

# **RAMGANGA**

# **RIVER BASIN ATLAS**

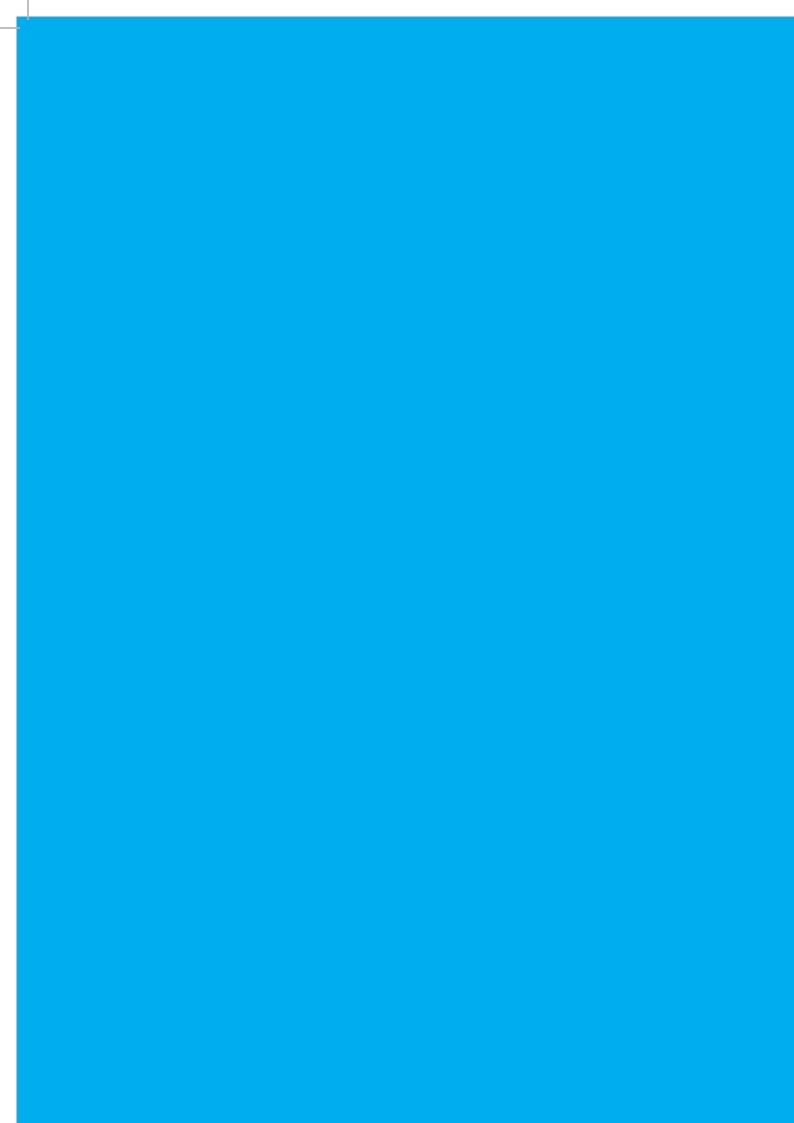
December 2024

(Version 2)



Centre for Ganga River Basin Management and Studies

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DECEMBER 2024



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### **National Mission for Clean Ganga (NMCG)**

NMCG is the implementation wing of National Ganga Council which was setup in October 2016 under the River Ganga Authority order 2016. Initially NMCG was registered as a society on 12th August 2011 under the Societies Registration Act 1860. It acted as implementation arm of National Ganga River Basin Authority (NGRBA) which was constituted under the provisions of the Environment (Protection) Act (EPA) 1986. NGRBA has since been dissolved with effect from the 7th October 2016, consequent to constitution of National Council for Rejuvenation, Protection and Management of River Ganga (referred to as National Ganga Council).

www.nmcg.in

### **Centre for Ganga River Basin Management and Studies (cGanga)**

cGanga is a think tank formed under the aegis of NMCG, and one of its dobjectives is to make India a world leader in river and water science. The Centre is headquartered at IIT Kanpur and has representation from most leading science and technological institutes of the country. cGanga's mandate is to serve as think-tank in implementation and dynamic evolution of Ganga River Basin Management Plan (GRBMP) prepared by the Consortium of 7 IITs. In addition to this, it is also responsible for introducing new technologies, innovations, and solutions into India.

www.cganga.org

### **Acknowledgment**

This river atlas document is a collective effort of a number of experts, institutions and organisations, some who had been associated with preparing the Ganga River Basin Management Plan (GRBMP) submitted to the Government of India in 2015, and others who joined later with their own independent expertise and enthusiasm. Contributions to the photographs and images for this document by individuals are gratefully acknowledged.

### **Suggested Citation**

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### **PREFACE**

The Centre for Ganga River Basin Management and Studies (cGanga) was established in the year 2016 as a comprehensive think-tank for river restoration and to assist the National Mission for Clean Ganga (NMCG), Jal Shakti Ministry, Gol, for "continual scientific support in the implementation and dynamic evolution of the Ganga River Basin Management Plan" for conservation of National River Ganga. In keeping with this goal, cGanga has been actively developing detailed knowledge capsules, tools and procedures to enable comprehensive and early rejuvenation of the Ganga river network across the whole basin. While a river basin approach is essential for analyzing and comprehending the Ganga river's status and needs to regain her wholesomeness, the implementation strategies of the required interventions must keep in mind the role and individuality of each. Thus, it is necessary to focus on -level substrategies of natural resource management for holistic revival of River Ganga.

The present document attempts to provide a comprehensive picture of the Ramganga Basin. This Atlas for the selected basins was created entirely by cGanga, with original mapping of all identifiable rivers of the, and with selective additional information culled from different sources for completeness. Many of the rivers and maps given here are not readily available elsewhere, and we expect them to prove useful to the many Central, and other organisations engaged in river, water or natural resource management in the Ramganga Basin.

In preparing this document dedicated members of cGanga spent a lot of time in diligently studying, analysing, acquiring and compiling diverse information from diverse sources. Many people and organisations outside cGanga also helped in its preparation, which aided in its comprehensiveness. We are grateful to one and all of them.

**VINOD TARE** 

Professor & Founding Head, cGanga IIT Kanpur

### **ACRONYMS AND ABBREVIATIONS**

BCM • Billion Cubic Meter

cGanga • Centre for Ganga River Basin Management and Studies

Cumec • Cubic meter per second

CWC • Central Water Commission

DEM • Digital Elevation Model

GIS • Geographic Information System

IGRBMP : Ganga River Basin Management Plan

HE : Hydroelectric

Km • Kilometer

LGD . Local Government Directory

L&T • Larsen and Toubro

m • Meter

MCM • Million Cubic Meter

mm : Millimeter
MW : Mega Watt

NHPC • National Hydroelectric Power Corporation

NRSC • National Remote Sensing Centre

RG Ramganga

Sol • Survey of India

Sq. Km. • Square Kilometer

UJVNL • Uttarakhand Jal Vidyut Nigam Ltd

WRIS • Water Resources Information System

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### INTRODUCTION

Ramganga River is the first major tributary to join Ganga at its left bank. Ramganga has a 10,000+ Km river network and 700+ rivers in the basin. River joins the Ganga near Kusumkher village at the border of the Hadoi and Kannauj districts of Uttar Pradesh (at about 126 m amsl). The present volume is a first attempt to map the rich river network of Ramganga basin in as fine a detail as possible. Much of the information in this River Atlas is not available in any other document and was created originally from available earth images with appropriate data and image processing tools and software on the GIS platform. Naturally, there may be shortcomings in some of the maps herein, including missing small streams, which can be expected to be duly refined and included in later versions. Also, a river atlas is often useful in conjunction with other natural resource and anthropogenic information such as the distribution of rainfall and other climatic data, other waterbodies, forest cover, elevations, soil types, other physiographic information, land use, tourist and pilgrimage centers, and infrastructure including roads and highways. Such relevant information is also expected to be processed, assembled, and included later in a fuller version of this Atlas. In the meantime, it is hoped that this Atlas will provide a useful window to Ramganga basin river resources.

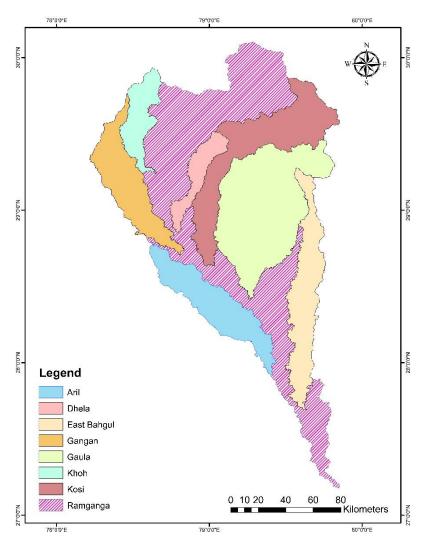


Figure 1: Major Sub-Basins in Ramganga Basin



 Table 1: Ramganga Basin Salient Features

S No	Particulars	Details				
1	Extent	Latitude: 27° 07′ 3″ & 29° 45′ 56″ N and Longitude: 78° 16′ 23″ & 80° 07′ 35″ E				
2	Total Geographical Area (sq. km.)	24663.51				
2.1	Hill Area (Reference Year 2018) (sq. km.)	-				
2.2	Plain (Reference Year 2018) (sq. km.)	-				
3	Forest Area (Reference Year 2018)(sq. km.)	-				
4	Area contributing to Ganga Basin(sq. km.)	24663.51				
5	Percentage area contributing to Ganga Basin (%)	2.86				
6	Districts (Census 2011)	UP:11, UK: 05				
7	Towns (Census 2011)	(Class I: 06; Class II: 08; Class III: 31)				
8	Total Population (Census 2011)	-				
9	Percentage population contribution in Ganga Basin	-				
10	Gram Panchayats	-				
11	Census Villages (Census 2011)	UP: 8348, UK: 4669				
12	Average Annual Rainfall (mm)	2200 mm in North and 800 mm near				
13	Average Temperature Range ( <sup>O</sup> C)	5 to 45				
14	Major Rivers (Inter and Intra)	Inter State Rivers: Ramganga, Khoh, Gaula/Bahgul, Pili, Phikha, Gangan, Kosi, East Bahgul Intra State Rivers: Aril, Bino, Deoranian				
15	Number of Major Basins	07				
16	Number of Water Resources Structures	(Dams: 11, Barrages: 09, Weir: 03, Headwaters: 00, Reservoirs:00)				
17	Highest Dam	Jamrani Dam: 130.6 m				
18	Longest Dam	Tumaria Dam: 10000 m				
19	Highest Barrage	-				
20	Longest Barrage	Harewali Barrage: 408 m				
21	Number of HE Projects (> 25 MW)	-				
22	Number of Ground Water Observationwells	Level: 705, Quality: 87				
23	Number of CWC Sites	24				
24	Water Tourism and Water Sports Sites	Agneri Devi Mela (Chaukhutia)				

# INDIA: ADMINISTRATIVE DIVISIONS (GEOGRAPHICAL)

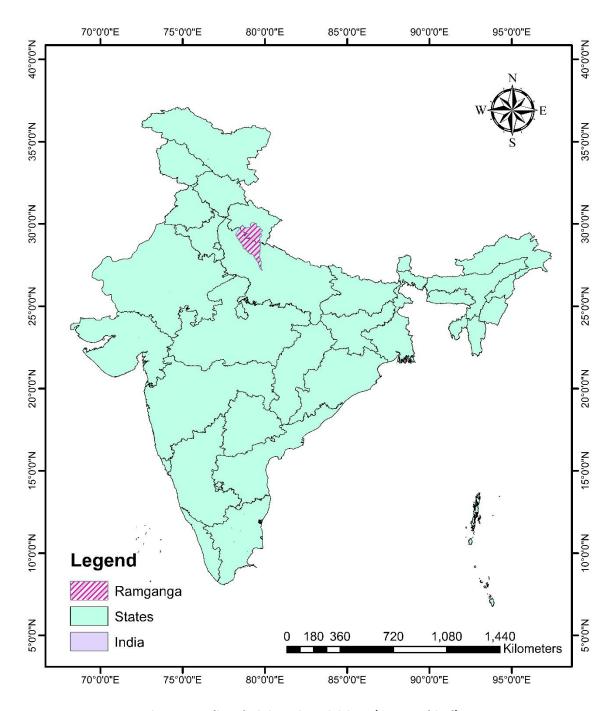


Figure 2: India Administrative Divisions (Geographical)

# RAMGANGA BASIN: ADMINISTRATIVE DIVISIONS (GEOGRAPHICAL)

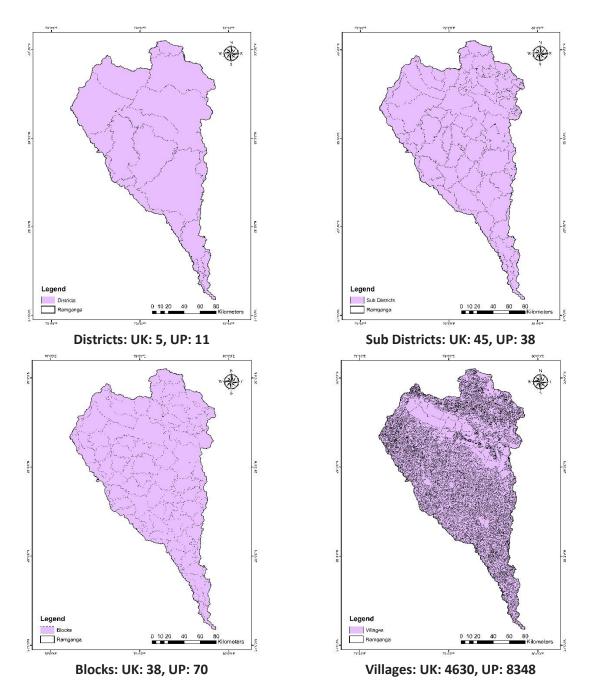


Figure 3: Ramganga Basin Administrative Divisions (Geographical)

# RAMGANGA BASIN AND ITS CANAL NETWORK

Canal Projects	
Total Length of Canal in State (km)	4811.86

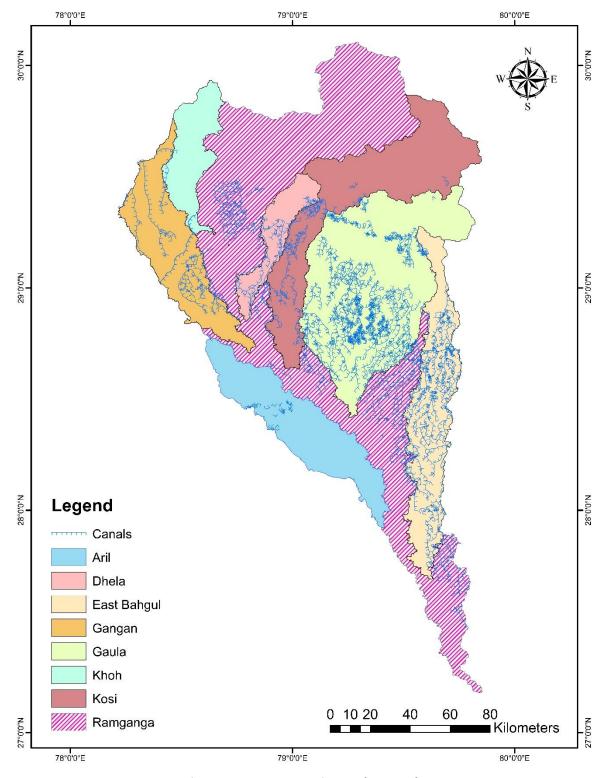


Figure 4: Ramganga Basin Canal Network

# RAMGANGA BASIN: CWC RIVER HYDROLOGICAL MEASUREMENT STATIONS

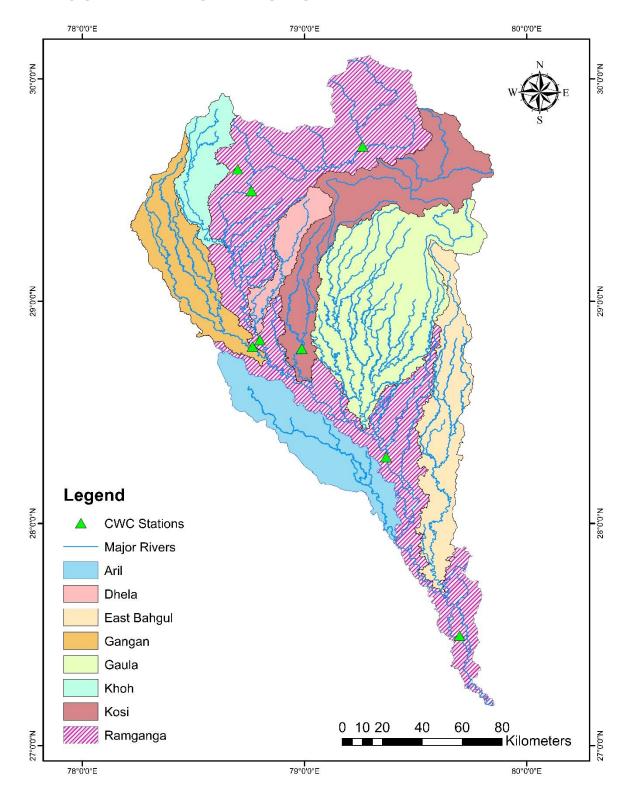


Figure 5: Ramganga Basin CWC River Hydrological Measurement Stations

# RAMGANGA BASIN: DAMS, BARRAGES, WEIRS, HEADWATERS AND RESERVOIRS

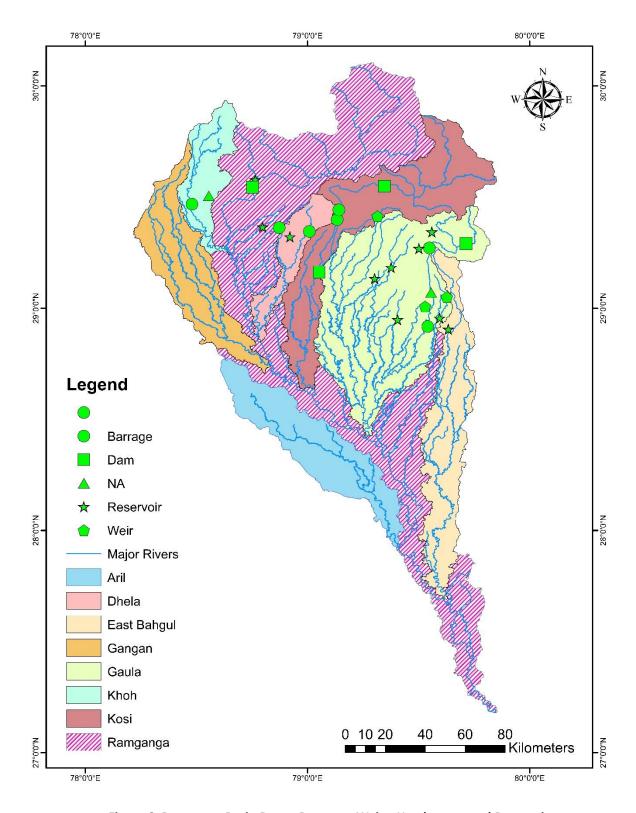


Figure 6: Ramganga Basin Dams, Barrages, Weirs, Headwaters and Reservoirs

Table 2: Major Dams in Ramganga Basin and its tributaries

S. No		District	Name	Lat	Long	River	Year Completed	Status	Туре	Length (m)	Max ht. Above Foundation (m)	Total Volume (cumec)	Design Flood (cumec)	Purpose
1		Paurigarhwal	Kalagarh Dam/ Ram Ganga	29.520	78.759	Ram Ganga	1974	Completed	Earth/ Gravity	715	128	10000	8467	Irrigation/ Hydroelectricity
2		Nainiital	Baigul Dam	28.882	79.630	Baigul	1968	Completed	Earthen	15300	13.7	70725	567	Irrigation
3	7	Nainital	Bhimtal Dam	29.343	79.562				Gravity/ Masonry	137	16.16			
4	RAMGANGA BASIN	Udham Singh Nagar	Dhora Dam	28.938	79.581	Dhora & Katna	1962	Completed	Earthen	9050	14.63	45640	549	Irrigation
5	GANG,	Udham Singh Nagar	Tumaria Dam	29.305	78.920	Phika	1970	Completed		10000	15.29			Irrigation
6	RAM	Nainital	Jamrani	29.267	79.616	Gola	1990	Completed	Gravity/ Masonry	765	130.6	206600	3630	Irrigation/ Hydroelectricity
7		Garhwal	Afzal garh	29.495	78.759	Ram Ganga		Completed	Earthen					Irrigation
8		Udham Singh Nagar	Haripu- ra Dam	29.122	79.317	Bhakra	1975	Completed	Earthen	7980	10.97	28320	877	Irrigation
9		Udham Singh Nagar	Baur Dam	29.132	79.259	Baur	1967	Completed	Earthen	9500	17.98	103368	1416	Irrigation
10	Uttar Pradesh	Bijnor	Pili Dam	29.358	78.795	Pili	1968	Completed	Rock Fill	9230	19.00	253300	963.17	Irrigation

Table 3: Major Barrages, Weirs and Headwaters in Ramganga Basin and its tributaries

S. No		District	Name	Lat	Long	River	Year Completed	Status	Туре	Length (m)	Purpose
1		Nainital	Gola Barrage	29.271	79.547	Gola		Completed	Barrage	81.00	
2	Nainital Nainital Almora Udham Singh Nagar Nainital	Nainital	Phika Barrage	29.362	78.871	Phikha		Completed	Barrage	107.87	
3		Nainital	Kosi Barrage	29.398	79.132	Kosi		Completed	Barrage	138.50	
4		Almora	Dhela Barrage	29.345	79.007	Dhela		Completed	Barrage	140.78	
5		Udham Singh Nagar	Kiccha Barrage	28.917	79.540	Kiccha	1964	Completed	Barrage	91.25	
6		Nainital	Kota Trench Weir	29.413	79.314	Dabka			weir	20.00	
7		Udham Singh Nagar	Nangla Weir	29.007	79.529	Kiccha		Completed	weir		Irriga tion
8		Udham Singh Nagar	Katna Weir	29.050	79.627	Katna		Completed	weir		Irriga tion
9	_	Bijnor	Harewali/Ramganga	29.412	78.620	Ramganga	1975	Completed	Barrage	408.00	
10	Uttar Pradesh	Bijnor	Khoh Barrage	29.322	78.567	Khoh	1975	Completed	Barrage	203.00	
11		Bareily	Badaun Barrage	28.290	79.371	Ramganga		Under Construction	Barrage		Irrigation
12	5	Rampur	Lalpur Barrage	28.903	79.012	Kosi		Under Construction	weir		Irrigation

**Table 4: Major Reservoirs in Ramganga Basin and its tributaries** 

S No.	Name	State	Area (Hact)
1	Gadgadia	UK	2430.40
2	Tumaria	UK	1792.52
3	Dhora Reservoir	UK	1356.86
4	Pili Reservoir	UP	634.59
5	Bhimtal Reservoir	UK	43.94
6	Baghul/Baigul (East) Reservoir	UK	2315.91
7	Ramganga	UK	6544.49

Table 5: Ramganga Basin District-wise Rivers

S No	District	Named Rivers	Unnamed Rivers	River Name
1	Almora	118	1780	Am Gadhera, Amatnola Gad, Auldhiru Gadhera, Badangarh, Bageri Gadhera, Ban Gad, Banarsi Gad, Barkholi Gad, Baur Gadhera, Baurar Gadhera, Bayainkhan Ka Gadhera, Baye Gadhera, Beni Gad, Bhagar Gad, Bhakrakot Gad, Bhulbagar, Bimoli Gadhera, Bino, Binta Gadhera, Bukhaniya Gadhera, Chamar Ki Rauli, Chhiddu Dhar, Chhota Chhina, Darmar Gadhera, Dav Gad or Devta Gadhera, Deb Gad, Dewra Gadhera, Dhamni Gadhera, Dhauli Gadhera, Dusad Gadhera, Gabhini Ka Gadhera, Gagas, Ganiya Dhar, Gaya Gadhera or Kali Gad, Ghatt Gad, Gular Ki Gad, Jainal Gad, Jakh Gadhera, Jam Gadhera, Jamthara Gad, Jantari Gad, Jaunpokhra Gadhera, Jaurasi Nala, Juniya Gadhera, Kalaiabar Nala, Kali Gad, Kali Rao or Ghat Gad, Kamchiya Sot, Kanari Gadhera, Kanchan Gad, Kanchula Gad, Kaniyani Gad, Kaphalgari Sot, Kapsori Gadhera, Karti Gad, Khachiyar Gadhera, Khalgari Gad, Khar Gadhera, Khatmair Gad, Khatron, Khatron Nala, Khile Gadhera, Khirao or Khirao Gadhera, Khodan Gadhera, Khop Gadhera, Khul Gad, Kichha Nadi, Kosi, Kotur Nala, Kshetrapal Gad, Kuj Gad, Kunai Gad, Kuthlar Gad, Kuwan Gad, Kyari Sot, Lamgada Gad, Lingwar Ka Gadhera, Mahadeo Gad, Maingali Gad, Malari Gad, Malla Gad or Gadan Gadhera, Manhet Nala, Masangari N, Menal Gad, Nagar Nala, Agohula khal Ka Gadhera, Nan Kosi, Nandani Gad, Nariya Gad, Naurar Gadhera, Nayar, Olani Gad, Pandali Rao, Pandera Raula, Paniyani Gad, Panyali Gad, Parkha Gad, Patliyan Gad, Rain Gad, Ramganga, Rikhi Gad, Riskan or Rishad Gad, Sai Nala, Sakuni Gad, Sarod Gad, Sarod Gad or Kali Gad, Saul Gadhera, Sim Gad, Singraun Ki Rauli, Sisia Nala, Sumari Gad, Swal or Suwal, Tava Ka Gadhera, That Gad, Todra Gadhera, Tota Pangar Gadhera, Tuli Gadhera, Tusori Gad
2	Amroha	6	8	Ban Nadi, Choti Ganga, Gangan Nadi, Karula, Ramganga, Siamsundar Nala
3	Budaun	7	17	Andheria, Aril Nala, Aril Nadi, Aril, Bajha Nala, Narha Nala, Ramganga
4	Bareilly	58	44	Absara Nadi, Andhera Nala, Andheria, Aril Nadi, Aril, Bagaiya, Bagaiya, or Dhori, Bahgul, Bahgul Nadi, Bahrai, Bajha Nala, Banarsi Nala, Barai, Baraur, Basit Nala, Baskhar Drain, Bhakra, Dabar Nala, Danai Nala, Danian, Deoranian, Dhakra Nadi or Pilakhar Nadi or Baur Nadi, Dhora Drain, Ganda Nala, Gauneya, Gora, Gundhia, Kahlaiya, Kailas Nadi, Kandu Nala, Karpia Nala, Khaiaiya, Khaira, Khalmacha, Khalwa, Kharra, Kharra Nala, Khirni Escape, Kichha Nadi, Kilwa Nala, Kuli Nadi, Launchha Nala, Madani, Nahal Nadi, Nakatia Nadi, Narha Nala, Naula Nala, Nawab Nadi, Pairiya Nadi, Pangaili Nadi, Pilakhar Nadi, Ramganga, Reoti Nala, Sarkara, Singia Nala, Sokhai Nala,
5	Bijnor	61	53	Bain Khoh, Bambhak Sot, Ban Nadi, Banaili Nadi, Banra, Banra Nala, Bega Sot, Chapra Sot or Ramjiwala Sot, Chorknala Nala, Chorpani Sot, Choti Ganga, Damak Sot, Dangrai Nala, Darak Nadi, Dhara Nadi, Dhara Nadi or Amla Nadi, Dholkand Sot, Ekra Nala, Gangan Nadi, Ghurnetor Sot, Gujar Sot, Gula Nala, Hathiya Sot, Jori Sot, Kalu Shahid Sot, Kanva Sot, Karula, Karula Nadi, Katheni Nala, Khala Nala, Khaliya Nala, Khari Nadi, Khoh, Kilauli Sot, Kirawali Sot, Koti Rao, Lalbra Sot, Mahlwali Nadi, Maugadi Sot, Nachna Nala, Naikata Sot, Nim Khala, Nim Sot, Nungarha Sot, Padhoi Nadi, Pahara Nala, Pakh Rao, Patharia Nala, Peliya Khala, Pelkhala Nadi, Phika Nadi, Phikha Nala, Pili Nadi, Ramganga, Sarkara Sot, Singhai Nala, Sinpya Nala, Sukh Rao, Surankhal Nala, Udmadi Nala, Uni or Nakta Nadi

6	Chamoli	15	301	Dungar Gadhera, Ghurghat Gad or HInwalghat Gad, Gwar Gadhera, Jhirkota Gadhera, Kali Gad, Kali, Khachiyar Gadhera, Khansar Gad, Kuni Gad, Maigar, Noni Gad, Ramganga, Rasoi Gad, Rohida Gad, Syuni Gad
7	Farrukha had	2	0	Nasha Nala, Ramganga
8	Hardoi	6	1	Khajua Drain, Madra Drain, Nasha Nala, Ramganga or Gambhiri Nadi, Ramganga, Sendha
9	Moradab ad	28	14	Ari Nala, Bahalla Nadi, Damdama Nadi, Dhandhi Nadi, Dhela Nadi, Gangan Nadi, Ghagra Nala, Harya Nala, Jabdi Nala, Kachhia Nala, Kachhua Nala, Karula Nala, Kawakhar Nala, Khalia Nala, Khalla Nala, Kosi, Kurka Nadi, Kurka Nala, Lapkana Nadi, Nachna Nala, Nechiya Nala, Phika Nadi, Rajhera Nala, Ramganga, Repi Nadi, Repi Nala, Siamsundar Nala, Tumariya
10	Nainital	215	1053	Amatnola Gad, Amgarhi Sot, Asni Raula, Ausani Sot, Babliya Sot, Badhaiya or Baigul, Bahalla Nadi, Bahgul, Bahgul Nadi, Baidura Dhar, Baigar, Bajun Gad, Balia, Bamaurkhan Nala, Barai or Haldi, Barath Gadhera, Barjala Gadhera, Barsoti Sot, Baurar Gadhera, Beliya or Bah Nala, Bhadragarhi Sot, Bhakra or Khani Gadhera, Bhandarpani Sot or Kakurar Gad, Bhangajala, Bhaniyar Sot, Bhawar Kira, Bhimtal Gadhera, Bhowali Nala, Bhumkani Gadhera, Bhutgarhi Sot, Buransi Gadhera, Burhi Kosi, Chahal Sot, Chakpheri Nadi, Champa Gad, Chamriya Gad, Chhoramili Sot, Chhurpani Gadhera, Chila Gad, Chorpani Sot or Pathri Sot, Chotti Koti Rao, Dabka, Dabka or Kanwan Gadhera, Damar Gad,, Darwajwar Sot, Dhakra Nadi or Pilakhar Nadi or Baur Nadi, Dhamdwari Gad, Dhamni Gadhera, Dhangarhi Sot, Dhaontiya Dhar, Dhauradei Sot, Dhela Nadi, Dhora, Dhoriya Gad, Dhulwa Rao, Dhuni Gad, Doniyan Sot, Gagra Pahar, Gajar Sot, Gajrai Gad, Galkat Pani, Gangoli Gad, Garjiya Sot, Garkhark Nala, Gharani Sot, Ghat Gad, Ghilmoriya Sot, Ghugwa Gad, Ghunna or Dhona, Ghutwa, Girauli Nala, Gopi Gajar Nala, Gorkha Sot, Goruni Ghadera, Gularghati, Gung Gad, Gunlyanlekh, Gadhera, Halkula Gadhera, Jahar Raula, Jamanpani Sot, Jamliya Sot, Jamunagwar Sot, Jaunpokhra Gadhera, Jhargaon Gad, Jhulwari Sot, Jijan Sot, Joshi Khola, Kakurchar Gadhera, Kali Gad, Kali Gad or Bamni Sot, Kali Rao or Ghat Gad, Kaligad Sot, Kalsa, Kaluwa Gad, Kambej Raula, Kamchiya Sot, Kanakpur Nala, Karali Gad or Logar Gad, Karani Gadhera, Karika Nala, Kasari Nala or Jhingi Nala, Kargara Nala, Karil Ki Dhar, Karkat Nala, Kasani Sot, Kaseri Nala or Jhingi Nala, Kaserwa Sot, Kasum Raula, Kathota Gad, Kathaya Gad, Magaron Gad, Malani Sot, Malla Panod, Malngarh Gadhera, Misani Gad or Patkot Sot or Ghatyur Gadhera, Nihal Nala, Nalan Gadhera, Raniya Gad, Partha Gad, Patharkhani Gad, Patharkhani Gad, Patharwa Nala, Pathri Nala, Pathri Nala or Sanguri Sot, Salbana Sot, Salhana S

11	Pauri Garhwal	193	1369	Adnala Rao, Agar Gad, Am Sot, Amgadi Sot, Amleda Sot, Amsati Sot, Andheriya Sot, Aunla Sot, Badangarh, Bagar Ki Gad, Bahera Gad, Baila Nala, Bain Khoh, Bairawala Sot, Bairhat Nala, Bajir or Ghat Gad, Balabhata Sot, Banaili Nadi, Bangagadi Gad, Bankpani Sot, Banriwala Sot, Baragad Sot, Barkhet Ka Raula, Barsoti Sot, Basola Gad, Belamwali Sot, Bhairam Gad, Bhanela Gad, Bhangrawala Sot, Bharnaun Gad, Bhulan Sot, Bhumkiya Nala, Bilot Sot, Bino, Bir Gad, Bodli Sot, Boksgadi Sot, Chapra Sot or Ramjiwala Sot, Chaura Sot, Cheula Sot, Chhain Dhar, Chhanchhera Nala, Chhapa ka Nala, Chhota Sai Sot, Chhugalpani Sot, Chita Nala, Chorpani Sot, Chua Pani, Chui Sot, Chuka Nala, Dabina Sot, Dangal Gadi, Dav Gad or Devta Gadhera, Deli Dunga Rao, Dewalbari Sot, Dhara Nadi, Dholkand Sot, Dhotiyal Gad, Dhundiwala Sot, Doliya Gad, Dudera Sot, Gala Gad, Gamdiru Sot, Gangan Sot, Garhkhetu Nala, Gariyon Sot, Garphuwala Sot, Gaujera Nala, Gaujita Sot, Gaujpani Sot, Ghanghas Sot, Ghentiwala Sot, Ghugtiya Gad, Ghurnetor Sot, Giwain Sot, Ghanghas Sot, Ghentiwala Sot, Ghugtiya Gad, Ghurnetor Sot, Giwain Sot, Ghanghas Sot, Ghentiwala Sot, Grugar Sot, Janai Sot or Kaduri Gad, Jaman Sot, Jamunagwar Sot, Jara Sot, Jaunia Rao, Jori Sot, Kaingadh Sot, Kalan Sot, Kali Gad or Dhimki Sot or Ogalpani Sot, Kaligad Sot, Kalika Shahid Sot, Kamri Sot, Kanchan Gad, Kandal Gad, Kaniya Sot, Kanva Sot, Katera Raula, Kaua Sot, Khadila Sot, Khairad Sot, Khajiru Gad, Khakasgadi Sot, Khamalda Sot or Kamand Nala, Khansur Sot, Kharak Rauli, Kharera Sot, Khiyunal ka Raula, Khoh Khubangadda Sot, Kilani Raula, Kilani Sot, Kilauli Sot, Kirawali Sot, Malani Sot, Malani Sot, Mananal Sot, Manana Sot, Malani Sot, Manana Gad, Nim Sot, Nungarha Sot, Nuni Raula, Odki Gad, Okliya Nala, Pakh Rao, Palam Pandali Rao, Paniyali sot, Patela Rauli, Patliyan Gad, Pawai Gad, Phulai Sot, Pipal Sot, Ramawali Sot, Ramganga Rigri Sot, Ruina Sot, Sagra Sot, Sain Gad, Saja N, Saneh Nadi or Kohtri Nadi, Sanguri Gad, Sanguri Nala or Sanguri Sot, Sankarpur Nala, Sarkara Sot, Semal Sot, Shimali
12	Pilibhit	5	6	Absara Nadi, Aundheri Nala, Banarsi Nala, Naula Nala, Pangaili Nadi
13	Rampur	59	23	Ghuga Nadi, Andharia, Ari Nala, Aril, Badhaiya or Baigul, Bagaiya or Dhori, Bahalla Nadi, Bahgul, Bamania or Khera Nadi, Barai, Barkusia Nala Bhakra, Bihar Nala, Chhoriya Nala, Dabar Nala, Dhakra Nadi, Dhakra Nadi or Pilakhar Nadi or Baur Nadi, Dhimri Nadi, Dhobia Nala, Ganjari Nadi or Sutia Nadi, Gendai Nala, Hathi Chinghal Nadi, Hatyari, Hingwa, Jalali, Kachha Nala, Kahlaiya, Khaira, Khaira Nadi or Hatyari Nadi, Khanda or Nada, Kharra Nala, Khuliya Nala, Kista, Kosi Nala, Kosi, Kuli Nadi, Labduwa Nala, Nachna Nala, Nagariya Nala, Nahal Nadi, Naiya Nadi, Narai Nala, Narda Nadi, Nihal, Parakiya, Pathri Nala or Bahiya Nala, Pila Nala, Pilakhar Nadi, Pilakheri Nala, Piria Nala or Kharra, Rajhera Nala, Ramganga, Sarenda Nala, Sidda Nadi, Sohaya, Tehra, Terha Nala, Thandapani Nadi or Sainjni, Urela Nala
14	Sambhal	3	1	Ari Nala, Aril, Chhoiya Nala
15	Shahjaha npur	13	3	Andhoi Nadi, Bahgul Nadi, Bharguda Drain, Dahera drain, Dunda Nala, Gauneya, Jalalabad Drain, Jamunian Drain, Jaunra Drain, Madra Drain, Ramganga, Reoti Nala, Sendha

16	Udam Singh Nagar	89	167	Absara Nadi, Andhera Nala, Andhuwa, Arjun Nala, Aundheri Nala, Badhaiya or Baigul, Bahalla Nadi, Bahgul, Bahgul Nadi, Bamania or Khera Nadi, Barai or Haldi, Baraur, Baur Nadi, Begul Nala, Beliya or Bah Nala, Beni, Bhadwara, Bhainsa Nala, Bhakra, Bhuta Nala, Burhi Kosi, Chakpheri Nadi, Dabka, Dabki Nadi or Satynasan Nadi, Dhakra Nadi or Pilakhar Nadi or Baur Nadi, Dhandhi Nadi, Dhela Nadi, Dhimri Nadi, Dhimri, Dhora, Gandi Nala, Gangi Nala, Gangli Nala, Ghangas Nala, Ghebia Nala, Ghuga Nadi, Ghutwa, Gorhi Nala, Gularghati, Harsan Nala or Sandla Nala, Hathi Chinghal Nadi, Hatyari, Jabdi Nala, Jalpanian Nala, Jungi Khan Nala, Kagarsen, Kakrala, Kaksha, Kalikich, Kanakpur Nala, Karari Nadi, Karari Nala, Karkat Nala, Kaseri Nala or Jhingi Nala, Katna, Kelawali Nala, Khaira Nadi or Hatyari Nadi, Khala or Kurna Nala, Khaliya Nala, Khalwa, Khukreta Nala, Khuliya Nala, Kichha Nadi, Kilwa Nala, Kosi Nala, Nakti Nala, Nihal, Paha or Gola Nala, Pathri Nala, Pathri Nala or Bahiya Nala, Phika Nadi, Phulwa Nadi, Pilakheri Nala, Pili Nadi, Repi Nala, Saudiya Nala, Tanga Nadi, Tanga Nadi, Tanga Nadi, Janga Nadi, Jangi Jan
				Bahiya Nala, Phika Nadi, Phulwa Nadi, Pilakheri Nala, Pili Nadi, Repi Nala, Saudiya Nadi, Tehra, Terha Nala, Thanda Nala, Thandapani Nadi or Sainjni, Tirath Nala, Tumariya

## **RIVER BASINS IN INDIA: LEVEL 1**

A Level 1 basin is the land area drained by a main river and all its tributaries, defined by natural boundaries, typically ridges or elevated areas that direct water flow. In India, the major river basins categorized as Level 1 basins are listed by the Central Water Commission (CWC), as shown in the map below.

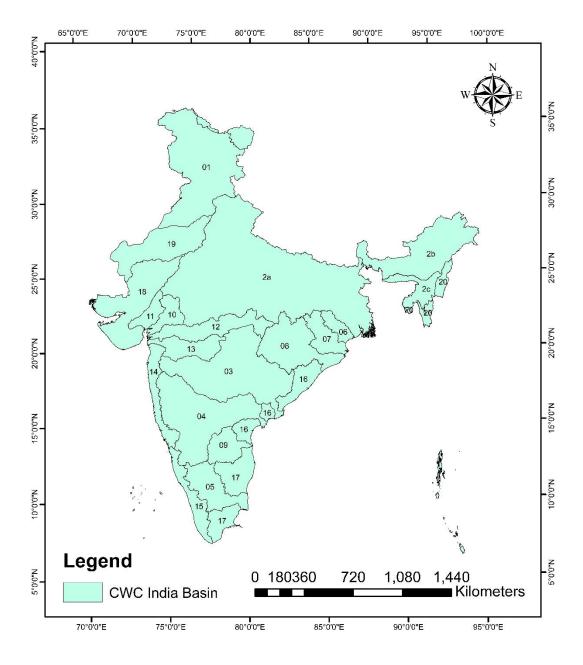


Figure 7: Level 1 River Basins in India

Source: River Basin Atlas of India, Ministry of Water Resources, Gol (October 2012)

Table 6: List of Level 1 Basins in India (As Listed by CWC)

Basin Code	Basin Name					
1	Indus (Up to Indian Border)					
2a	Ganga					
2b	Brahmaputra					
2c	Barak and others					
3	Godavari					
4	Krishna					
5	Cauvery					
6	Subernarekha					
7	Brahmani and Baitarni					
8	Mahanadi					
9	Pennar					
10	Mahi					
11	Sabarmati					
12	Narmada					
13	Tapi					
14	West-flowing rivers from Tapi to Tadri					
15	West-flowing rivers from Tadri to Kanyakumari					
16	East flowing rivers between Mahanadi and Pennar					
17	East-flowing rivers between Pennar and Kanyakumari					
18	West flowing rivers of Kutch and Saurashtra including Luni					
19	Area of inland drainage in Rajasthan					
20	Minor rivers draining into Myanmar (Burma and Bangladesh)					

Source: River Basin Atlas of India, Ministry of Water Resources, GoI (October 2012)

# **GANGA RIVER BASIN: LEVEL 2**

A Level 2 basin is a subdivision within a Level 1 basin, focused on a major tributary of the main river. These basins serve as distinct hydrological units within the larger river basin, enabling more localized analysis and management. Each Level 2 basin gathers water from its own network of smaller streams and channels, which ultimately contributes to the flow of the main river. A list of some of the major Level 2 basins within the Ganga Basin is illustrated in the map below.

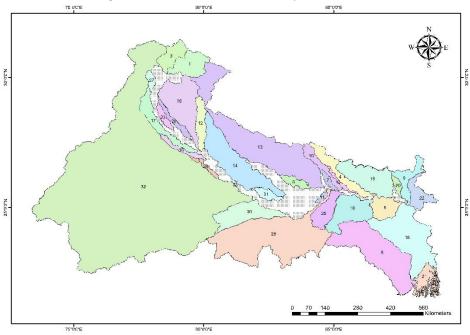


Figure 8: Significant Level 2 River Basins in Ganga Basin

Table 7: List of Significant Level 2 River Basins in Ganga Basin

S No.	Basin Name	S No.	Basin Name
1	Alaknanda	17	Kali
2	Baya	18	Kiul
3	Bhagirathi	19	Koshi
4	Burhi Gandak	20	Koshidhar
5	Chandan	21	Lower Sunderban Delta
6	Choti Sarju	22	Mahananda
7	Dabra	23	Mahawa
8	Damodar	24	Pandu
9	Fulhar	25	Punpun
10	Gandak	26	Ramganga
11	Gangi	27	Saloni
12	Garra	28	Sot
13	Ghaghara	29	Sone
14	Gomti	30	Tons
15	Hooghly	31	Varuna
16	Isan	32	Yamuna

# **GANGA RIVER BASIN: LEVEL 3**

A Level 3 basin further subdivides a Level 2 basin into smaller areas centered around key streams or sections of a tributary. These divisions are often made to facilitate focused studies, such as assessing localized pollution sources, groundwater recharge zones, or specific habitats within the watershed. A map illustrating some of the significant level 3 basins within the Ganga Basin is shown below.

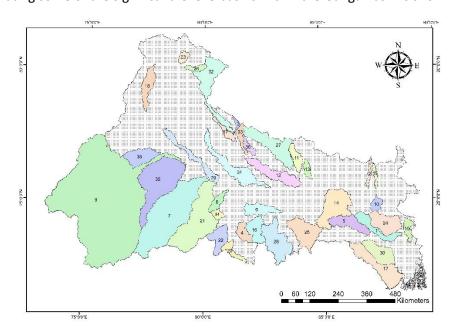


Figure 9: Significant Level 3 River Basins in Ganga Basin

Table 8: List of Significant Level 3 River Basins in Ganga Basin

S No.	Basin Name	S No.	Basin Name
1	Ajay	20	Kanhar
2	Arar Dhar	21	Ken
3	Babai	22	Mahanadi
4	Banas	23	Mandakini
5	Barakar	24	Mayurakshi
6	Belan	25	North Koel
7	Betwa	26	Pinder
8	Bhagin	27	Rapti
9	Chambal	28	Rihand Renu
10	Chir	29	Rind
11	Choti Gandak	30	Roopnarayan
12	Choti Sarju or Tons	31	Sai
13	Daha	32	Sharda
14	Falgu	33	Sarju
15	Firyani	34	Satna
16	Gopad	35	Sindh
17	Haldi	36	Tehri
18	Hindon	37	UII
19	Jalngani	38	Utangan

# **GANGA RIVER BASIN: LEVEL 4**

A Level 4 basin represents a more detailed hydrological unit, typically covering very small catchment areas, such as minor streams within a Level 3 basin. These units are especially valuable for microlevel water resource management, including community watershed management, evaluating localized land-use impacts, and monitoring small-scale flood dynamics. The map below illustrates some of the significant Level 4 basins within the Ganga Basin.

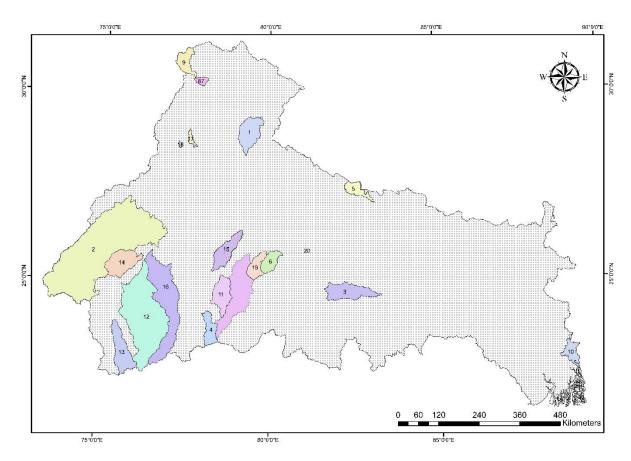


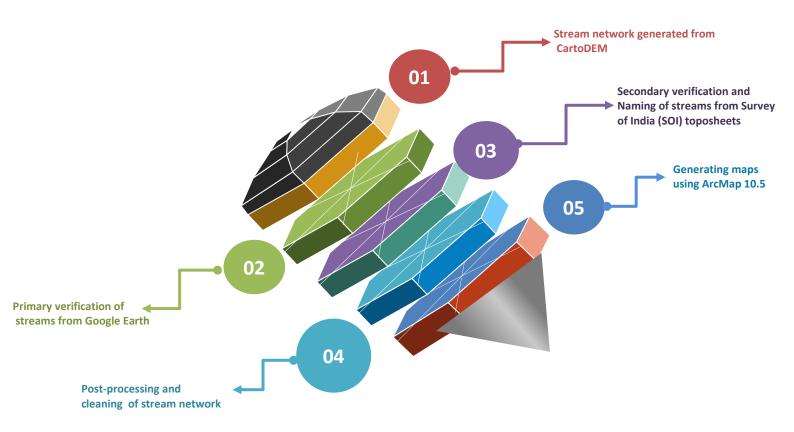
Figure 10: Significant Level 4 River Basins in Ganga Basin

## Table 9: List of Significant Level 4 River Basins in Ganga Basin

S No.	Basin Name	S No.	Basin Name
1	Bagul	11	Jamani
2	Banas	12	Kali Sindh
3	Belan	13	Kshipra
4	Bina	14	Mez
5	Budhi Rapti	15	Pahuj
6	Chandabal	16	Parbati
7	Dhasan	17	Qadirabad
8	Dhasan	18	Sahadara
9	Giri	19	Virma
10	Ichamati		

# RIVER NETWORK PREPARATION METHODOLOGY

The method adopted, in brief, to obtain the river network are stepwise as follows:



- Streams less than 1.0 km from local agricultural land are not covered.
- All streams originating from populated areas (urban or rural) are covered, even if they are less than 1 km (if it is visible) on Google Earth images.

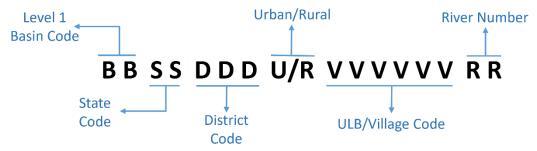
**Disclaimer:** The accuracies of the maps generated by the above method are subject to the limitations of the data processing tools and software used for the particular geographical regions as represented in Google Earth images, and are subject to future refinement.

### RIVER CODIFICATION METHODOLOGY

In the present Atlas, alphanumeric characters are used for coding the river systems. A combination of natural and administrative boundaries is used to assign a code to each river and stream. Each substep in the codification system is assigned a digit or alphabet that indicates the length of the code up to that point, and the total length of the code is 16 digits. For the rivers originating outside the national boundary of India, the point where the river enters the national boundary is considered as its origin point.

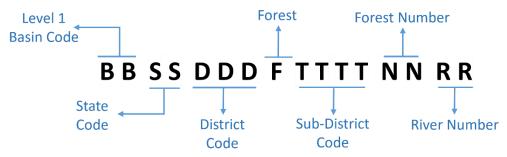
### a) River originates in Urban/Rural Area:

The first two digits denote the code for the major basin, based on the system proposed by the Central Water Commission (CWC), Government of India. Following this, the two alphabets indicate the state where the river originates, such as "UK" for Uttarakhand. The following three digits represent the district where the river originates. The next character, 'U' or 'R,' indicates whether the origin is in an urban or rural area. The subsequent six digits are the Urban Local Body (ULB) code if the river originates in an urban area or the village code if it originates in a rural area. The district and ULB/village code correspond to the origin of the river, and are available from Local Government Directory, GoI (LGD) website. The final digit indicates the number of the specific river that originates within the specific location falling within an administrative boundary such as town/city or a village.



### b) River originates in Forest Area:

The first two digits denote the code for the major basin, based on the system proposed by the Central Water Commission (CWC), Government of India. Following this, the two alphabets indicate the state where the river originates, such as "UK" for Uttarakhand. The following three digits indicate the district where the river originates. The next character, 'F', signifies that the river originates in a forest area. The subsequent four digits denote the sub-district code where the forest is located. The following two digits indicate the number of the specified forest in the sub-district. The district, sub-district, and forest codes correspond to the river's origin, with district and sub-district codes available from the Local Government Directory (LGD) website, Gol. The final digit indicates the number of the river that originates within the specific forest cover or range.



**Table 10: Unique Identity Code of Selected Rivers** 

S No.	River Name	Length (km)	UID Code	S No.	River Name	Length (km)	UID Code
1	Alaknanda	213.22	02UK047R04090601	28	Hiyuni	51.73	02UK052R04833001
2	Bhagirathi	200.00	02UK057R04080509	29	Pashchimi Nayar	50.48	02UK052R04645101
3	Sarda	189.61	02UK053R04908901	30	Gomti	49.65	02UK046R05145702
4	Ramganga	177.88	02UK047R04189101	31	Gagas	48.79	02UK045R05203304
5	Yamuna	153.99	02UK057R04046709	32	Ban Ganga	48.49	02UK050F03540101
6	Tons	150.09	02UK057R04028125	33	Dhauliganga	48.47	02UK053R04907601
7	Ganga	135.84	02UK055R04312301	34	Dabka	47.07	02UK051R05469601
8	Sarju	132.68	02UK046R05053908	35	Rawasan	46.32	02UK052R04879101
9	Pindar	123.35	02UK046R05052503	36	Mandal	45.02	02UK052R04744301
10	Goriganga	120.17	02UK053R04890015	37	Dhela	44.47	02UK051R05544006
11	Purvi Nayar	118.09	02UK052R04686513	38	Lassar Yankti	44.39	02UK053R04914902
12	Kichha or Gola	111.31	02UK045R05342201	39	Rishi Ganga	43.97	02UK047R04090511
13	Dhauliganga	91.23	02UK047R04090608	40	Asan	43.90	02UK049R04523401
14	Solani	84.31	02UK050R05633601	41	Pathri Rao	43.43	02UK050R05666401
15	Bhilangna	82.19	02UK055R04303801	42	Phika	43.04	02UK051R05544019
16	Song	74.85	02UK055R04434610	43	Palam	42.57	02UK052R04747001
17	Mandakini	74.49	02UK054R04230015	44	Bal Ganga	41.91	02UK055R04303721
18	Ladhiya	71.51	02UK051R05508102	45	Kalaunia	41.35	02UK048R05446405
19	Nandhaur	68.69	02UK048R05439301	46	Sarda	41.30	02UK048R05447001
20	Garra or Nandaur	61.46	02UK051R05529009	47	Ratmau Rao	41.02	02UK050R05632001
21	Baur	61.32	02UK051R05491001	48	Girthi Ganga	40.45	02UK053R04890001
22	Jadh Ganga	60.84	02UK057R04080536	49	Karari	39.38	02UK051R05490301
23	Sukhi	58.45	02UK051R05487801	50	Sila Khala	39.29	02UK050R05635601
24	Bhakra	57.83	02UK051R05490902	51	Charma Gad	38.92	02UK053R04952602
25	Nandakini	57.09	02UK047R04112915	52	Lastar Gad	38.52	02UK054R04274115
26	Kuthi Yankti	55.53	02UK053R04914901	53	Bino	38.44	02UK052R04659001
27	Lohawati	52.84	02UK048R05425401	54	Birahi Ganga	38.20	02UK047R04112703

The table lists the UID code for selected rivers in Ganga Basin. For a complete list of rivers in Ramganga Basin and their UID codes, refer to the Ramganga River Basin Directory at cganga.org/publications.

# RAMGANGA BASIN AND ITS RIVER NETWORK

Ramganga River UID Code				
River Length (km)		688.78		
Basin Area (sq.km.)		24663.51		
Number of Named Rivers		731		
Number of Unnamed Rivers		4689		
Total Number of identified Rivers		5420		
Length of Named Rivers (km)		10946.92		
Length of Unnamed Rivers (km)		8593.76		
Total River Length (km)		19540.68		

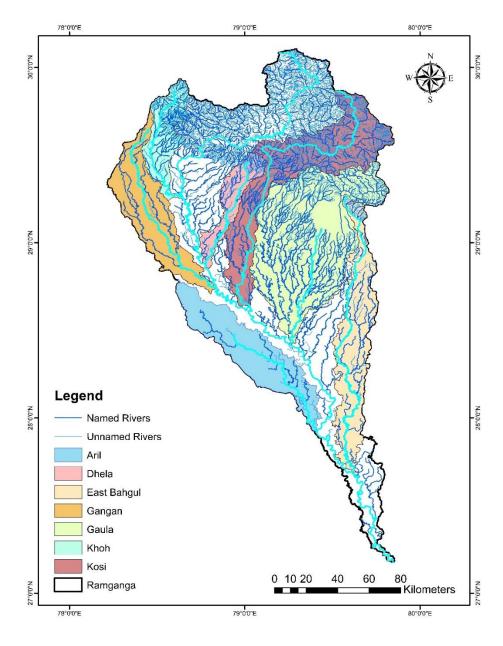
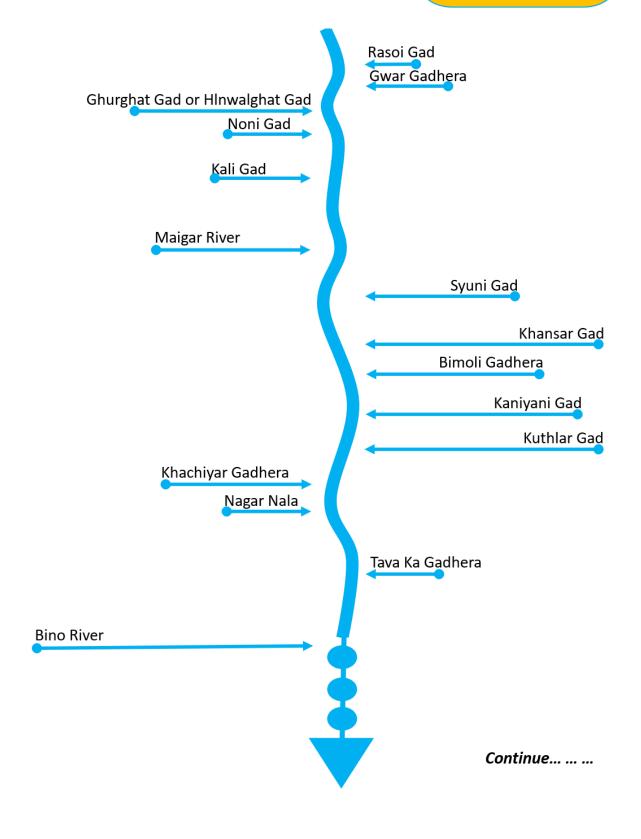
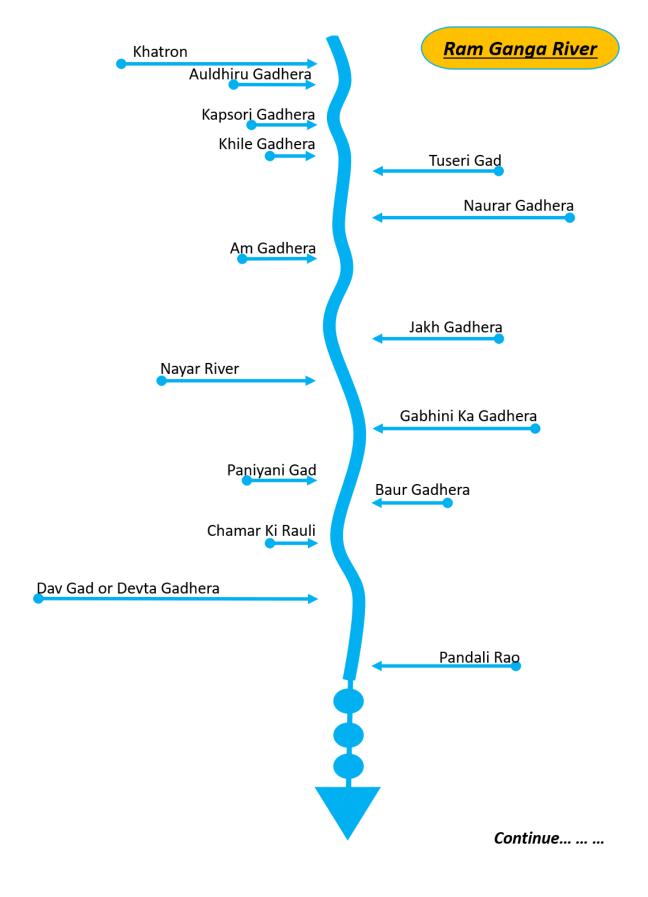


Figure 11: Ramganga Basin River Network

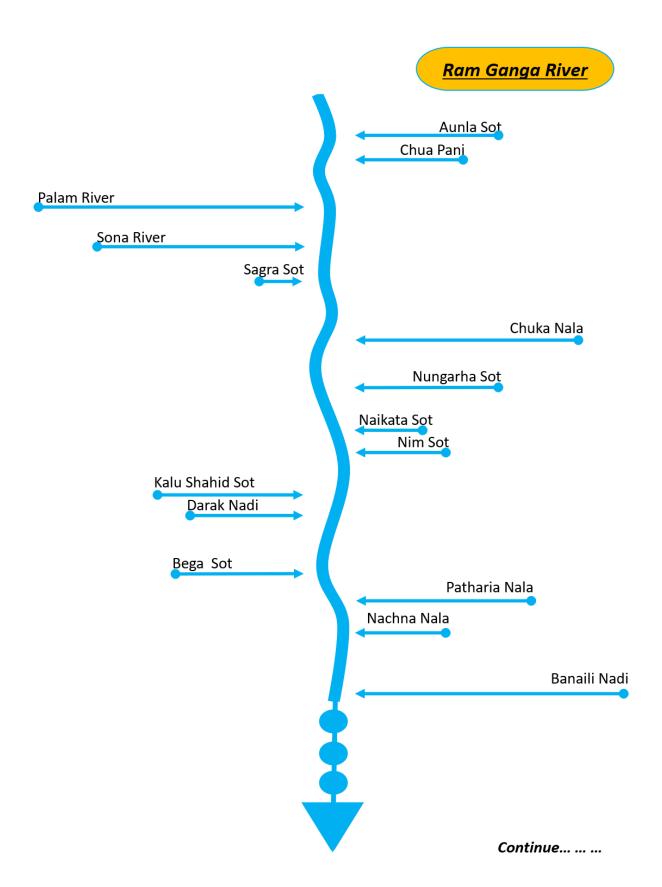
# RAMGANGA RIVER MAIN STEM FLOW DIAGRAM

Ram Ganga River

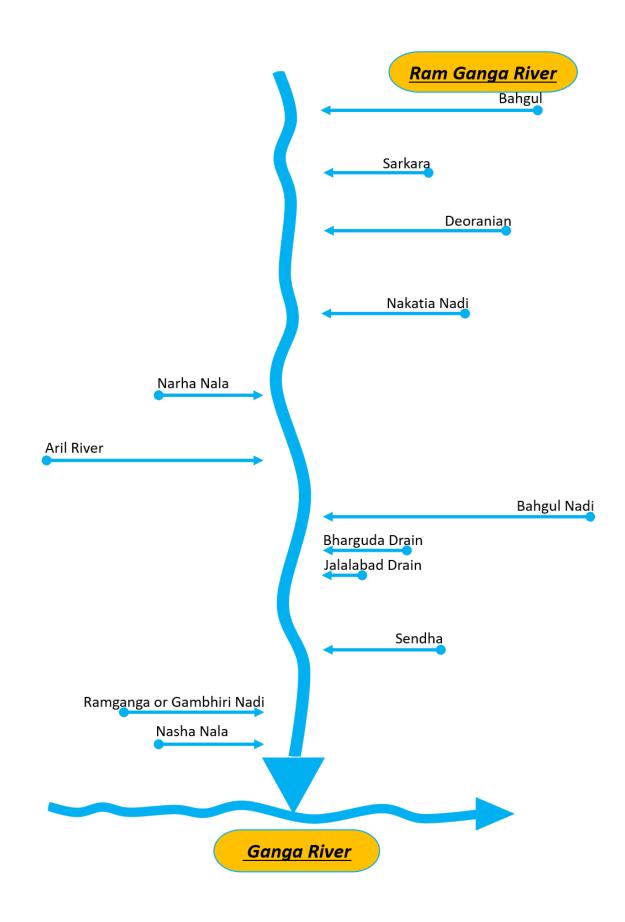




# Ram Ganga River Mandal River Sanguri Nala or Sanguri Sot Dhulwa Rao Gorkha Sot Barsoti Sot Kothidhunga Sot **Bilot Sot** Jaman Sot Balabhata Sot Sokharewar Sot Ruina Sot Boksgadi Sot Kilani Sot Phulai Sot Gaujera Nala Continue... ...

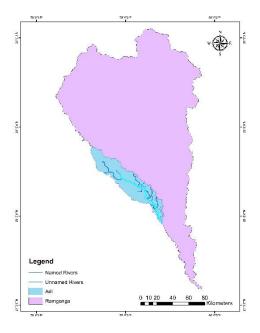


## Ram Ganga River Singhai Nala Khoh River Pili Nadi Phika Nadi Choti Ganga River Repi Nadi Kurka Nadi Siamsundar Nala Dhela Nadi Karula Nala Gangan Nadi Rajhera Nala Kosi River Sidda Nala Pilakhar Nadi Continue... ...



#### **ARIL BASIN AND ITS RIVER NETWORK**

Aril River UID Code	
River Length (km)	151.56
Basin Area (sq.km.)	2036.21
Number of Named Rivers	8
Number of Unnamed Rivers	21
Length of Named Rivers (km)	349.12
Length of Unnamed Rivers (km)	103.59



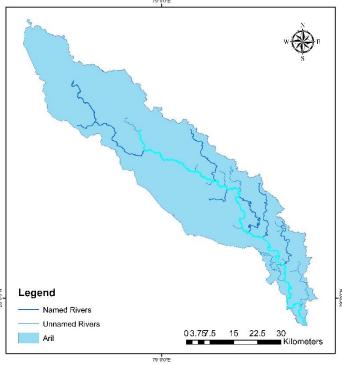
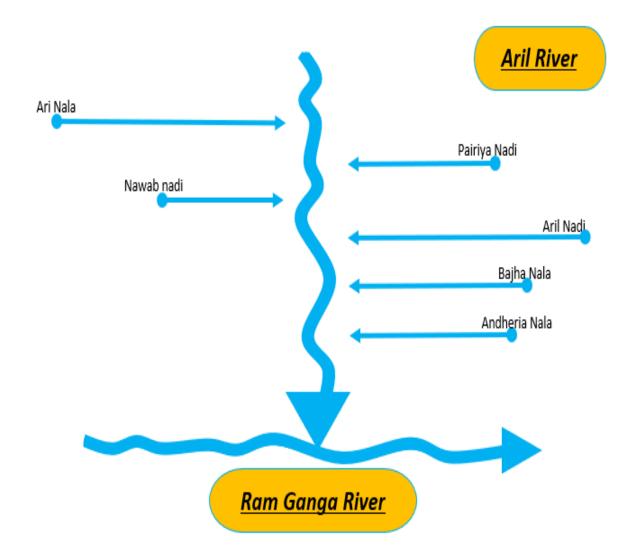


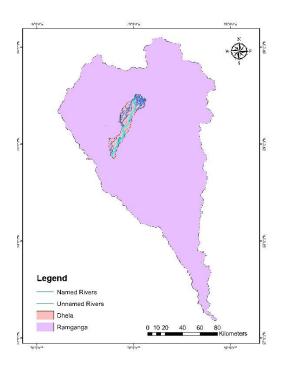
Figure 12: Aril River Network in Ramganga Basin

#### **ARIL RIVER MAIN STEM FLOW DIAGRAM**



#### **DHELA BASIN AND ITS RIVER NETWORK**

Dhela River UID Code	
River Length (km)	116.33
Basin Area (sq.km.)	763.57
Number of Named Rivers	24
Number of Unnamed Rivers	136
Length of Named Rivers (km)	379.65
Length of Unnamed Rivers (km)	281.93



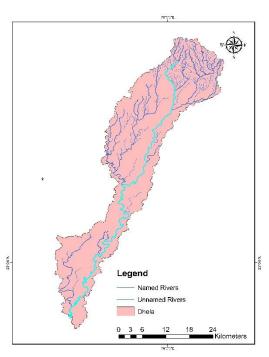
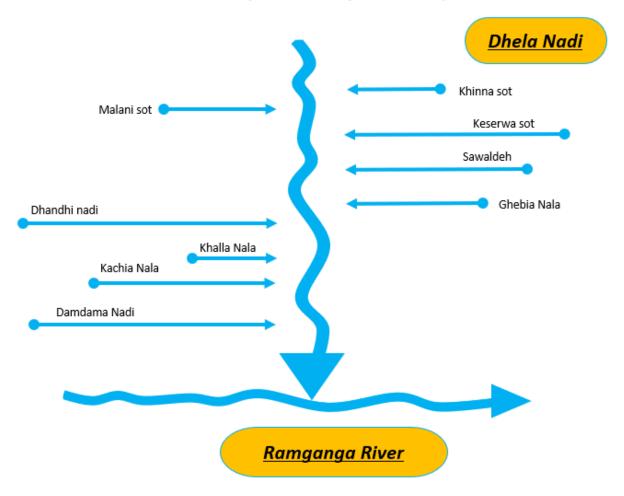


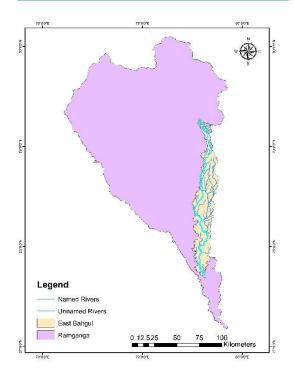
Figure 13: Dhela River Network in Ramganga Basin

#### **DHELA RIVER MAIN STEM FLOW DIAGRAM**



#### **EAST BAGUL BASIN AND ITS RIVER NETWORK**

Est Bagul River UID Code	
River Length (km)	337.03
Basin Area (sq.km.)	2268.13
Number of Named Rivers	33
Number of Unnamed Rivers	81
Length of Named Rivers (km)	924.48
Length of Unnamed Rivers (km)	241.90



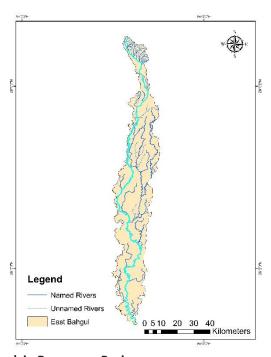
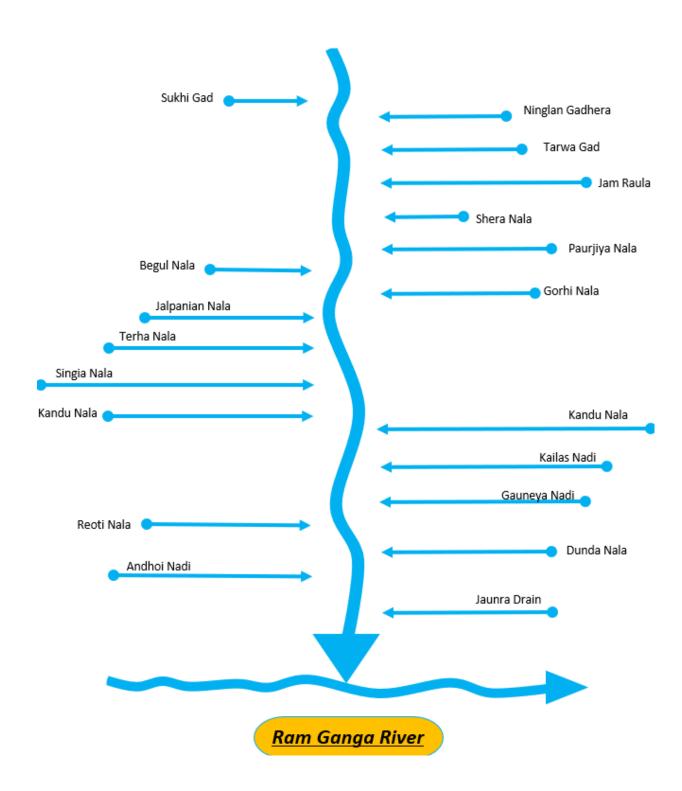


Figure 14: East Bagul River Network in Ramganga Basin

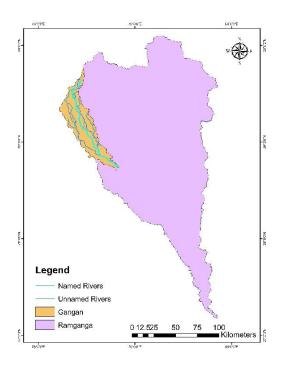
#### EAST BAGUL RIVER MAIN STEM FLOW DIAGRAM

East Bahgul Nadi



#### **GANGAN BASIN AND ITS RIVER NETWORK**

Gangan River UID Code	
River Length (km)	241.30
Basin Area (sq.km.)	1948.38
Number of Named Rivers	10
Number of Unnamed Rivers	6
Length of Named Rivers (km)	667.04
Length of Unnamed Rivers (km)	25.72



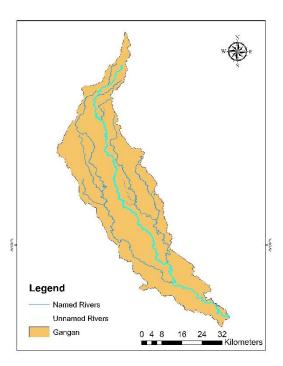
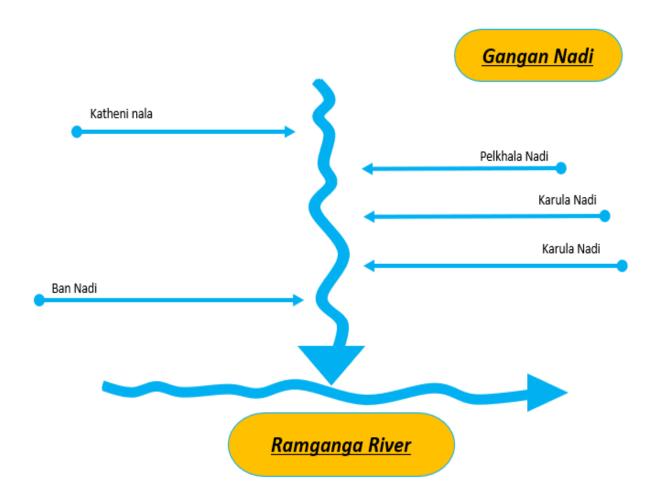


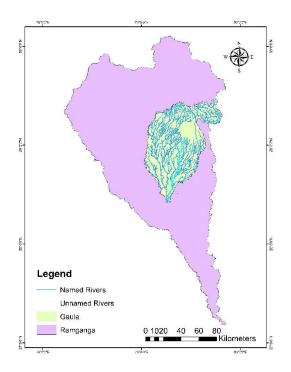
Figure 15: Gangan River Network in Ramganga Basin

### **GANGAN RIVER MAIN STEM FLOW DIAGRAM**



#### **GAULA BASIN AND ITS RIVER NETWORK**

Gaula River UID Code	
River Length (km)	128.47
Basin Area (sq.km.)	4794.91
Number of Named Rivers	168
Number of Unnamed Rivers	464
Length of Named Rivers (km)	2667.55
Length of Unnamed Rivers (km)	1071.28



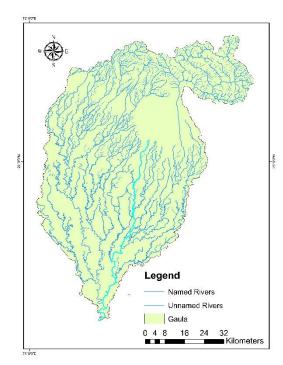
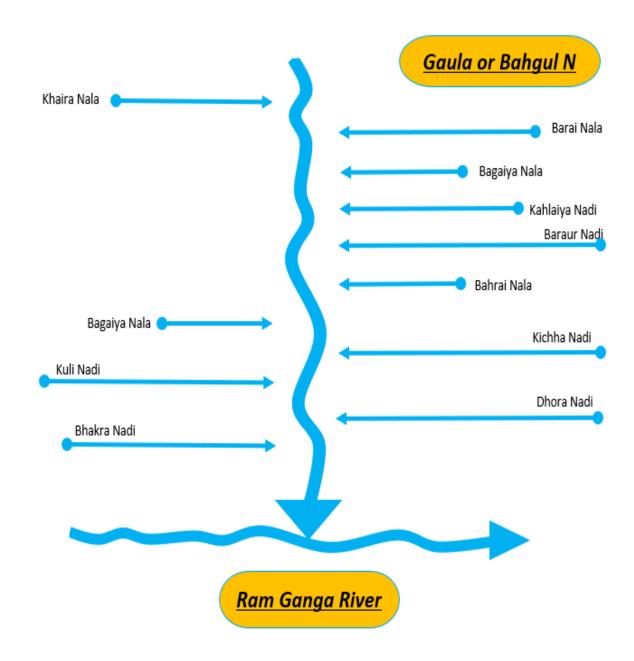


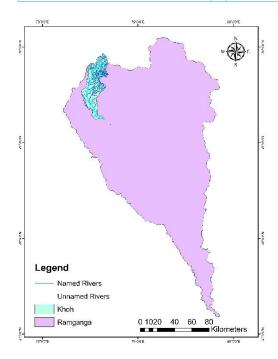
Figure 16: Gaula River Network in Ramganga Basin

#### **GAULA RIVER MAIN STEM FLOW DIAGRAM**



#### KHOH BASIN AND ITS RIVER NETWORK

Khoh River UID Code	
River Length (km)	112.84
Basin Area (sq.km.)	1034.29
Number of Named Rivers	68
Number of Unnamed Rivers	343
Length of Named Rivers (km)	636.00
Length of Unnamed Rivers (km)	539.56



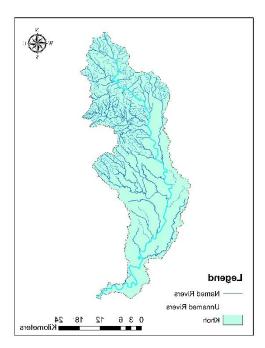
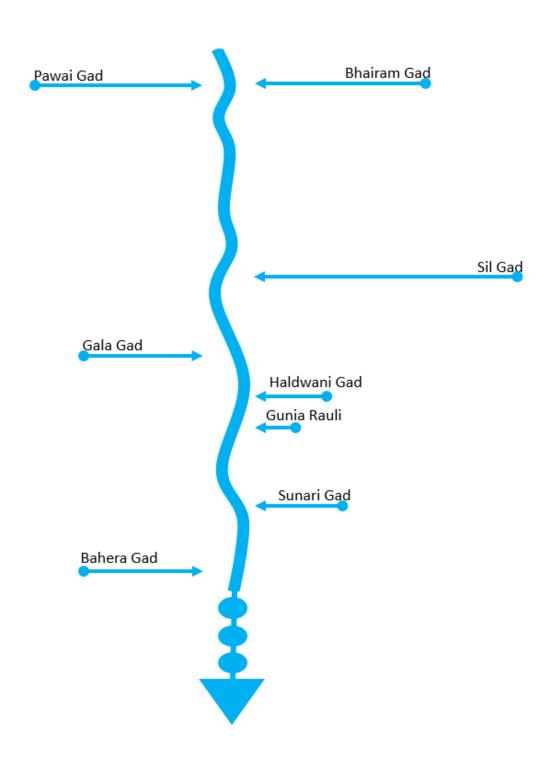


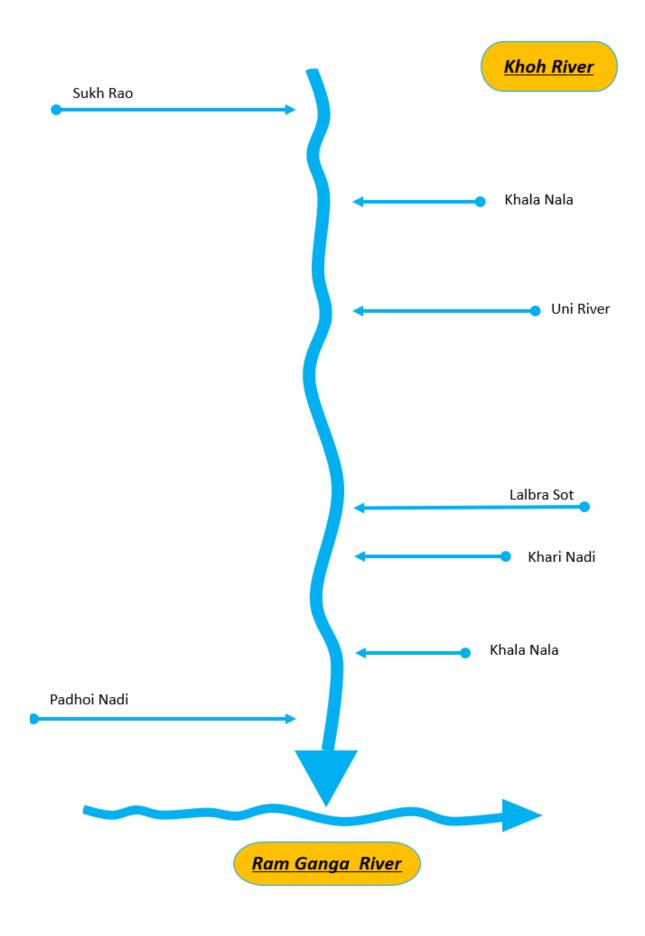
Figure 17: Khoh River Network in Ramganga Basin

#### **KHOH RIVER MAIN STEM FLOW DIAGRAM**

Khoh River

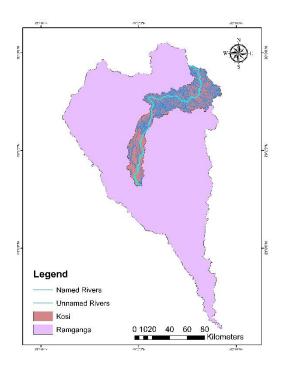


# Khoh River Gaujita Sot 🤇 Giwain Sot Paniyali Sot Bain Khoh Saneh Nadi or Kohtri Nadi Chorpani Sot **Ghurnetor Sot** Sarkara Sot



#### **KOSI BASIN AND ITS RIVER NETWORK**

Kosi River UID Code	
River Length (km)	276.66
Basin Area (sq.km.)	3160.92
Number of Named Rivers	160
Number of Unnamed Rivers	1195
Length of Named Rivers (km)	1606.61
Length of Unnamed Rivers (km)	2117.72



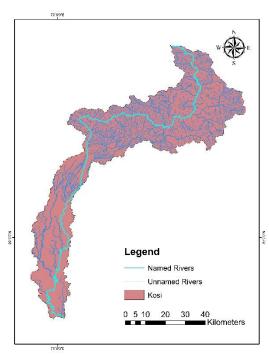
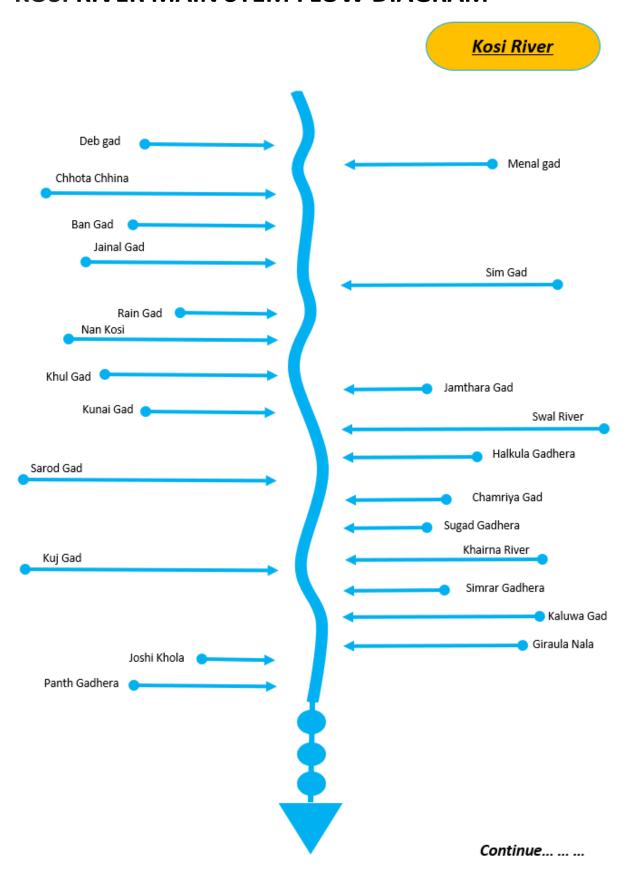


Figure 18: Kosi River Network in Ramganga Basin

#### **KOSI RIVER MAIN STEM FLOW DIAGRAM**



#### Kosi River

