CAMP River Atlas Task Group Meeting 13/01

Agenda:

- Methodology for stream network preparation
- Methodology for River Codification
- Update on River Atlas work

Takeaway Points

- 1. The methodology for stream network preparation was presented, and the progress of all centers was reviewed to ensure alignment and consistency in the work.
- 2. River codification will be carried out centrally by IIT Kanpur. All centers are requested to share their final, verified stream networks with IIT Kanpur for this process.
- 3. All centers are requested to compile and share their queries related to CORONA satellite images. These will be addressed in a dedicated meeting exclusively for discussing CORONA-related issues.
- 4. The latest version of the River Atlas will be shared along with the meeting minutes for your reference.

Methodology for stream network preparation

After obtaining the stream network, follow these steps to generate a verified stream network:

- 1. Download the Sol toposheet of the basin.
- 2. Georeference the Sol toposheet on the OSM sheet, By marking the 4 control points.
- 3. Assign a Projected Coordinate system to the stream network based upon the area.
- 4. Export the Unnamed(0) row from the network file, called it as Unnamed_Network files & now delete these Unnamed(0) rows from the main network. So that we have 2 files called it as Named & Unnamed network.
- 5. Firstly, verify the named network using SoI toposheets and Google Earth (use timeline feature). After verification, merge the streams/segments with same name to obtain the complete length of the particular stream.
- 6. Then, open the Unnamed network file and verify using SoI toposheets and Google Earth (use timeline feature).
- 7. While verifying, if the name of any particular unnamed stream is available on Sol toposheet, kindly update the name and export the stream to the named network.

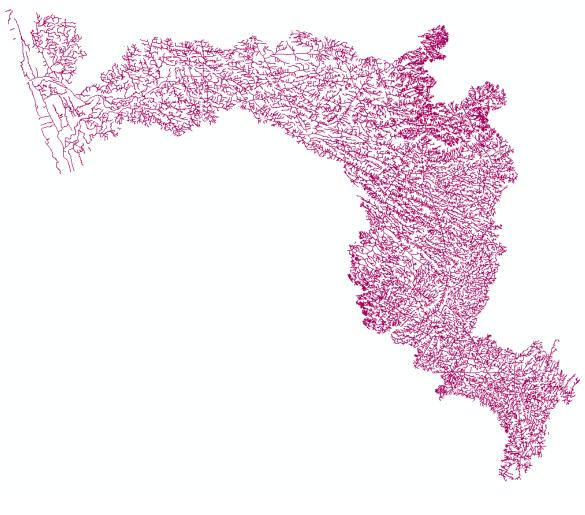
Methodology for stream network preparation

- 8. After verification of unnamed network, merge the segmented parts of a stream to a single stream.
- 9. If new streams are found on Sol toposheets, verify using Google Earth. After verification, trace the same using ArcGIS.
- 10.Stream verification using ArcGIS BASEMAP is **NOT** approved.

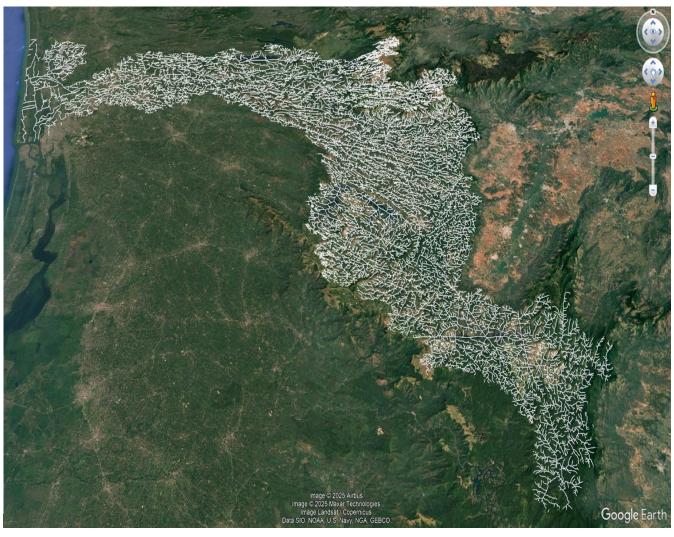
Some points to consider while verification of network

- 1. Streams less than 1.0 km originating from agricultural land need not be considered.
- 2. If the stream is coming from hilly/mountains/jungle area, and is **visible or partially visible** in google earth timeline, those streams **should be considered** irrespective of the length of the stream.
- 3. If the stream/drain is originating from urban or village settlements and is visible or partially visible in google earth timeline, those streams should be considered irrespective of the length of the stream.

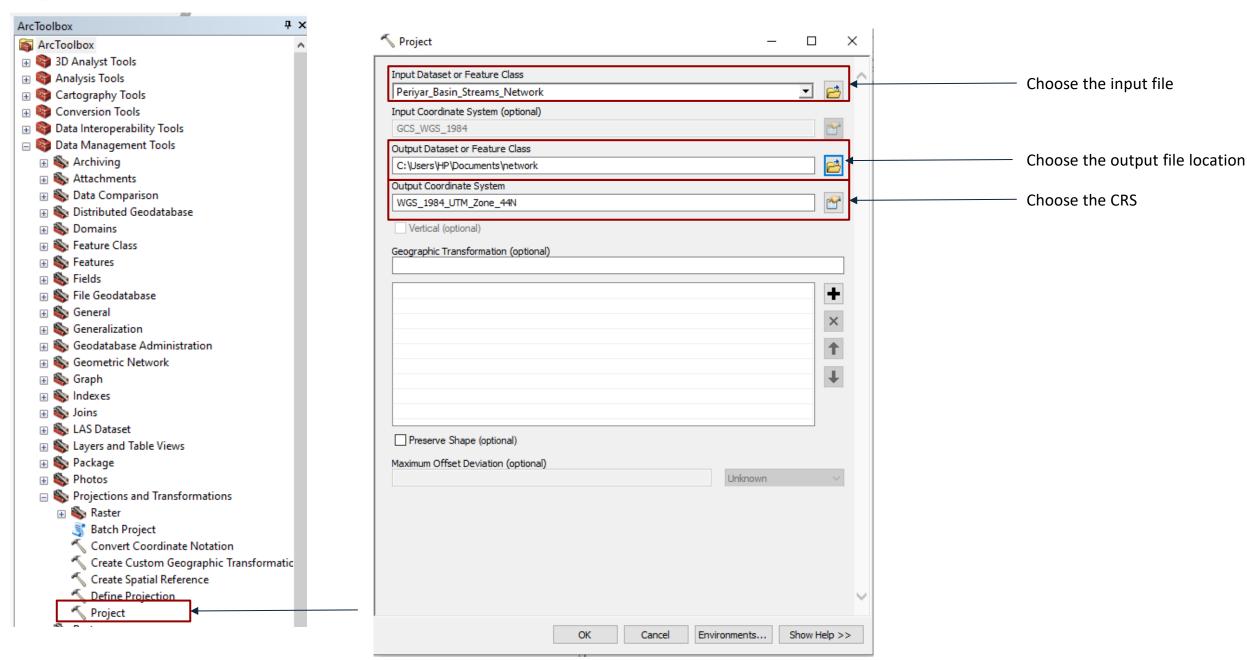
Entire Stream Network ArcGIS



Google Earth



Assign a Projected Coordinate system to the stream network

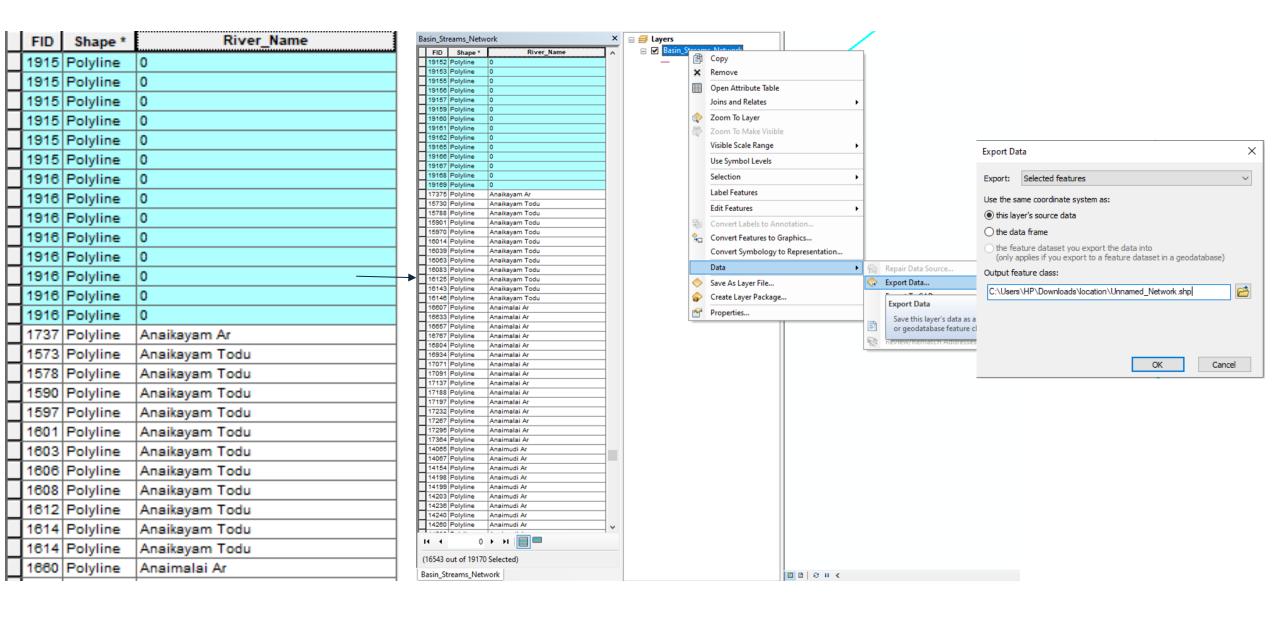


Attribute Table

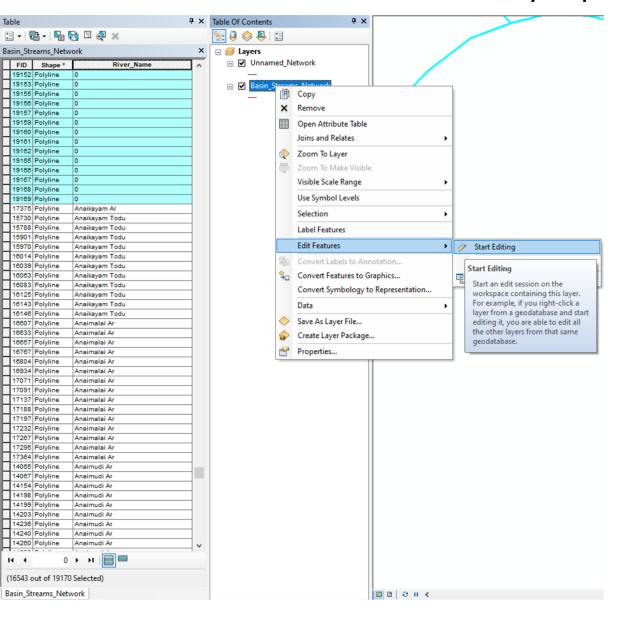
Click on the sort Ascending so that Name & Unnamed rows sorted.

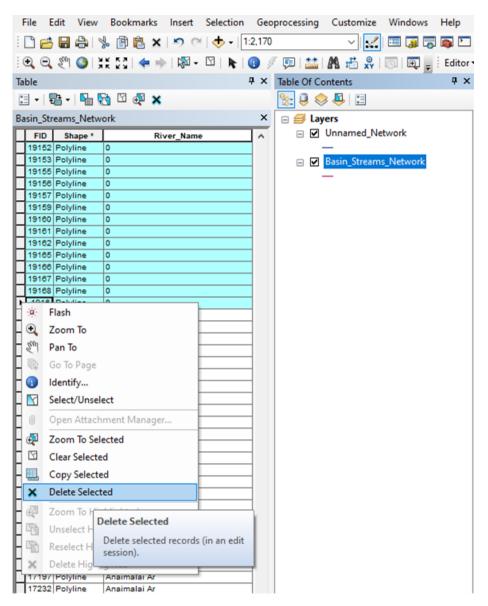
| Ц | Shape * | River_Name | | FID | Shape * | River_Name | 7 | | | Shape * | |
|---|----------|---------------|---|-----|------------|------------|-----------|------------------------|------|----------------------|----------------------------------|
| 3 | Polyline | 0 | | | Polyline | | _ | Sort Ascending | | Polyline | |
| | Polyline | 0 | 1 | П | 1 Polyline | | - | Sort Descending | | Polyline | |
| - | Polyline | 0 | 1 | H : | 2 Polyline | - F | | - | | Polyline Polyline | |
| - | Polyline | 0 | - | | 3 Polyline | | | Advanced Sorting | | Polyline | |
| - | | | | | 4 Polyline | | | S | | Polyline | |
| + | Polyline | 0 | | | | | | Summarize | | Polyline | |
| | Polyline | 0 | | | Polyline | | Σ | Statistics | | Polyline | |
| Ī | Polyline | 0 | 1 | _ | 6 Polyline | | _ | | | Polyline | |
| + | Polyline | 0 | 1 | | 7 Polyline | | | Field Calculator | | Polyline | |
| + | | - | - | | Polyline | | | Calculate Geometry | | Polyline Polyline | |
| + | Polyline | Kolikanam Oda | | | Polyline | | | carediate ocorrietry | | Polyline | |
| I | Polyline | 0 | | 10 | Polyline | | | Turn Field Off | | Polyline | 0 |
| Ī | Polyline | 0 | | 11 | 1 Polyline | | | | | Polyline | Anaikayam Ar |
| t | Polyline | Mulla Ar | 1 | 12 | 2 Polyline | | | Freeze/Unfreeze Column | | Polyline | Anaikayam Todu |
| + | Polyline | 0 | - | | 3 Polyline | | | Delete Field | | Polyline | Anaikayam Todu |
| + | | - | | | 4 Polyline | | ^ | Delete Field | | Polyline | Anaikayam Todu |
| ľ | Polyline | 0 | | _ | 5 Polyline | r i | G. | Properties | | Polyline | Anaikayam Todu |
| I | Polyline | 0 | | | _ | | - | | | Polyline Polyline | Anaikayam Todu Anaikayam Todu |
| Ī | Polyline | 0 | 1 | | Polyline | | - | | | Polyline | Anaikayam Todu |
| + | Polyline | 0 | 1 | | 7 Polyline | | 4 | | | Polyline | Anaikayam Todu |
| + | | _ | | | Polyline | | _ | | | Polyline | Anaikayam Todu |
| + | Polyline | 0 | | 19 | Polyline | | | | 1614 | Polyline | Anaikayam Todu |
| | Polyline | 0 | | 2 | Polyline | | | | | Polyline | Anaikayam Todu |
| I | Polyline | 0 | | 2 | 1 Polyline | | \neg | | | Polyline | Anaimalai Ar |
| ı | Polyline | 0 | 1 | 2 | 2 Polyline | | | | | Polyline | Anaimalai Ar |
| - | Polyline | 0 | - | | 3 Polyline | | \exists | | | Polyline Polyline | Anaimalai Ar Anaimalai Ar |
| + | | _ | | | 4 Polyline | | \exists | | | Polyline | Anaimalai Ar |
| + | Polyline | Aruvi Oda | | | 5 Polyline | | \dashv | | | Polyline | Anaimalai Ar |
| I | Polyline | 0 | | | | | \dashv | | | Polyline | Anaimalai Ar |
| Ì | Polyline | 0 | 1 | | Polyline | <u> </u> | \dashv | | | Polyline | Anaimalai Ar |
| + | Polyline | 0 | 1 | | 7 Polyline | | | | | Polyline | Anaimalai Ar |
| + | Polyline | Mulla Ar | | 2 | Polyline | | | | 1718 | Polyline | Anaimalai Ar |

Click on the layer to export the Unnamed rows to create a new file.



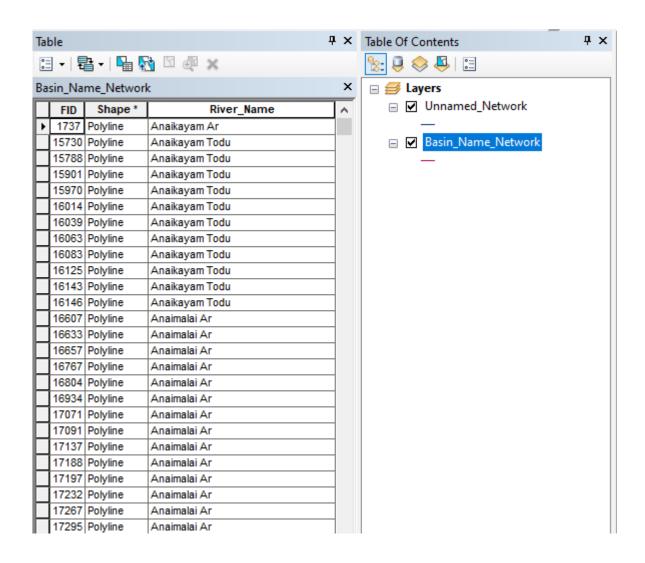
Click on the layer to edit the features and "Delete Selected" i.e. Unnamed rows so that only Name network rows left. As we already exported the Unnamed network rows. Save edits.

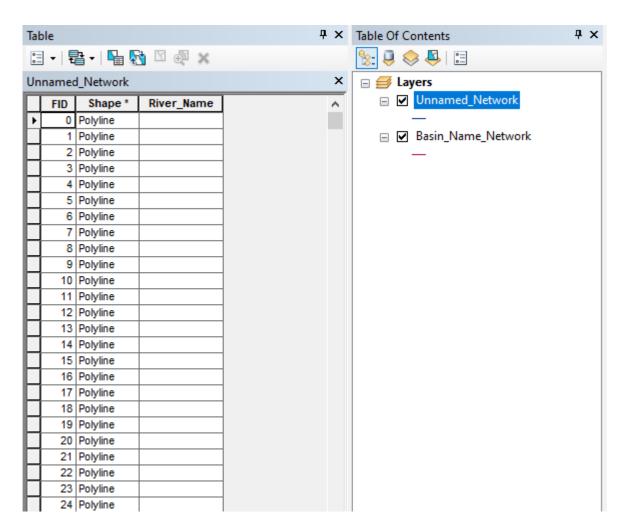




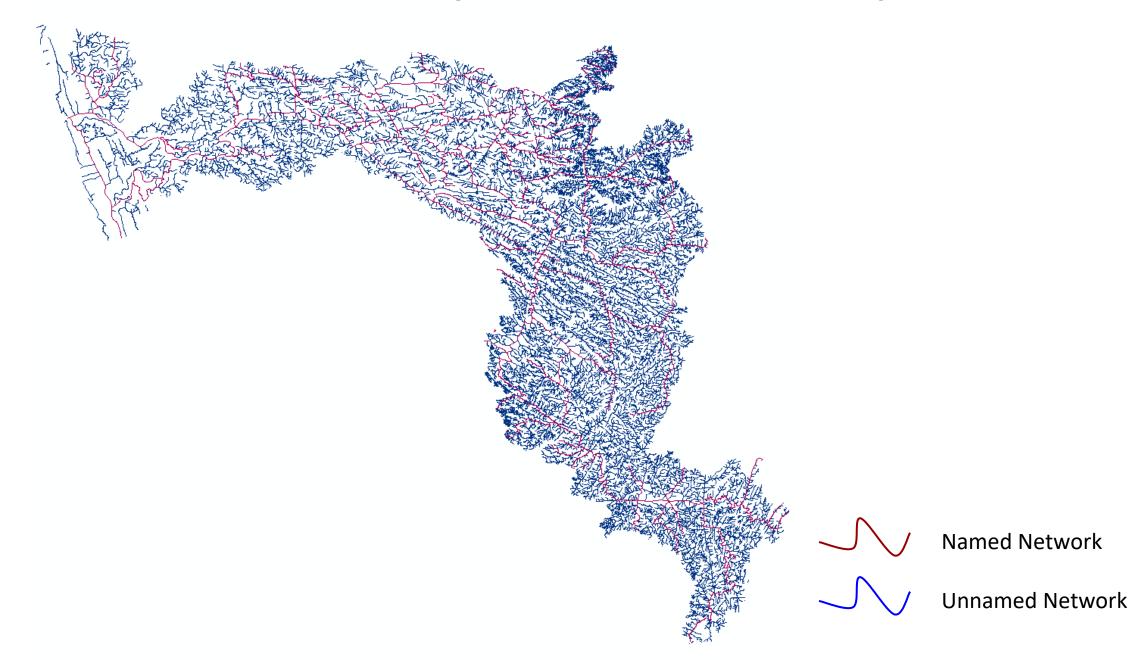
Name Network file

Unnamed Network file

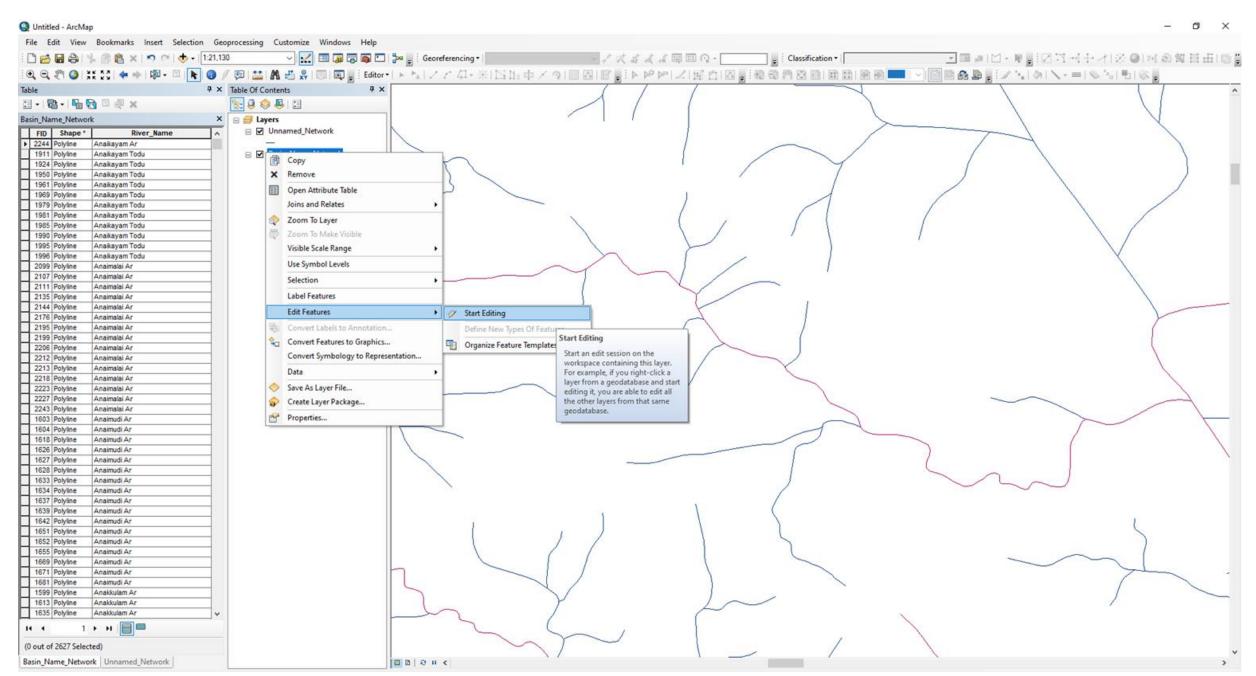


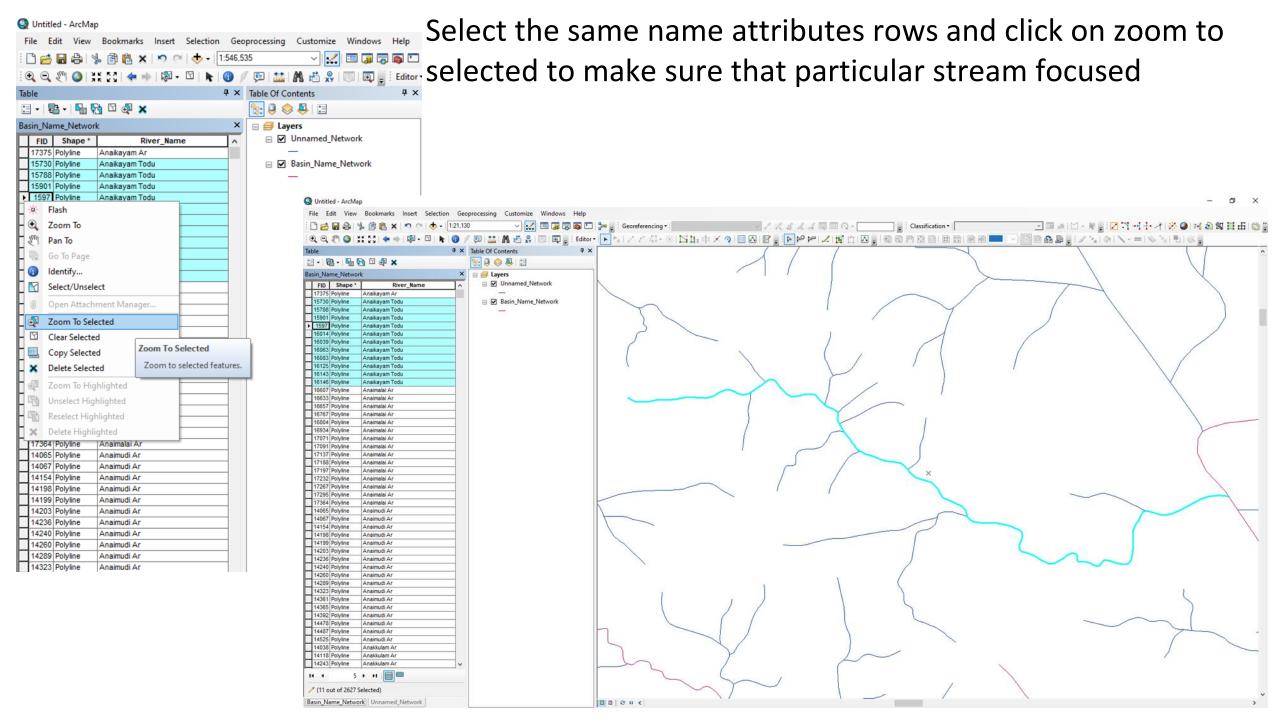


Entire Stream Network (Named & Unnamed)

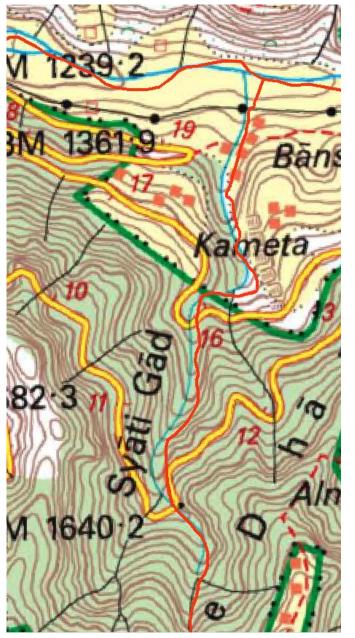


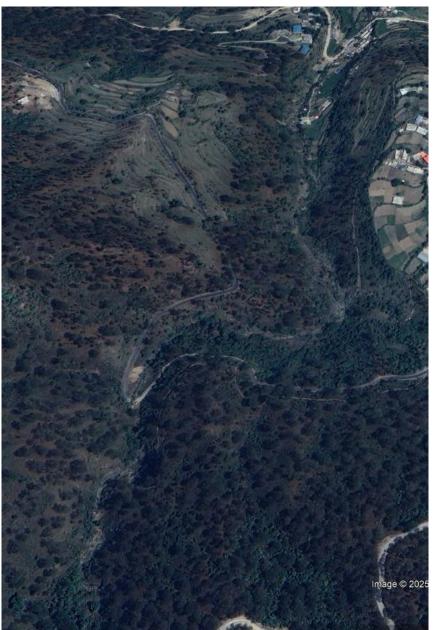
Now start edit features.

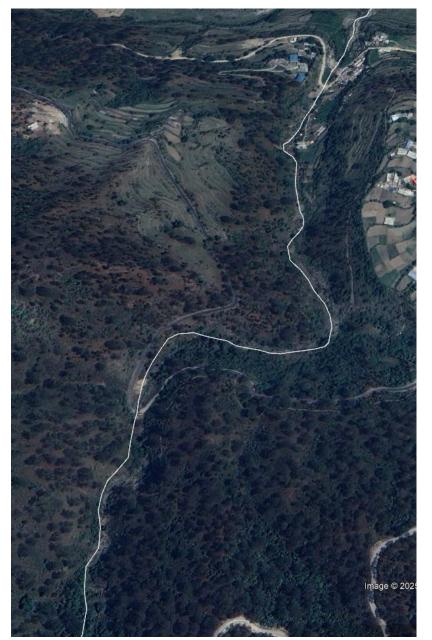




Verified on Sol & Google Earth

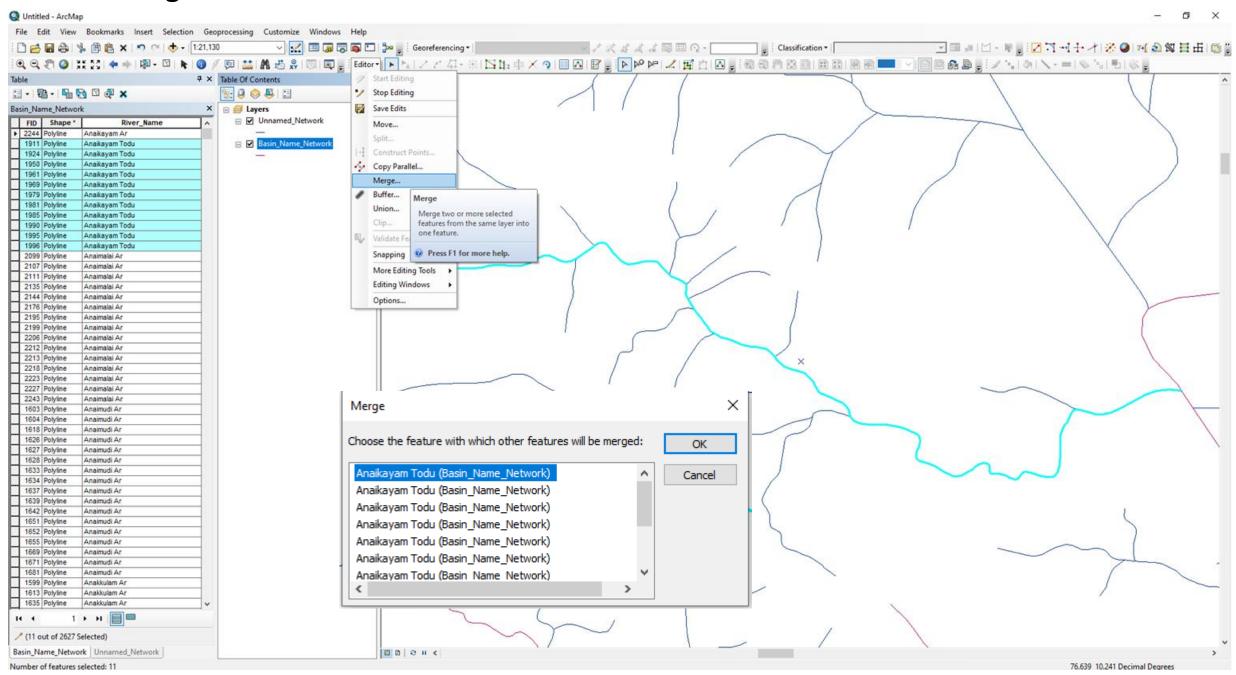




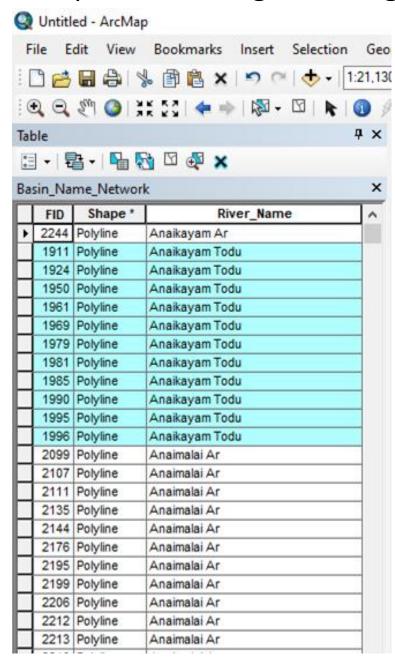


Note: The image shown is belongs to Uttarakhand

Click on merge

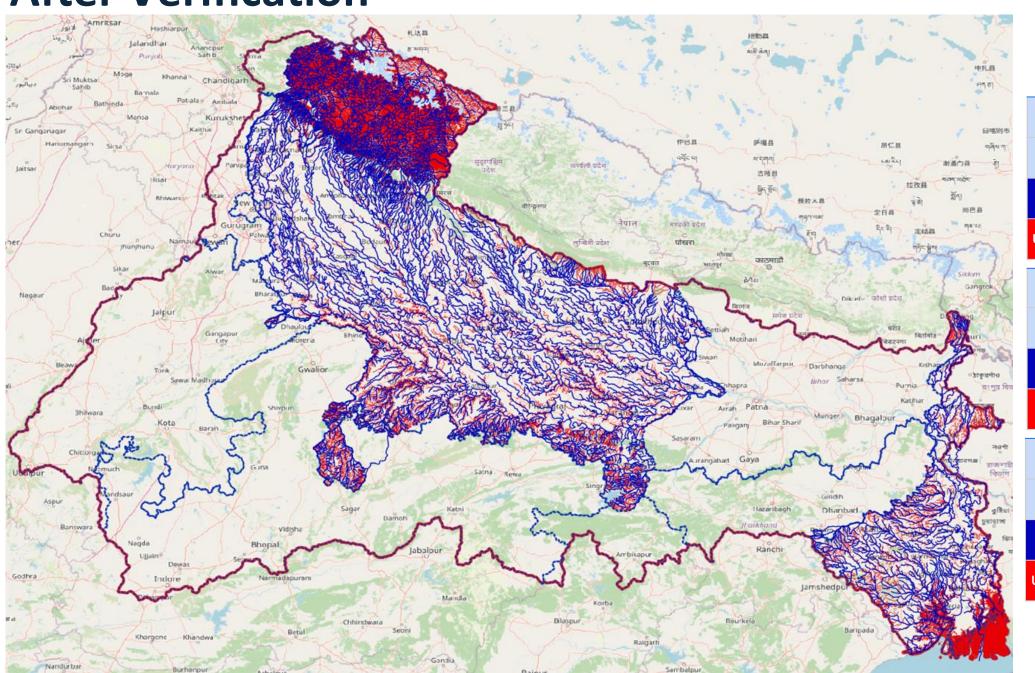


Multiple rows merged to single river row



| Basin_Name_Network | | | | | |
|--------------------|------|----------|----------------|---|--|
| | FID | Shape * | River_Name | ^ | |
| ▶ | 2244 | Polyline | Anaikayam Ar | | |
| | 1911 | Polyline | Anaikayam Todu | | |
| | 2099 | Polyline | Anaimalai Ar | | |
| | 2107 | Polyline | Anaimalai Ar | | |
| | 2111 | Polyline | Anaimalai Ar | | |
| | 2135 | Polyline | Anaimalai Ar | | |
| | 2144 | Polyline | Anaimalai Ar | | |
| | 2176 | Polyline | Anaimalai Ar | | |

After Verification



| Utta | Uttarakhand | | | |
|----------------|-------------|------------|--|--|
| | No. | Length(km) | | |
| Named Rivers | 2,181 | 19,721 | | |
| Unnamed Rivers | 31,167 | 51,468 | | |

| Uttar | Uttar Pradesh | | | |
|----------------|---------------|------------|--|--|
| | No. | Length(km) | | |
| Named Rivers | 2,451 | 61,936 | | |
| Unnamed Rivers | 7,281 | 27,503 | | |

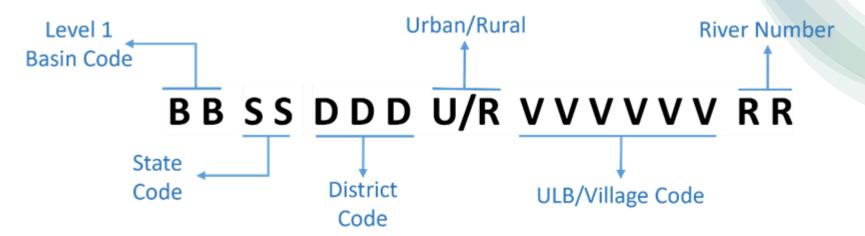
| West Bengal | | | | | |
|----------------|--------|------------|--|--|--|
| | No. | Length(km) | | | |
| Named Rivers | 493 | 15,303 | | | |
| Unnamed Rivers | 57,479 | 24,575 | | | |

River Codification System

- 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.
- River codes are assigned **based on the origin** of the river/stream and each sub-step in the code is assigned a digit or alphabet 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.

River Codification System

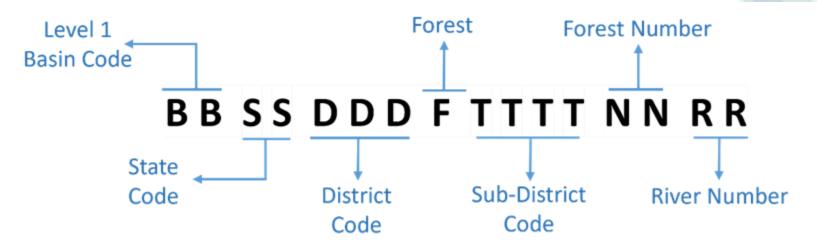
a) River originates in Urban/Rural Area:



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 "SS" indicate the state where the river originates, such as "UK" for Uttarakhand. The following three digits "DDD" 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.

River Codification System

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 "SS" indicate the state where the river originates, such as "UK" for Uttarakhand. The following three digits "DDD" 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.