Spatial Flood Early Warning Systems
- Godavari and Tapi Rivers
(under National Hydrology Project)

To develop medium-range flood early warning models for Godavari and Tapi Rivers using space based inputs

To develop spatial flood inundation simulation models using high resolution Digital Elevation Models

To develop web-enabled real-time spatial flood early warning system

To develop workflow mechanism for issuing flood advisory to the concerned DMS authorities during the flood event.

Study Basins

- **Length of the Godavari river** is approximately around **1,465 km**. Basin Area is **312,812 km²**. It drains through six states.

- 2006, 2010, 2013, 2016, and 2020 are major floods year in the Godavari basin.

The Godavari Basin

Year	Discharge (cumec)
1981	51496
1983	43879
1986	62889
1990	62800
1994	41042
1995	40205
2000	40942
2006	51916
2010	44200
2013	57244
2019	38070
2020	44988
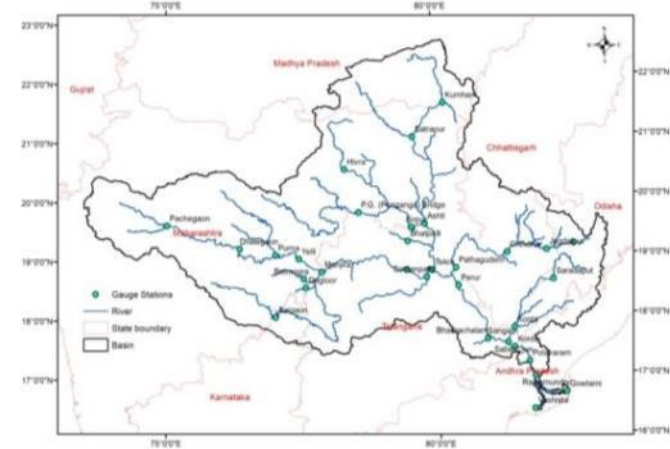
Major floods (discharge at Perur, CWC)

Hydrological setting of Godavari basin

- **Length of the Tapi river** is approximately around **724 km**. It drains through three states.

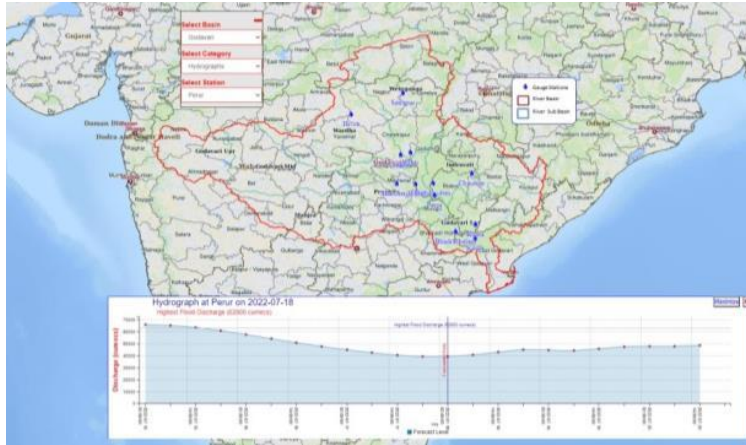- 2006, 2012, 2013 are major floods year in the Tapi basin.

Year	Discharge (cumec)
1944	33527
1945	28996
1949	23843
1959	36642
1968	44174
1998	19057
2006	25768
2012	9508
2013	12146

Major floods at Surat (CWC)

The Tapi Basin

Hydrological setting of Tapi basin

Spatial Flood Early Warning Systems - Godavari and Tapi Rivers (NHP)

Computed flood hydrograph at Perur of Godavari (18 Jul 2022)


Computed flood hydrograph at Ukai Dam, Tapi River (21 Jul 2022)

Major Highlights

- Flood forecast models are developed using space based inputs and hydro-meteorological data

- Spatial flood inundation simulation models are developed using very high resolution digital terrain model (DTM)

- Spatial flood early warning models of Tapi and Godavari Rivers are thoroughly calibrated and validated with historic hydro-meteorological data of CWC/IMD

- Operationally used in real-time during 2020, 21, and 22 using real-time rainfall data and forecast rainfall data of IMD

- Spatial flood alerts were disseminated to APSDMA during Godavari floods in 2020, 21, and 22

- Forecast accuracy is more than 87% with lead time of 36 to 52 hours at prominent locations

Spatial Flood Inundation Simulation (Floods of Godavari on 18 July, 2022)
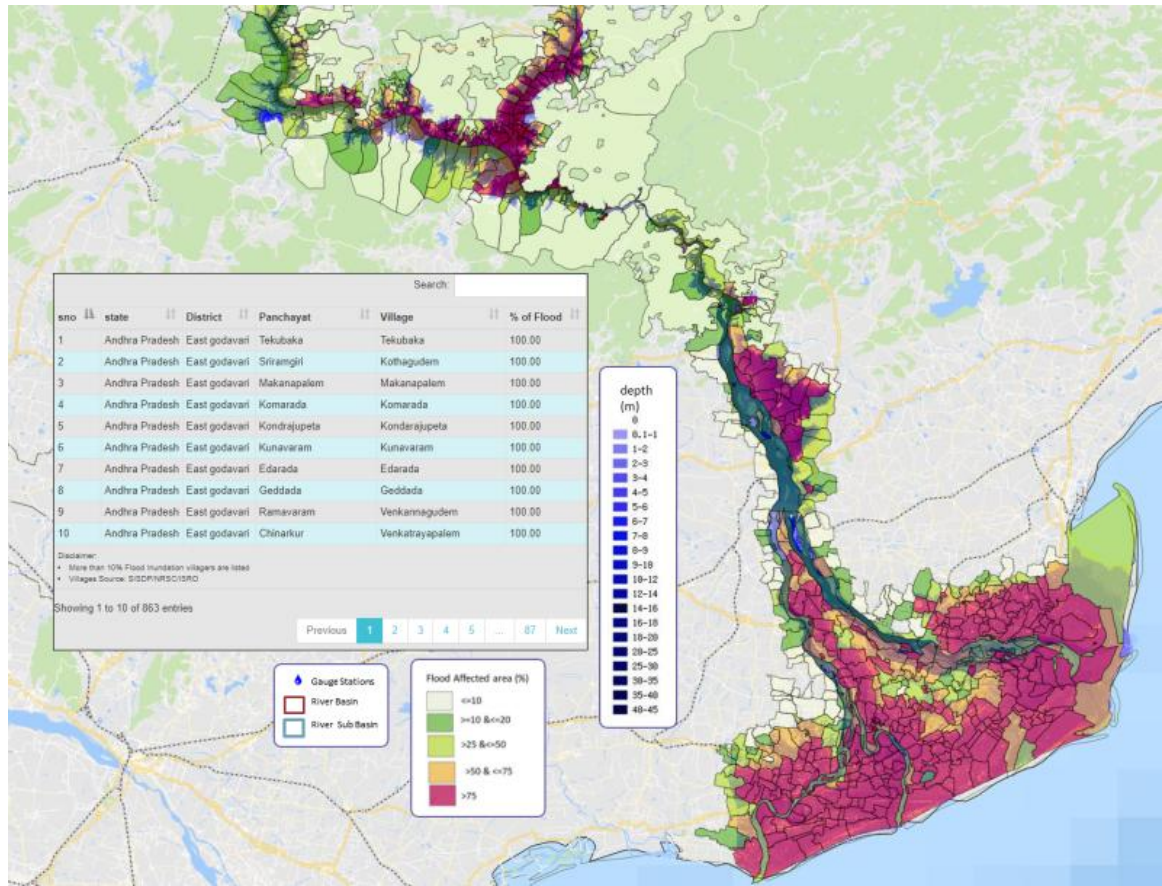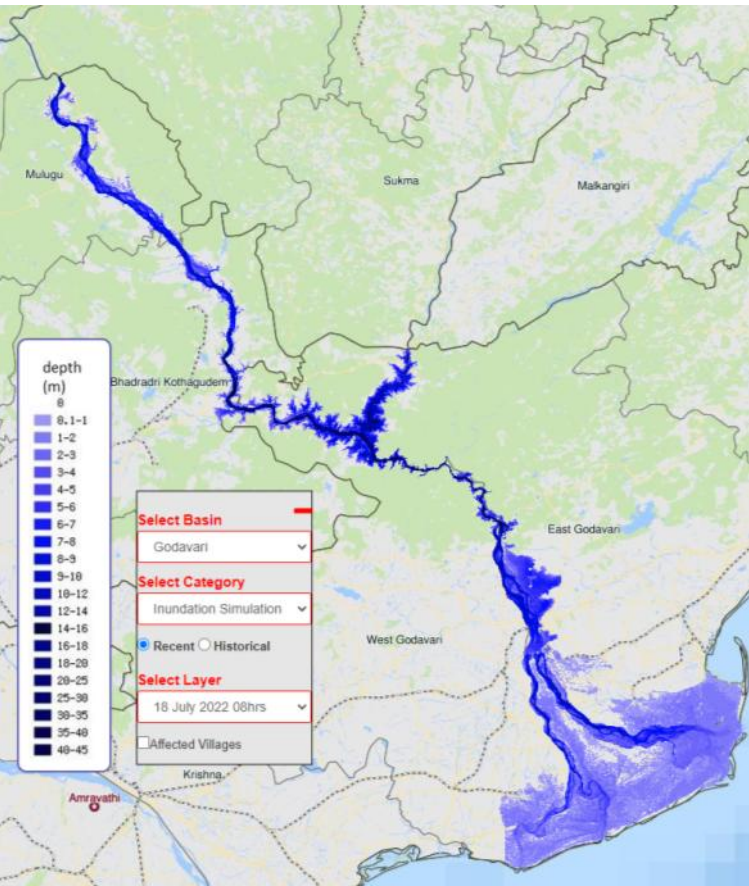
Spatial flood inundation simulation (18 Jul 2022)

Spatial flood early warning and villages affected (18 Jul 2022)