



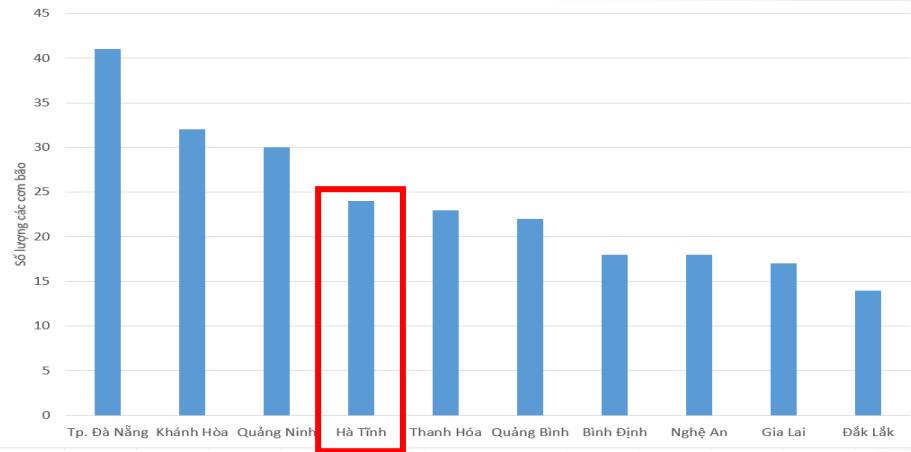
Urban floods and climate adaptation in Ha Tinh City





Geographical location

- Northern Central Region
- Coastal delta
- Soil sedimented in rivers, ocean makes flat and low topography



CURRENT CONDITIONS

19.7 °C ESE WIND & GUST 2.2 / 7.9 km/h

Feels Like 19.7 °

DEWPOINT 19.6 °C

PRESSURE --

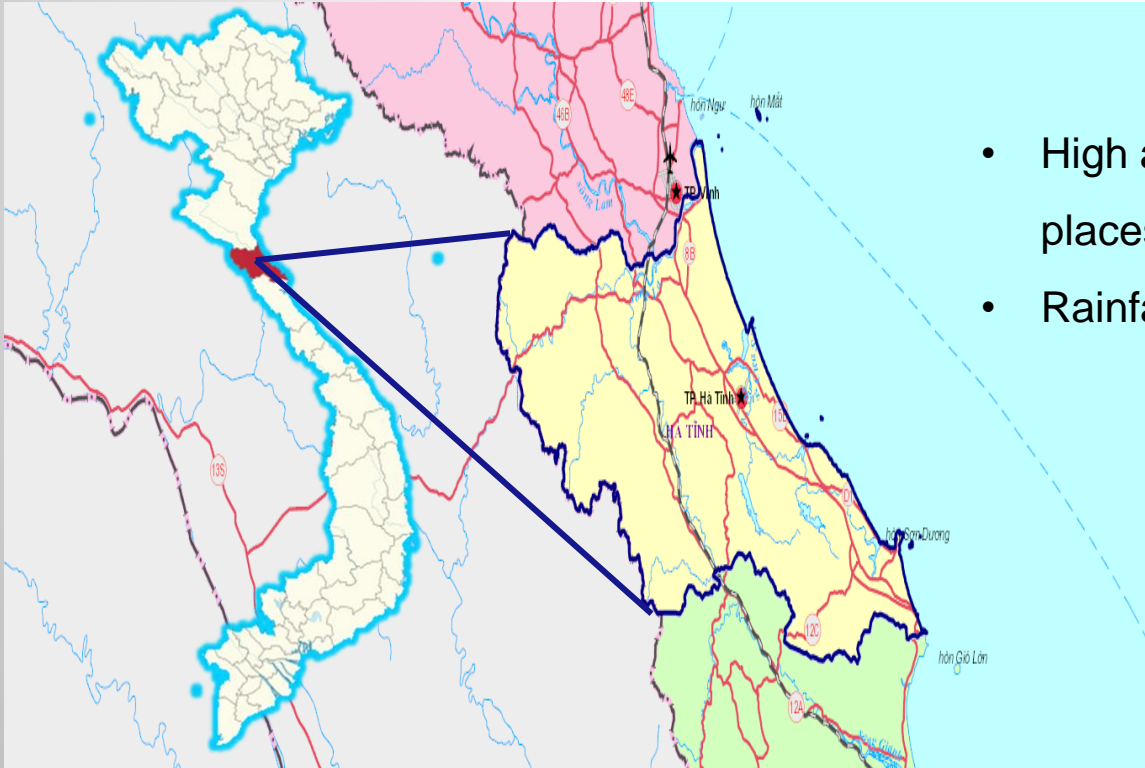
PRECIP RATE 43.18 mm/hr

PRECIP ACCUM 544.32 mm

HUMIDITY 99 %

UV 0

MAP



- High annum rainfall in the region, over 450mm, particularly over 500mm in some places
- Rainfall in October 2020 reached almost 550mm/day sometimes
- High annual quantity of typhoons with the 4th most typhoons in the country
- Typhoon season is from July till October. Heavy rains, floods are resulted from typhoons



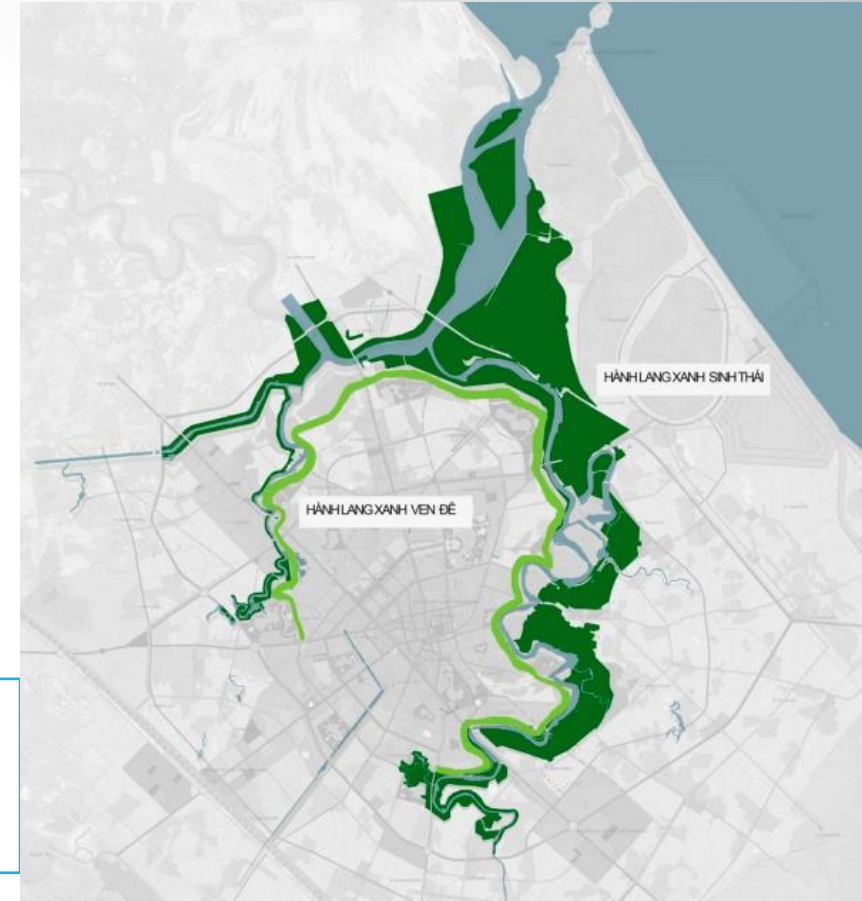
Topography



Mountains

Delta
(Ha Tinh City Zone)
at 1 – 3m higher than
sea level

Coastal zones at 6 –
10m higher than sea
level



- Ha Tinh City is located in a lowland, 1 – 3m
- Surrounded by 3 rivers



HA TINH CITY PEOPLE COMMITTEE



- In 2010, 2020, two historical huge floods in the city with 2m depth in some areas
- Rainfall dated to 17th October 2010: 878mm
- Between 11:00am and 16:35pm, 19th October 2020, the recorded rainfall was 1,100mm, estimated as the highest continuous rainfall so far.



0.3 – 0.7m floods in downtown streets
(17:00pm, 20th October 2020)



Over 0.5m flood in a temple inside the city
(16:00pm, 19th October 2020)



Flood in Thach Linh ward 19th
October 2020



Current situation

Trees/plants' roots, mud stuck in drainages

- Huge rainfall in short time that coincides with timing of high tides (almost 3m higher than sea level, even higher than city altitude) → closed drains to rivers
- In-completed draining network, urbanization filled low lands
- Some concreted drain ends remain as soil drains with weeds growing, blocked by inland pathways, by foreign objects.

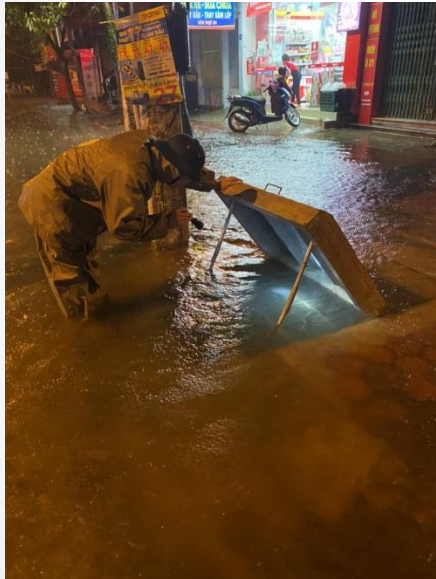


Untimely sewerage led to local floods

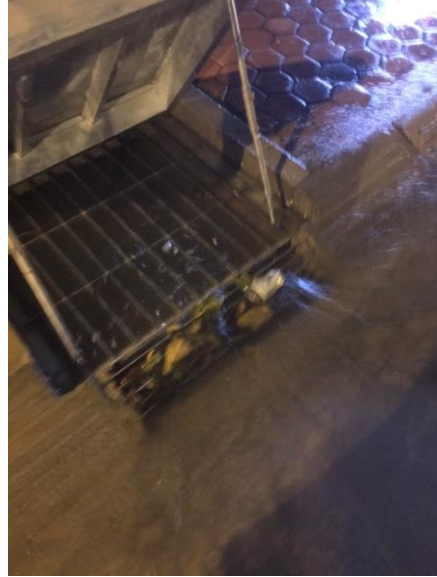




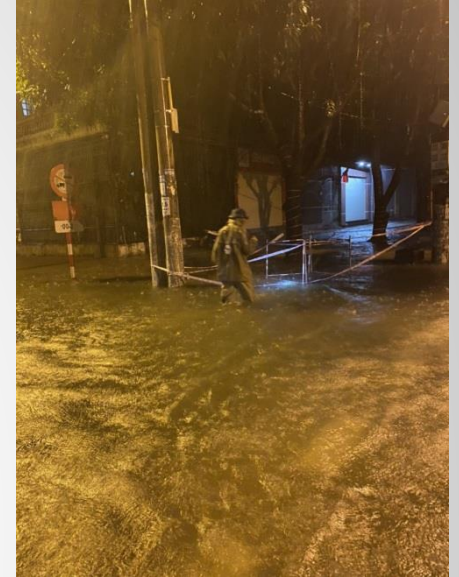
Temporary solutions



Open drains for rapid flow of rainfall



- Block foreign object/solid waste from drain exit holes
- Fencing, warning of opened drains to avoid accidents for passengers





What to do urgently?

- Mechanize in operation of the drainage network for timely opening/closing drains while high tides and floods;
- Dredge, clear sewers, drainage canals;
- Scan, clear occupation of drainage facilities and technical boundaries;
- Check water collection hubs, install further flexible pits for draining;
- Push up implementation of drainage facility development projects in Hai Thuong Lan Ong Street, Le Quang Chi Street etc.

Suggestions for city authorities & support from IURC Programme

Strategies

- Develop a hydraulic drainage model for the key drain network inside the dikes;
- Develop an early warning system for high tides;
- Review, install drains for each specific branch routines → develop a citywide master map;
- Support for research for zoning residential groups located outside city dikes for solutions to flood control.





LIVESTREAM OF DRAIN HUBS AT CONJUNCTIONS OF NGUYEN DU AND LE NINH STREETS – CITY DOWNTOWN

01 local staff, with his cell phone, to livestream with the zoom meeting from the site

To showcase the city current situation of flood control facilities, focused on:

1. Measurement of rainfall, the lowest, the highest;
2. Drain capacity, speed of flow/discharge in the highest flood;
3. Challenges to these drains;
4. Solutions done so far, what to be next?

Duration: 5 – 7 minutes



THANK YOU VERY MUCH