDICES										
HAR_Ca										489.22
HAR_Total	126.83	193.99	163.85	198.63	194.03	187.45	173.25	147.55	176.81	195.69
Na%	36.16	43.49	22.58	19.58	18.46	17.75	20.33	19.76	22.72	
RSC	0.01	0.4	1.16	0.07	0	0	0	0.03	0	
SAR	1.38	2.21	0.84	0.71	0.66	0.62	0.71	0.63	0.84	
PESTICIDES										
PHYSICAL										
EC_FLD	305	413	277	336.63	325	300	434	466	360.8	420
EC_GEN	291.2	424	281	327.83	313.4	294.4	427.2	430	367.2	415.8
SS										
Secchi	64.36	76.85	95.21	112.88	122.77	116.69	110.96	87.36	124.87	
TDS		314.2	149.8	203.83	198.6	200.2	256.4	258.2	208.8	219.8
Temp	30.2	32.5	32.8	28.71	29.5	28.3	28.8	24.7	31	31.3
Turb		0.72	0.18	0.1			3.08	0.52		
pH_FLD	8.4	8.24	8.39	8.2	7.7	7.96	7.9	7.58	8.02	7.68
pH_GEN	8.95	8.36	8.29	8.56	7.87	8.23	7.92	7.8	7.91	7.7
TRACE & TOXIC										

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: SULTANPUR(009-MGD3VNS)

Local River: Gomti

Division: Middle Ganga Division-III(MGD-III), Varanasi
Sub Division: Middle Ganga Choti Saryu Sub-Division, Varanasi

TABLE- 13

	Winter										
PARAMETERS	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	
Q (cumec)	88.4	78.98	66.72	84.37	62.08	75.98	50.16	43.25	36.5	32	
BIOLOGICAL/ BACTERIOLOGICAL											
BOD3-27	2.43	2.99	2.84	2.83	2.87	2.84	2.9	3.56	3.06	4.06	
COD	7.12	10.86	12.75	11.72	16.05	11.5	19.85	18.98	20.53	26.88	
DO	8.1	7.55	8.11	7.92	7.94	7.75	7.58	5.86	8.23		
DO_SAT%	93.92	82.98	89.55	86.4	78.65	82.82	72.14	53.19	50.73	6.32	
FCol-MPN	1125	1900	1275	1325	1400	2025	1500	1977.27	1100	3225	
Tcol-MPN	2875	13500	2925	2975	3150	3125	3325	3781.82	3225	7575	
CHEMICAL											
ALK-TOT	155	184.62	214	160	146	132.67	144	211	85.64	208.42	
Alk-Phen	12.45	3.98	19.92	19.92	9.96	3.32	4.98	0	0	0	
B	0.05	0.03	0.03	0.02	0.03	0.03	0.03	0.03	0.03	0.03	
CO3	15	4.8	24	24	12	4	6	0	0	0	
Ca	34.32	30.06	39.31	36.95	48.41	46.89	44.4	49.84	42.84	44.35	
Cl	67.1	72.33	29	31.25	30	27.5	32	37.5	40.37	36.51	
F	0.22	0.19	0.33	0.3	0.35	0.36	0.3	0.4	0.28	0.26	
Fe	0.05	0.17	0.22	0.2	0.19	0.21	0.22	0.24	0.24		
HCO3	158.6	215.48	212.28	146.4	153.72	153.72	163.48	257.42	104.48	254.27	
K	9.53	5.85	6.75	7	6.5	8	7	9.5	9.27	7.93	
Mg	23.87	24.62	20.18	19.49	15.08	14.49	16.2	20.74	16.57	23.76	
NH3-N	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0	0.03	0	
NO2+NO3	0.22	0.42	0.42	0.33	0.3	0.31	0.28	0.33	0.26		
NO2-N	0	0.01	0.02	0.01	0	0	0	0	0		
NO3-N	0.22	0.41	0.41	0.32	0.3	0.31	0.28	0.33	0.26		
Na	57.36	59.28	20.75	21.5	21	21.25	20.5	26.5	23.46	28.4	
Ni											
Org-N	0.04	0.63	0.01								
P-Tot	0.01	0.03	0.2	0.18	0.13	0	0.11	0.16	0.15	0.18	

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: SUL TANPUR(009-MGD3VNS)
Local River: Gomti

Division: Middle Ganga Division-III(MGD-III), Varanasi
Sub Division: Middle Ganga Choti Saryu Sub-Division, Varanasi

TABLE- 13

PARAMETERS	Winter									
	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
SO4	25.53	15	16.5	17	20	25	21.5	26	32.17	29.72
SiO2	7.01	8.2	8.01	8.28	8.41	8.55	7.81	7.9	8.57	8.85
o-PO4-P							0.04			
CHEMICAL INDICES										
HAR_Ca									572.29	610.52
HAR_Total	185.25	177.75	182.36	173.6	183.87	177.61	178.51	211.03	188.97	244.21
Na%	38.32	41.11	19.3	20.48	19.29	19.83	19.3	20.47	21.64	
RSC	0.06	0.34	0.94	0	0	0	0	0.08	0	
SAR	1.82	1.95	0.67	0.71	0.68	0.7	0.67	0.79	0.77	
PESTICIDES										
PHYSICAL										
EC_FLD	363.75	390	323	323.75	333.75	332.5	412.5	555	463.75	540
EC_GEN	349.75	488.81	328.75	316	323	328.5	406.25	549.75	467.75	535.75
SS										
Secchi	85.79	75.15	98.29	92.38	121.02	117.23	111	124.61	104.06	
TDS		275.75	165.5	223.5	187	206.25	247	330.75	249.5	268.25
Temp	22.75	20.25	20.38	19.75	15.12	18.88	13.12	10.38	20	19.3
Turb		0.1	0.1				3.55	1.82		
pH_FLD	8.12	8.28	8.51	8.2	8.02	8.1	7.85	7.72	8.21	7.82
pH_GEN	8.7	8.25	8.44	8.54	8.28	8.28	8.02	7.86	7.89	7.87
TRACE & TOXIC										

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name : SULTANPUR(009-MGD3VNS)

Local River: Gomti

Division: Middle Ganga Division-III(MGD-III), Varanasi
Sub Division: Middle Ganga Choti Saryu Sub-Division, Varanasi

TABLE- 14

	Summer										
PARAMETERS	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
Q (cumec)	48.44	40.89	37.53	37.4	44.33	61.96	36.76	27.19	23.85	21.78	
BIOLOGICAL/ BACTEOROLOGICAL											
BOD3-27	2.87	2.48	2.83	2.68	2.96	2.86	3.03	3.92	4.54	8.65	
COD	7.87	20.45	9.99	13.47	14.4	13.67	21.4	18.23	29.6	29.63	
DO	7.95	7.59	7.83	7.18	7.56	7.8	7.2	6.08			
DO_SAT%	99.59	93.64	90.75	85.22	83.97	89.91	73.8	69.86	5.79	3.84	
FCol-MPN	1066.67	1466.67	1666.67	1533.33	1566.67	2366.67	2033.33	2666.67	1900	4666.67	
Tcol-MPN	2933.33	6333.33	3133.33	3133.33	3166.67	3700	3766.67	5666.67	4666.67	10500	
CHEMICAL											
ALK-TOT	208	180.7	131.54	162.34	163.65	139.52	148.26	212.28	111.73	208.56	
Alk-Phen	19.92	22.58	19.92	19.92	19.92	7.73	0	0	0	5.44	
B	0.01	0.03	0.02	0.03	0.16	0.03	0.03	0.03	0.03	0.03	
CO3	24	27.2	24	24	24	9.31	0	0	0	6.56	
Ca	35.76	38.89	64.31	39.84	44.23	46.49	46.12	51.58	44.26	46.71	
Cl	207.44	50.09	24.72	31.97	32.66	24	35.41	38.76	46	42.26	
F	0.18	0.3	1.28	0.29	0.31	0.36	0.38	0.42	0.3	0.33	
Fe	0.05	0.23	0.25	0.23	0.22	0.23	0.26	0.22			
HCO3	204.96	165.15	111.68	149.26	150.86	151.28	180.88	258.98	136.32	241.11	
K	8.72	5.32	8	8.02	8.67	8	8.7	9.36	12.33	6.37	
Mg	34.39	29.47	14.57	19.98	16.02	14.72	17.47	22.48	18.78	25.55	
NH3-N	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0	0	0	
NO2+NO3	0.08	0.06	0.84	0.47	0.38	0.32	0.33	0.34			
NO2-N	0	0	0	0	0	0	0	0			
NO3-N	0.08	0.06	0.84	0.47	0.38	0.32	0.33	0.34			
Na	141.22	38.19	23.93	22.95	24.02	20	23.07	28.07	31	30.43	
Ni			20	6	5	5	7	6			
Org-N	0.04	0.01	0.01								
P-Tot	0	0.01	0.21	0.19	0.19	0	0.16	0.17	0.16	0.17	

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: SULTANPUR(009-MGD3VNS)

Local River: Gomti

Division: Middle Ganga Division-III(MGD-III), Varanasi

Sub Division: Middle Ganga Choti Saryu Sub-Division, Varanasi

TABLE- 14

PARAMETERS	Summer									
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
SO4	21.65	22.05	19.02	20.4	20.03	22	27.41	28.72	42.33	46.6
SiO2	8.45	8.77	8.1	8.38	8.42	8.7	8.67	7.67	8.1	8.52
o-PO4-P							0.03			
CHEMICAL INDICES										
HAR_Ca									578.42	646.31
HAR_Total	232.69	220.02	221.71	182.61	177.29	177.56	187.79	222.28	231.37	258.52
Na%	55.79	26.94	18.34	20.76	21.79	18.89	20.12	20.52		
RSC	0	0.06	0	0	0	0	0	0		
SAR	4.04	1.12	0.7	0.75	0.79	0.65	0.73	0.81		
PESTICIDES										
PHYSICAL										
EC_FLD	571.67	524.33	389	335	365.67	349	513.33	622.07	643.33	596.67
EC_GEN	559.33	512	387.33	327.33	363.33	342.67	505.33	615.86	647.33	621
SS								18.4		
Secchi	89.39	97.23	160.83	99.38	110.6	116.23	115.14	128.35		
TDS		264.33	201.67	229.67	222	210	301	370.69	341	310.33
Temp	27.17	26.17	23	24.17	20.67	22.67	16.83	22.14	25.83	25.23
Turb		0.1	0.1				1.2	1.4		
pH_FLD	7.67	8.63	8.7	8.17	8.44	8.2	7.97	7.8	8.3	8.1
pH_GEN	8.66	8.72	8.73	8.59	8.49	8.5	8	7.9	8.21	8.16
TRACE & TOXIC										

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: MAIGHAT(018-mgd3vns)
Local River: Gomti

Division: Middle Ganga Division-III(MGD-III), Varanasi
Sub Division: Middle Ganga Choti Saryu Sub-Division, Varanasi

TABLE- 15

PARAMETERS	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Q (cumec)	586.98	282.46	270.89	352.43	260.92	402.54	177.67	122.64	188.96	148.16
BIOLOGICAL/ BACTERIOLOGICAL										
BOD3-27	3.41	2.89	2.92	2.48	3.06	2.65	3.02	3.1	3.96	3.33
COD	7.62	4.52	10.52	10.32	12.3	9.43	16.62	13.46	21.3	26.5
DO	7.89	6.59	7.43	7.88	7.67	7.49	7.28	7.06		
DO_SAT%	104.36	89.34	97.95	105.71	101.19	102.9	101.72	97.9	6.38	6.23
FCOL-MPN	325	1800	820	960	1080	920	1340	1620	2900	2060
Tcol-MPN	850	3080	1560	2020	2160	2080	2560	3080	5200	4740
CHEMICAL										
ALK-TOT	81.4	167.2	237.33	178.37	175.4	166.4	163.68	184.25	212.83	135.28
Alk-Phen	5.48	0	31.59	0	0	0	0	0	0.41	0.17
B	0	0.06	0.01	0.01	0.04	0.03	0.01	0	0	0.01
CO3	6.6	0	38.06	0	0	0	0	0	3.5	0.26
Ca	26.29	24.45	35.26	34.52	33.74	32.06	31.68	36.07	44.55	37.02
Cl	57.02	98.62	30.58	41.8	48.81	46.8	36.4	32.27	60	27.2
F	0.23	0.59	0.71	0.26	0.5	0.43	0.33	0.39	0.54	0.34
Fe	0.04	0.12	0.2	0.05	0.16	0.15	0.13	0.17		
HCO3	85.89	203.98	212.16	217.61	213.99	203.01	199.69	224.78	209.2	153.71
K	8.66	8.03	5.78	7	8.2	8.2	7.8	7.66	13	9.42
Mg	10.22	22.55	20.73	23.02	22.59	19.6	22.21	20.15	42.31	18.37
NH3-N	0.05	0.52	0.05	0.05	0.05	0.05	0	0	0	0
NO2+NO3	0.21	0.33	0.02	0.18	0.18	0.18	0.17	0.15		
NO2-N	0.01	0.01	0	0	0	0	0	0	0	
NO3-N	0.2	0.32	0.02	0.18	0.18	0.18	0.17	0.15		
Na	37.4	87.44	28.59	29.8	33.6	33.4	30.4	22.8	36	19.42
Ni										
Org-N	0.01	0.03	0.01		0.01					
P-Tot	0.03	0.32	0.08	0.03	0.1	0.08	0.08	0.14	0.19	0.19

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: MAIGHAT(018-mgd3vns)

Local River: Gomti

Division: Middle Ganga Division-III(MGD-III), Varanasi
Sub Division: Middle Ganga Choti Saryu Sub-Division, Varanasi

TABLE- 15

Flood										
PARAMETERS	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
SO4	46.81	30.24	16.9	24.68	29.41	32	27.2	25.86	40	31.84
SiO2	7.67	6.8	9.16	7.8	9.4	9.28	9.05	8.41	9.8	9.49
o-PO4-P							0.03	0		
CHEMICAL INDICES										
HAR_Ca									728.5	500.4
HAR_Total	108.3	155.07	174.72	182.21	178.42	161.8	171.74	173.84	291.4	200.16
Na%	41.53	53.73	24.43	25.25	28.01	29.81	26.81	20.43		
RSC	0	0.27	1.28	0.07	0.04	0.16	0	0.23		
SAR	1.61	3.05	0.94	0.96	1.1	1.15	1.01	0.74		
PESTICIDES										
PHYSICAL										
EC_FLD	305	510	334.4	350.76	326.4	310	352	440	430	398
EC_GEN	293	505.2	329.8	339	324.4	302.6	348.4	435	437	395.6
Secchi	65.73	61.12	88.33	86.22	84.24	80.15	79.19	90.07		
TDS		113.8	180.2	203.2	200.4	199.6	208.8	261.2	270	219.6
Temp	30.2	31.5	30	31.11	30	32.5	33.3	32.9	32	31.6
Turb		0.44	0.36	0.1			4.02	0.34		
pH_FLD	8.1	7.97	8.18	8.3	7.9	8.02	8	7.84	8.25	7.8
pH_GEN	8.87	8.13	8.55	8.54	8.07	8.17	8.16	7.96	8.2	7.82
TRACE & TOXIC										

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: MAIGHAT(018-mgd3vns)
Local River: Gomti

Division: Middle Ganga Division-III(MGD-III), Varanasi
Sub Division: Middle Ganga Choti Saryu Sub-Division, Varanasi

TABLE- 16

PARAMETERS	Winter										
	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	
Q (cumec)	135.56	125.16	90.84	112.08	82.09	115.08	85.85	50.88	70.78	35.44	
BIOLOGICAL/ BACTERIOLOGICAL											
BOD3-27	2.39	2.52	3.26	2.76	2.73	2.79	2.74	2.94	2.46	3.21	
COD	4.33	5.48	10.55	10.22	15.75	10.47	16.25	18.52	22.65	25.53	
DO	7.19	7.52	8.29	7.9	8	7.69	7.57	8.94			
DO_SAT%	82.93	81.72	95.53	88.42	91.2	84.97	82.93	97.75	7.03	6.92	
FCOI-MPN	700	3025	750	825	1325	1200	1175	1825	950	2925	
Tcol-MPN	1375	8250	1875	2000	2350	2275	2300	3425	2750	6950	
CHEMICAL											
ALK-TOT	123	159	205.67	165.69	163	164	174	203	105.26	168.29	
Alk-Phen	9.96	2.99	18.26	0.87	0	0	0	0	0.58	0	
B	0.05	0	0.04	0.03	0.03	0.04	0	0	0	0	
CO3	12	3.6	22	1.05	0	0	0	0	0.85	0	
Ca	32.67	26.4	31.7	33.5	35.35	31.82	34.14	40.88	47.13	41.23	
Cl	81.65	86.45	32.5	39.5	42.5	41.5	45	37.5	45	36.31	
F	0.21	0.28	0.47	0.22	0.3	0.43	0.23	0.41	0.3	0.35	
Fe	0.13	0.15	0.09	0.16	0.17	0.15	0.2	0.17			
HCO3	125.66	186.66	206.18	200.01	198.86	200.08	212.28	247.66	104.35	205.32	
K	8.39	4.97	6	7.25	7.5	8.25	8.5	8.5	10	7.65	
Mg	13.92	18.57	25.81	24.73	22.89	19.37	22.98	22.69	20.54	24.76	
NH3-N	0.05	0.05	0.05	0.05	0.05	0.05	0	0	0	0	
NO2+NO3	0.22	1.68	0.08	0.05	0.08	0.09	0.11	0.17			
NO2-N	0	0	0	0	0	0	0	0	0		
NO3-N	0.22	1.68	0.08	0.05	0.08	0.09	0.11	0.17			
Na	51.41	76.53	17.25	28	30	30	30.5	28	29	27.57	
Ni											
Org-N	0.01	0.01	0.01								
P-Tot	0.02	0.05	0.1	0.09	0.11	0.13	0.11	0.16	0.2	49.4	

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: MAIGHAT(018-mgd3vns)

Local River: Gomti

Division: Middle Ganga Division-III(MGD-III), Varanasi

Sub Division: Middle Ganga Choti Saryu Sub-Division, Varanasi

TABLE- 16

		Winter									
PARAMETERS	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	
SO4	16.64	18.36	23	19.75	29.5	27	33.5	27.75	36.5	25.7	
SiO2	8.22	9.39	7.92	8.01	8.21	10.28	7.79	9.17	10.82	9.42	
o-PO4-P							0.04				
CHEMICAL INDICES											
HAR_Ca									619.28	584.22	
HAR_Total	139.67	143.39	186.81	186.8	183.74	160.28	181.12	196.75	247.71	233.69	
Na%	42.36	52.82	16.32	23.9	25.42	27.77	25.81	22.49			
RSC	0	0.4	0.5	0	0	0.11	0.07	0.17			
SAR	1.88	2.79	0.55	0.9	0.97	1.03	0.99	0.87			
PESTICIDES											
PHYSICAL											
EC_FLD	320	331.25	317.5	355	340	300.25	352.5	525	560.5	505	
EC_GEN	306	328.75	313.5	341.79	335.25	292	346.5	519.25	566	501.75	
Secchi	81.66	66.01	79.25	83.76	88.38	79.55	85.36	102.19			
TDS		130	163.25	170.79	186	171.5	207	311.75	282.5	250.75	
Temp	22	19.5	22.5	20.8	22.12	20.62	20	21.5	15.25	19.75	
Turb		0.1	0.1	0.1			4.25	1.05			
pH_FLD	8.25	8.05	8.28	8.37	8.05	7.7	7.9	8.03	7.93	8.03	
pH_GEN	8.95	8.24	8.52	8.56	8.22	8.02	8.04	8.12	7.85	8.09	
TRACE & TOXIC											

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: MAIGHAT(018-mgd3vns)

Local River: Gomti

Division: Middle Ganga Division-III(MGD-III), Varanasi

Sub Division: Middle Ganga Choti Saryu Sub-Division, Varanasi

TABLE- 17

	Summer										
PARAMETERS	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
Q (cumec)	56.78	48.58	48.71	46.5	65.95	81.97	64.3	26.45	34.69	24.26	
BIOLOGICAL/ BACTERIOLOGICAL											
BOD3-27	2.18	2.33	2.19	3	3.14	2.78	3.11	3.86	2.89	5.22	
COD	4.93	11.27	10.42	11.4	15.63	12.93	18.27	19.9	27.6	27.23	
DO	6.17	7.13	7.82	7.84	7.67	7.76	6.9	6.6			
DO_SAT%	77.53	90.68	97.21	96.31	94.96	91.67	85.99	82.06	5.98	6.5	
FCol-MPN	666.67	716.67	1033.33	1000	1233.33	1600	1600	2200	1233.33	3133.33	
Tcol-MPN	1333.33	2200	2166.67	2233.33	2533.33	3000	3000	4000	3633.33	7800	
CHEMICAL											
ALK-TOT	186.67	131.18	192	165.63	219.08	154.53	201.51	213.59	123.21	193.67	
Alk-Phen	33.2	4.23	19.92	6.87	0	0	0	0	0.66	8.22	
B	0.05	0	0.04	0.03	0.04	0.04	0	0	0	0	
CO3	40	5.1	24	8.28	0	0	0	0	1.3	9.91	
Ca	36.07	39.67	29.46	34.31	34.31	33.02	35.95	43.34	43.17	42.23	
Cl	127.09	89.23	36.71	50.76	41.31	37.34	49.44	46.07	34	45.09	
F	0.21	0.79	0.38	0.26	0.43	0.43	0.46	0.49	0.34	0.36	
Fe	0.09	0.2	0.08	0.14	0.17	0.15	0.25	0.19			
HCO3	146.4	149.67	185.44	185.24	267.28	188.52	245.84	260.58	121.87	216.14	
K	10.79	5.27	7.34	9.02	9.02	8	9.36	10.03	9	6.43	
Mg	25.29	22.17	27.92	23.65	23.75	20.11	24.68	26.4	20.36	26.43	
NH3-N	0.05	0.05	0.05	0.05	0.05	0.05	0	0	0	0	
NO2+NO3	0.23	0.01	0.11	0.18	0.18	0.09	0.16	0.18			
NO2-N	0	0	0	0	0	0	0	0	0		
NO3-N	0.23	0.01	0.11	0.18	0.18	0.09	0.16	0.18			
Na	88.55	65.43	25.34	33.02	33.34	31	34.1	31.05	24	32.43	
Ni			8.25	3	5	6.2	8	7			
Org-N	0.03	0.07	0.01								
P-Tot	0.02	0.04	0.07	0.13	0.13	0.13	0.14	0.18	0.19	0.18	

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: MAIGHAT(018-mgd3vns)
Local River: Gomti

Division: Middle Ganga Division-III(MGD-III), Varanasi
Sub Division: Middle Ganga Choti Saryu Sub-Division, Varanasi

TABLE- 17

PARAMETERS	Summer									
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
SO4	22.08	24.17	21.34	23.66	27.97	24.66	35.41	34.72	31	40.73
SiO2	8.84	10.77	7.98	8.33	8.28	10.87	9.15	9.6	9.53	9.28
O-PO4-P							0.05			
CHEMICAL INDICES										
HAR_Ca									576.99	605.14
HAR_Total	195.57	191.53	189.91	184.29	184.71	166.34	192.52	218	230.8	242.06
Na%	47.84	42.06	21.81	26.96	27.12	27.77	26.57	22.73		
RSC	0.04	0	0.08	0	0.85	0	0.2	0.02		
SAR	2.76	2.08	0.8	1.06	1.07	1.05	1.07	0.92		
PESTICIDES										
PHYSICAL										
EC_FLD	521.67	493.33	310.33	363.21	391.67	320.33	490	615	576.67	593.33
EC_GEN	511.33	485.67	305.67	345.93	385.33	311.33	485	607.67	584.33	589.33
Secchi	90.18	99.17	73.47	85.75	85.75	82.55	89.77	108.21	303	295
TDS		265.33	157.67	188.71	210	163	291.33	365.33	26.67	26.83
Temp	27.17	28	26.83	26.36	26.33	23.83	26.67	27	1.6	
Turb		0.1	0.1	0.1			0.93			
pH_FLD	7.77	8.5	8.4	8.34	8.27	8.1	7.97	8.17	8.03	8.33
pH_GEN	8.24	8.63	8.55	8.57	8.35	8.31	8.11	8.24	7.98	8.4
TRACE & TOXIC										

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Division: Middle Ganga Division-II(MGD-II), Lucknow
Sub Division: Gomti Sub-Division, Lucknow

TABLE- 18

Station Name: Rae bareli(016-mgd2lkn)

Local River: Sai

Flood										
PARAMETERS	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Q (cumec)	71.5	34.48	44.71	51.92	45.85	46.45	16.73	21.34	17.56	16.22
BIOLOGICAL/ BACTEOROLOGICAL										
BOD3-27			3.23	2.39	1.84	2.04	2.72	12.04	10.53	10.5
COD			28	9.8	11.2	11	13.6	15.2	19.38	18.67
DO	5.64	6.14	6.03	5.92	6.39	6.97	7.16	3.53	3.32	
DO_SAT%	73.05	81.29	80.31	78.04	86.24	92.32	97.13	46.17	44.9	3.87
FCol-MPN									10433.33	4166.67
Tcol-MPN									20333.33	8333.33
CHEMICAL										
ALK-TOT	147.2		148	151	123	199.2	191.2	86.47	136	123.96
Alk-Phen	0		7.97	0	15.44	0	14.34	7.08	11.4	0
B	1.1							3.46	0.23	0.15
CO3	0	3.84	10.51	3.45	15.26	0	17.28	8.53	13.74	0
Ca	33.04	44.08	34.08	32.52	25.71	58.8	61.88	28.17	30.04	25.87
Cl	17.18	24.42	32.73	24.69	14.35	23.93	41.68	43.83	31.1	21.33
F	0.31	0.54	0.46	0.31	0.26	0.45	0.52	0.5	0.38	0.29
Fe	0.09	0.28								
HCO3	179.58	190.32	185.04	206.34	120.12	243.02	198.13	88.14	137.98	151.23
K	6.88	9.46	9.1	4.61	3.27	3.75	7.27	5.69	15.41	16.6
Mg	17.96	17.3	16.15	20.87	16.5	31.78	29.28	16.72	18.81	10.13
NH3-N		0.1	0.14	0.17	0.14	0.38	0.56	0.6	0.61	0.39
NO2+NO3	0.99	1.34	1.4	4.84	6.16	13.93	16.44	9.98	7.92	
NO2-N	0.13	0.07	0.12	0.12	0.13	0.51	0.63	0.45	0.49	
NO3-N	0.86	1.27	1.28	4.72	6.03	13.42	15.81	9.52	7.43	
Na	12.51	16.7	21.17	15.63	9.94	16.15	27.69	30.01	19.83	13.9
P-Tot									0.63	0.38

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Rae Bareilly(016-mgd2lkn)

Local River: Sai

Division: Middle Ganga Division-II(MGD-II), Lucknow

Sub Division: Gomti Sub-Division, Lucknow

TABLE- 18

PARAMETERS	Flood									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
SO4	17.66	27.46	18.45	7.62	6.93	19.68	23.62	25.99	25.54	16.07
SiO2	5.48									7.73
o-PO4-P	0.06	0.06	0.12	0.09	0.06	0.17	0.2	0.24		
CHEMICAL INDICES										
HAR_Ca										332.78
HAR_Total	157.42	182.29	153.84	170.28	133.25	279.43	276.71	140.16	153.47	133.11
Na%	14.11	15.59	22.19	16.15	13.45	10.65	17.62	30.4	19.59	
RSC	0.03	0.07	0.35	0.17	0	0	0	0	0.08	
SAR	0.43	0.53	0.75	0.52	0.37	0.41	0.73	1.1	0.68	
PESTICIDES										
PHYSICAL										
EC_FLD							410			
EC_GEN	356	436	440	392	418	422	574	362	484	290
Secchi	82.6	110.2	86	82.6	64.5	147	154.7	70.5	75.1	
TDS	214	261	266.6	236.2	254	254	348.6	200	299.2	175
Temp	28.8	30.1	30.4	29.8	31.2	30	31.4	29.6	30.8	29.33
Turb		18.26	3.5	41.54	6.46	12.42	3.57		6.16	
pH_FLD	7.7	8.1	8.5	8.1	8.1	8.1	8	8	7.8	7.67
pH_GEN	7.73	8.02	8.27	8.11	8.58	7.97	8.49	8.29	8.15	7.63
TRACE & TOXIC										

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Rae bareli(016-mgd2lkn)

Local River: Sai

Division: Middle Ganga Division-II(MGD-II), Lucknow

Sub Division: Gomti Sub-Division, Lucknow

TABLE- 19

PARAMETERS	Winter										
	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	
Q (cumec)	8.18	8.03	6.3	8.11	8.97	7.94	5.26	4.49	1.77	1.73	
BIOLOGICAL/ BACTEOROLOGICAL											
BOD3-27		5.9	2.79	2.64	1.87	2.64	23.81	15.29	7.58	3.89	
COD				10.75	10.75	10.25	25.2	20.2	13.67	14.75	
DO	6.29	6.16	6.22	5.77	6.72	6.96	2.95	4.58	3.64		
DO_SAT%	69.82	65.46	69.07	63.55	71.93	78.78	32.75	52.21	41.49	4.86	
FCol-MPN									5933.33	2850	
Tcol-MPN									8666.67	6625	
CHEMICAL											
ALK-TOT	175	198.67	148	149.33	153.97	229.97	181.98	99.62	165.17	195.2	
Alk-Phen	3.98	11.95	0	11.95	7.36	18.94	22.43	8.75	2.66	0	
B	0.08			0.08	0.04	0.08	0.9	0.16	0.41	0.28	
CO3	4.8	15.49	10.43	10.97	8.86	22.82	27.02	10.54	3.2	0	
Ca	42.25	34.04	32.59	28.36	39.99	68.41	47.09	39.7	33.8	46.01	
Cl	20.5	18.05	34.08	19.94	16.97	31.02	57.11	29.7	31	35.75	
F	0.42	0.47	0.34	0.28	0.31	0.46	0.51	0.5	0.42	0.43	
Fe	0.29	0.14									
HCO3	203.74	200.15	186.45	162.98	169.82	234.17	167.06	100.11	195	238.14	
K	8.8	9.15	8.79	2.92	3.37	4.4	4.23	5.07	20.72	14.7	
Mg	21.11	13.64	16.19	19.85	24.99	36.02	26.62	18.53	21.67	22.19	
NH3-N		0.09	0.05	0.22	0.3	0.47	0.36	0.89	0.64	0.47	
NO2+NO3	1.08	1.16	1.29	6.11	7.34	17.39	22.99	9.03	9.21		
NO2-N	0.08	0.08	0.15	0.11	0.21	0.62	0.39	0.63	0.39		
NO3-N	1	1.08	1.14	6.01	7.13	16.77	22.6	8.4	8.83		
Na	14.43	14.14	21.77	12.97	11.56	20.49	41.55	19.07	19.55	24.05	
-Tot									0.68	0.45	

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Rae bareli(016-mgd2lkn)
Local River: Sai

Division: Middle Ganga Division-II(MGD-II), Lucknow
Sub Division: Gomti Sub-Division, Lucknow

TABLE- 19

PARAMETERS	Winter										
	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	
SO4	23.4	21.31	8.11	6.39	12	24.72	28.73	47.81	28.64	85.7	
SiO2	5.95									8.83	
o-PO4-P	0.07	0.04	0.14	0.09	0.07	0.15	0.29	0.26			
CHEMICAL INDICES											
HAR_Ca										617.94	
HAR_Total	193.59	141.83	149.21	153.77	204.29	321.23	228.57	177.15	174.78	247.18	
Na%	13.35	16.62	22.91	15.26	10.8	12.09	28.17	18.71	17.54		
RSC	0.12	0.96	0.46	0.05	0	0	0.04	0	0.09		
SAR	0.45	0.51	0.78	0.46	0.35	0.5	1.21	0.63	0.65		
PESTICIDES											
PHYSICAL											
EC_FLD							650				
EC_GEN	430	307.5	387.5	477.5	420	472.5	587.56	469.74	453.33	487.5	
Secchi	105.62	85.12	81.62	71	100	171	119.12	100.37	84.5		
TDS	255	190	236.25	290	253.75	283.75	326.83	288.41	275	292.25	
Temp	20.5	18.5	20.25	20	19	20.75	18.73	22.09	21.33	19	
Turb		2.5	1.2	1.67	5.65	2.55			5.47		
pH_FLD	7.75	7.5	7.88	8.25	8.5	8.5	8.5	8.38	7.83	7.75	
pH_GEN	8.13	8.43	8.36	8.17	8.14	8.56	8.69	8.44	7.99	8.07	
TRACE & TOXIC											

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Rae Bareilly(016-mgd2lkn)
Local River: Sai

Division: Middle Ganga Division-II(MGD-II), Lucknow
Sub Division: Gomti Sub-Division, Lucknow

TABLE- 20

	Summer										
PARAMETERS	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
Q (cumec)	3.6	3.23	3.27	5.25	5.15	4.57	4.68	0.93	0.28	0.36	
BIOLOGICAL/ BACTERIOLOGICAL											
BOD3-27		3.49	2.35	2.22	3.27	3.59	7.89	23.2		13.14	
COD			7.5	9.67	13	23	29	33.33		34.33	
DO	6.27	6.66	6.82	6.66	5.49	5.49	2.04	2.02			
DO_SAT%	76.18	80.16	82.28	81.56	66.73	65.09	23.51	26.1		1.76	
FCol-MPN										9166.67	
Tcol-MPN										14666.67	
CHEMICAL											
ALK-TOT	192	198.77	190.91	157.22	138	244.16	158.83	188		395.98	
Alk-Phen	0	10.73	8.21	17.24	6.97	12.11	24.76	26.2		0	
B	0.2	0.2	0.12	0.06	0.1	0.14	0.36	0.44		0.51	
CO3	9.24	12.92	6.94	20.77	8.78	14.6	29.83	22.16		0	
Ca	52.11	41.3	39.61	30.31	49.17	76.95	39.08	51.59		61.92	
Cl	33.28	28.09	33.35	18.68	23.85	52.11	61.79	42.84		66	
F	0.66	0.67	0.36	0.29	0.42	0.53	0.39	0.63		0.58	
Fe	0.54	0.2									
HCO3	218.59	216.22	216.28	149.59	171.53	268.2	133.11	172.67		483.09	
K	12.36	10.82	8.06	3.53	4.42	8.36	7.07	8.11		21.02	
Mg	24.12	17.89	18.62	19.92	27.47	39.52	24.71	26.56		46.31	
NH3-N	0.21	0.21	0.14	0.23	0.4	0.61	0.57	1.05		0.86	
NO2+NO3	1.61	1.99	1.5	7.53	10.69	24.42	20.38	12.73			
NO2-N	0.15	0.12	0.15	0.15	0.42	0.73	0.44	0.86			
NO3-N	1.46	1.87	1.35	7.38	10.27	23.69	19.94	11.86			
Na	22.55	18.79	20.54	11.96	16.53	34.51	44.07	17.61		41.66	
P-Tot								1.1		0.7	

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Rae bareli(016-mgd2lkn)

Local River: Sai

Division: Middle Ganga Division-II(MGD-II), Lucknow
Sub Division: Gomti Sub-Division, Lucknow

TABLE- 20

PARAMETERS	2009	2010	2011	2012	2013	Summer					2017	2018
						2014	2015	2016	2017	2018		
SO4	32.11	28.11	7.07	8.79	18.04	28.58	32.65	45.06		45.61		
SiO2	7.12									11.63		
o-PO4-P	0.13	0.11	0.13	0.08	0.14	0.22	0.36	0.31				
CHEMICAL INDICES												
HAR_Ca										934.46		
HAR_Total	230.91	177.59	176.12	158.86	237.91	356.87	200.9	239.72		373.78		
Na%	16.67	17.68	19.44	13.83	12.84	17.07	30.99	13.41				
RSC	0	0.44	0.39	0.01	0	0	0	0				
SAR	0.65	0.62	0.68	0.41	0.47	0.8	1.37	0.51				
PESTICIDES												
PHYSICAL												
EC_FLD												
EC_GEN	643.33	550	430	513.33	546.67	706.67	567.5	773.33		820		
Secchi	130.5	103.17	98.83	75.83	123.33	192.17	97.88	128.63				
TDS	386.67	336.67	258.33	310	329.33	428	325.75	466		529		
Temp	25.5	24.67	24.33	25.67	25.33	24	22.75	28		25		
Turb		2.4	1.4	3.6	3.73	1.5						
pH_FLD	8	7.83	8.17	8	8	8	8.25	8.17		8		
pH_GEN	8.22	8.6	8.4	8.78	8.65	8.38	8.69	8.31		7.73		
TRACE & TOXIC												

5. निरूपण

किमी०	:	किलोमीटर
क्यूमेक	:	क्यूबिक मीटर प्रति सेकण्ड
म०गं०मं०	:	मध्य गंगा मण्डल
मिमी०	:	मिलीमीटर
सेमी०	:	सेन्टीमीटर
डी०ओ०	:	Dissolved Oxygen (घुलित ऑक्सीजन)
बी०ओ०डी०	:	Bio- Chemical Oxygen Demand (जैवरासायनिक ऑक्सीजन माँग)
पी०पी०एम०	:	Parts per Million
एच०एन०	:	Hardness Number (कठोरता संख्या)
एस०पी०	:	Sodium Percentage (सोडियम प्रतिशतता)
एस०ए०आर०	:	Sodium Adsorption Ratio (सोडियम एडजोर्प्शन अनुपात)
आर०एस०सी०	:	Residual Sodium Carbonate (अवशिष्ट सोडियम कार्बोनेट)
K^+	:	पॉटेशियम आयन
Na^+	:	सोडियम आयन
Ca^{++}	:	कैल्शियम आयन
Mg^{++}	:	मैग्नीशियम आयन
Al^{+++}	:	एल्यूमिनियम आयन
Fe^{+++}	:	लौह आयन
NH_4^+	:	अमोनियम आयन
CO_3^{--}	:	कार्बोनेट आयन
HCO_3^-	:	बाईकार्बोनेट आयन
Cl^-	:	क्लोराइड आयन
F^-	:	फ्लोराइड आयन
SO_4^{--}	:	सल्फेट आयन
SO_3^{--}	:	सल्फाइट आयन
NO_3^-	:	नाइट्रेट आयन
NO_2^-	:	नाइट्राइट आयन
PO_4^{---}	:	फॉस्फेट आयन
SiO_2	:	सिलिका

6. शब्दार्थ

<u>हिन्दी</u>	:	<u>English</u>
विशिष्ट	:	Unique
अवशिष्ट	:	Residual
अपवाह	:	Up Stream
अभिलक्षण	:	Characteristics
अक्षांश	:	Latitude
आकलन	:	Estimation
औद्योगिक	:	Industrial
क्रम संख्या	:	Serial Number
कठोरता संख्या	:	Hardness Number
गेज का शून्य सापेक्ष तल	:	Zero R.L. of Gauge
मापक प्राधिकारी	:	Measuring Analysis
चालकता मापी	:	Conductivity Meter
जलोत्सारण क्षेत्र	:	Drainage Area
जल गुणवत्ता पर भारतीय मानक:	:	Indian Standars on water quality
जनपद	:	District
व्यवस्थितदंग से विश्लेषण	:	Systematic Analysis
व्याख्यात्मक टिप्पणी	:	Explanatory Notes
विवरण	:	Particulars
विशिष्ट चालकता	:	Specific Conductance, Conductivity
इतिहास पृष्ठ	:	History Sheet
भण्डारण	:	Storage
भौतिक	:	Physical
धनायनिक योग	:	Cationic Toatal
ऋणायनिक योग	:	Anionic Total
जैविक	:	Biological
जीवाण्विक	:	Bacteriological
सान्द्रता	:	Concentration
सोडियम प्रतिशतता	:	Sodium Percentage
संक्षिप्ताक्षर	:	Abbreviations

हिन्दी

समेकित	:
अनुमापन	:
रंग मापीय	:
रंग परिवर्धन	:
समुद्री मुहाने	:
सिंचाई	:
सूचक मानचित्र	:
सूचना स्रोत	:
स्थल	:
सहायक नदी	:
रासायनिक	:
प्रस्तावना	:
पृष्ठ संख्या	:
प्रेक्षण की विधि	:
प्रस्तुतीकरणविधि	:
प्रबोधन करना	:
प्राचल	:
पी०एच० मीटर	:
पुनः प्राप्ति	:
ज्वाला उत्सर्जन	:
भारमापक	:
टरबिडिमापक	:
तुल्यांकी भाग	:
देशान्तर	:
दैनिक प्रेक्षित निस्सारण	:
चुर्नीदा	:
नगण्य	:
निरूपण	:
नियंत्रित कचरा निपटान	:
निर्धारण	:

English

Integral
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Colorimetric
Colour development
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Nil
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हिन्दी

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विषय क्षेत्र	:
वर्गीकरण	:
सूक्ष्म मात्रिक एवं विषैले	:
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चाक्षुष	:
घुलित ऑक्सीजन	:
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तल प्रवाह	:
खाँचा	:
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शुद्धीकरण	:
संकमण हटाना	:
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श्रेणी 'अ'	:
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English

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