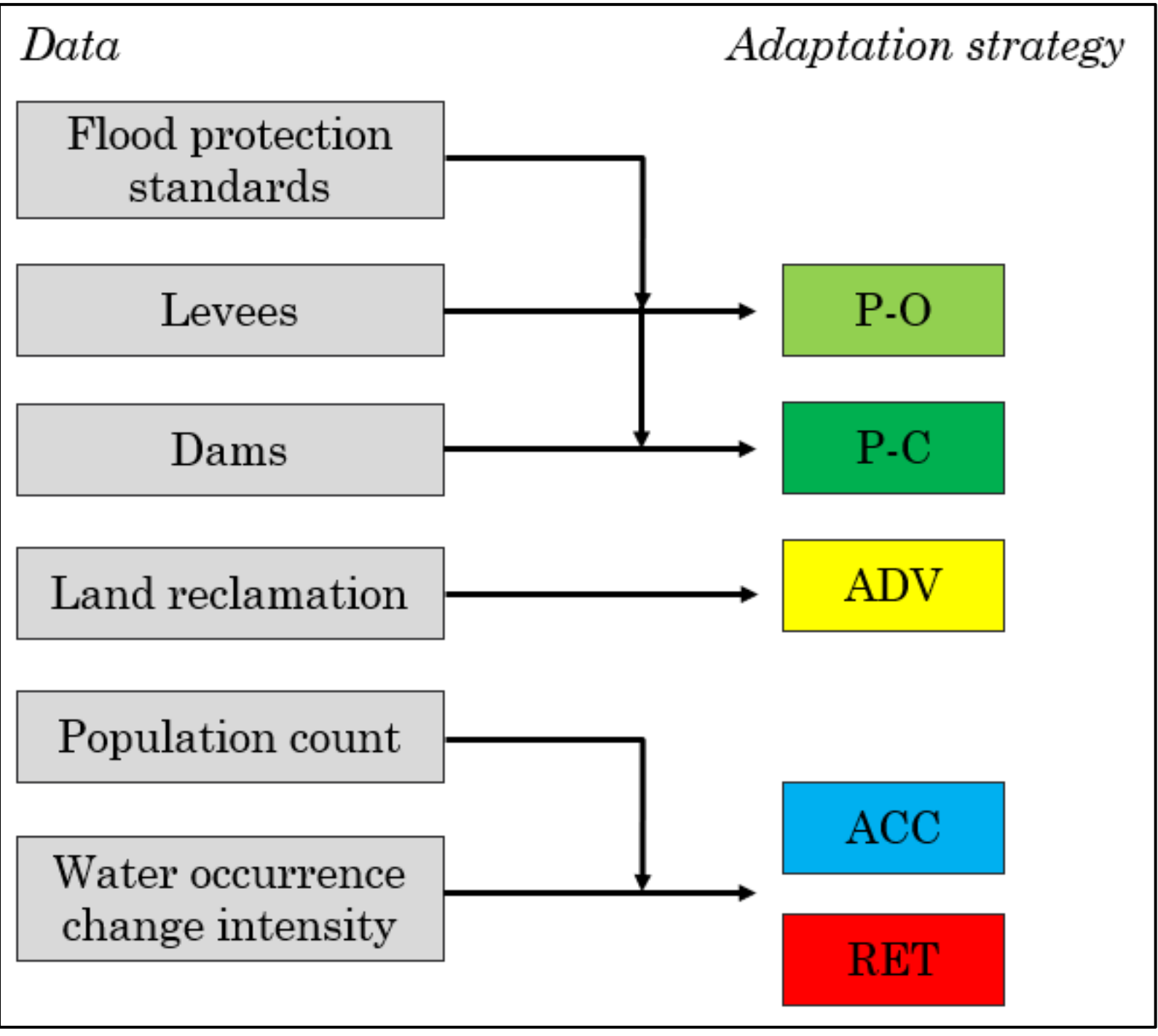


Introduction

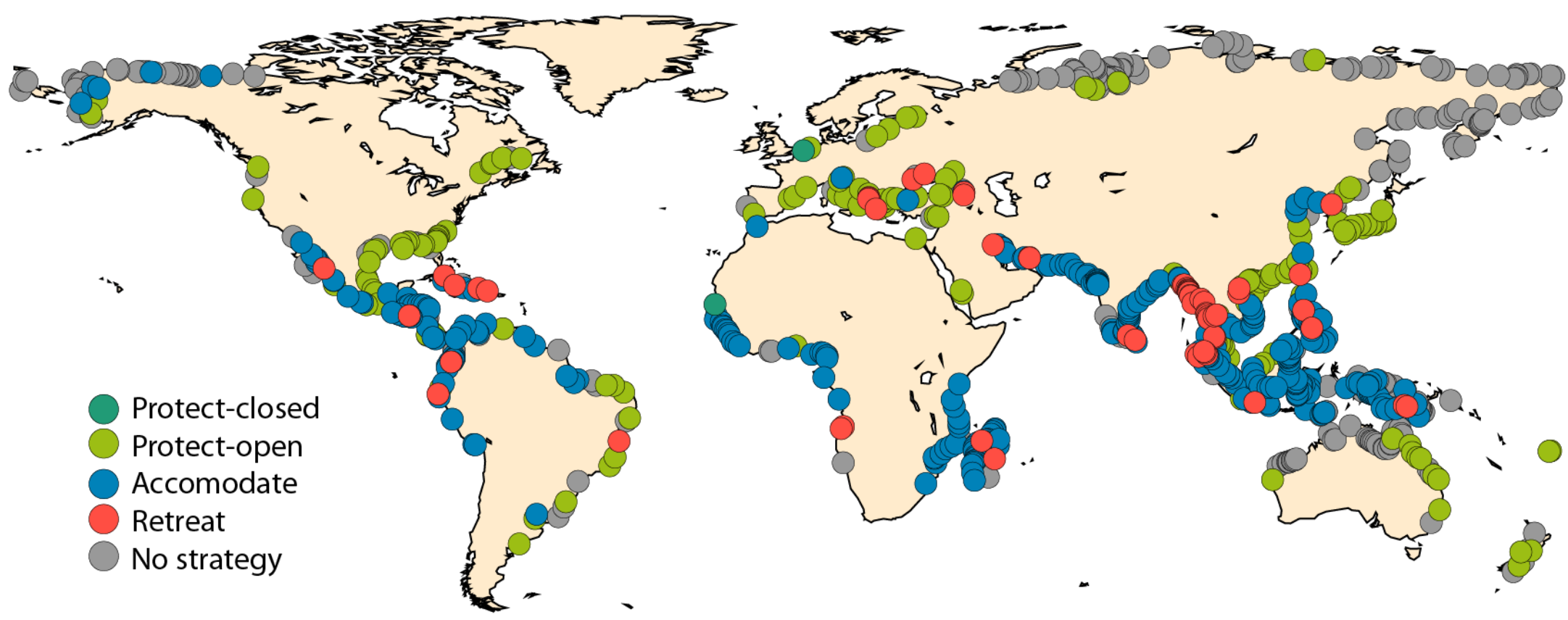
Sea-level rise imposes large challenges to delta communities, one of which is **flood-risk**. This risk can be mitigated but it requires a dedicated commitment to delta adaptation. Deltas can adapt through 5 distinct **adaptation strategies**: protect-closed (P-C), protect-open (P-O), advance (ADV), accommodate (ACC), and retreat (RET). While specific studies, delve into flood-risk adaptation strategies for individual deltas, there is an absence of a global overview. In this research, the focus is on presenting an overview of the current state of coastal flood-risk adaptation strategies for 810 deltas.

Method

- Multiple datasets are analyzed using GIS and clipped with each delta
- For each delta, the percentage of surface area dedicated to each adaptation strategy is determined
- Highest percentage = main adaptation strategy delta

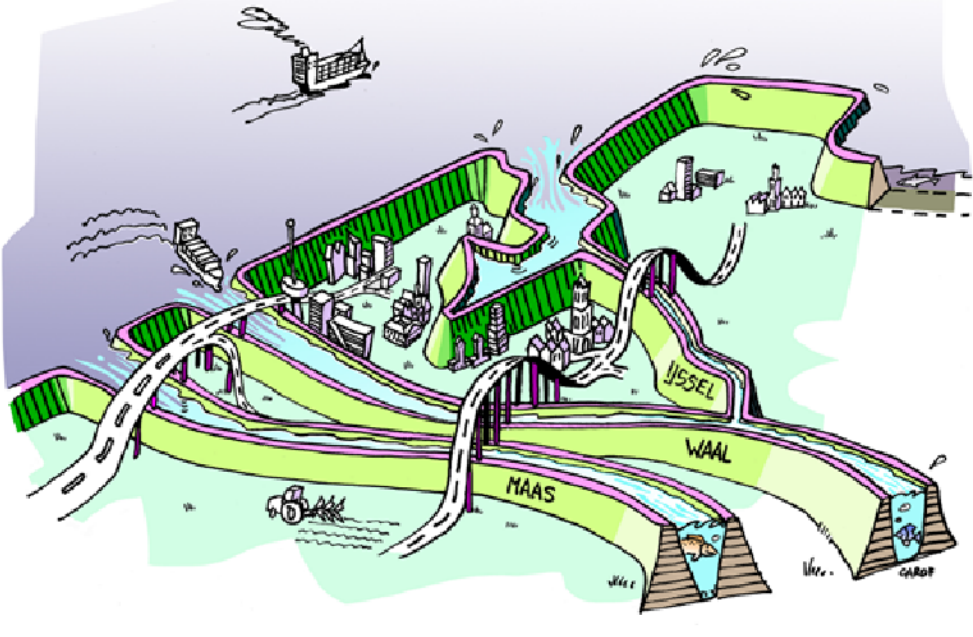
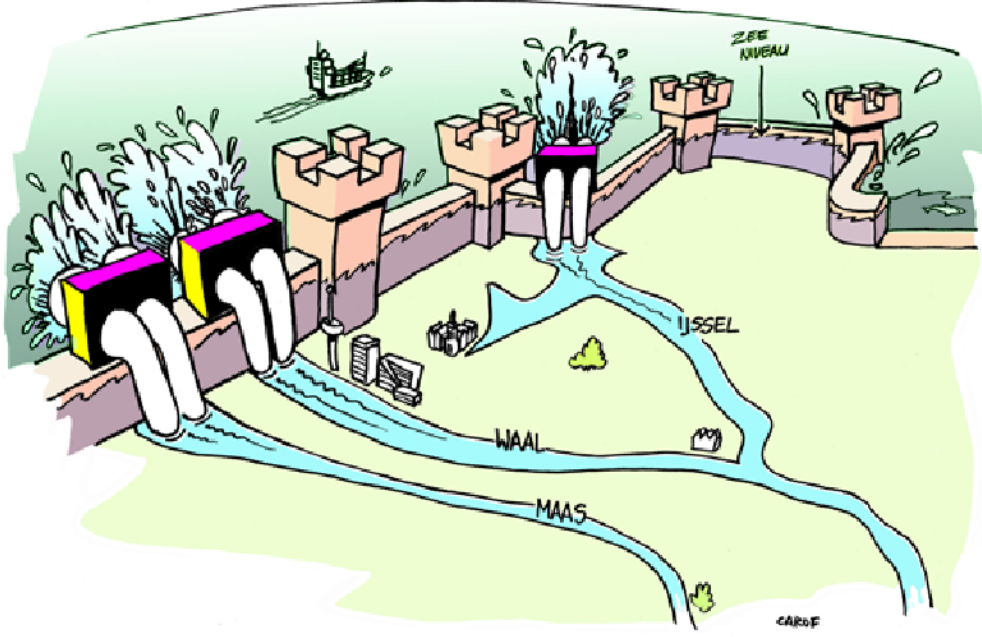


Data	Source
Delta polygons	(Edmonds et al., 2020)
OpenDELve: levees	(Nienhuis et al., 2022)
FLOPROS: flood protection standards	(Scussolini et al., 2016)
GRanD v1.3: dams (flood-control)	(Lehner, et al., 2011)
Coastal land reclamation 21 st century	(Sengupta et al., 2023)
GPW, v4: population count	(CIESIN - Columbia University, 2018)
Global Surface Water Explorer: water occurrence change intensity	(Pekel et al., 2016)



Protect-closed

Protect-open



Accommodate

Retreat



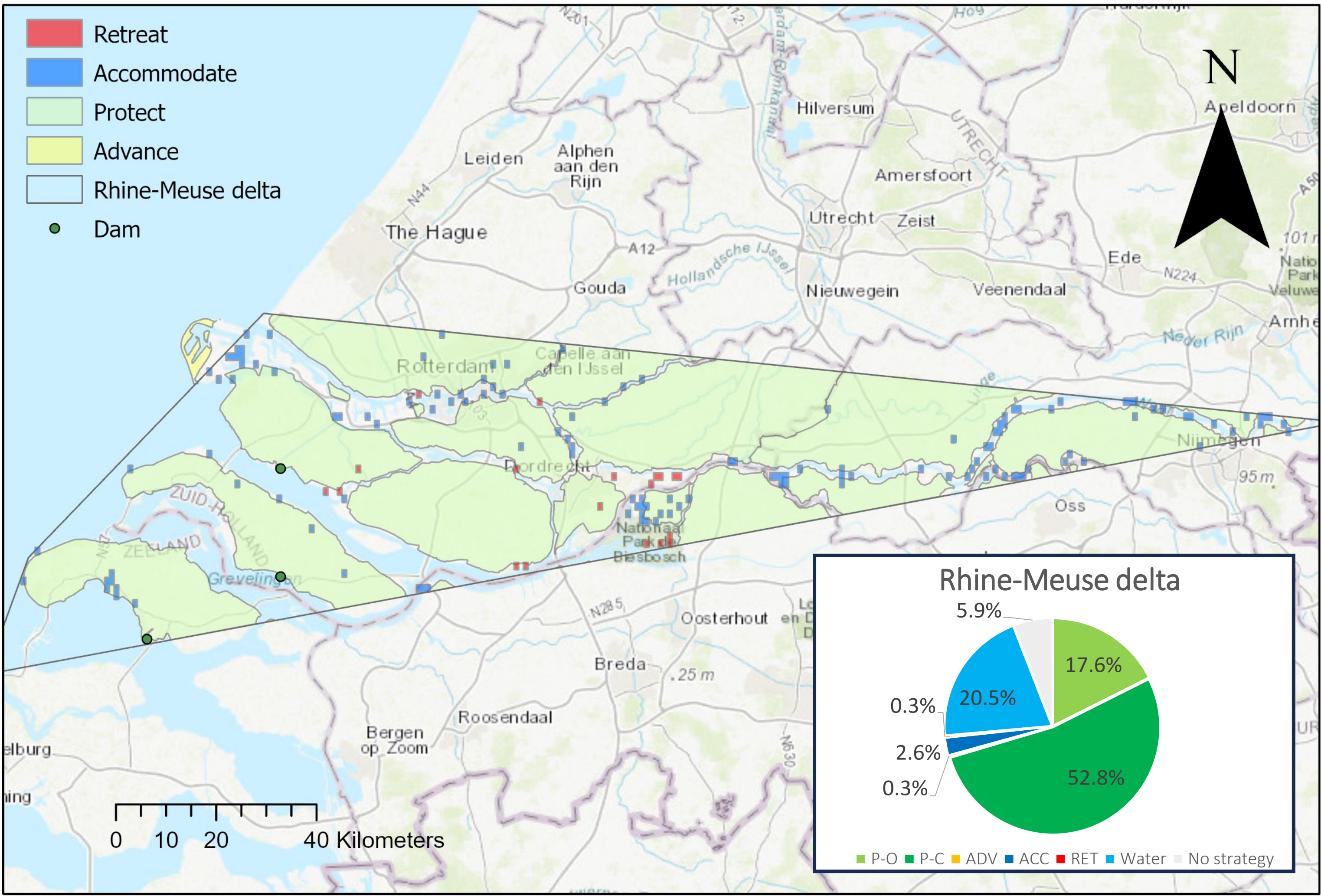
Advance



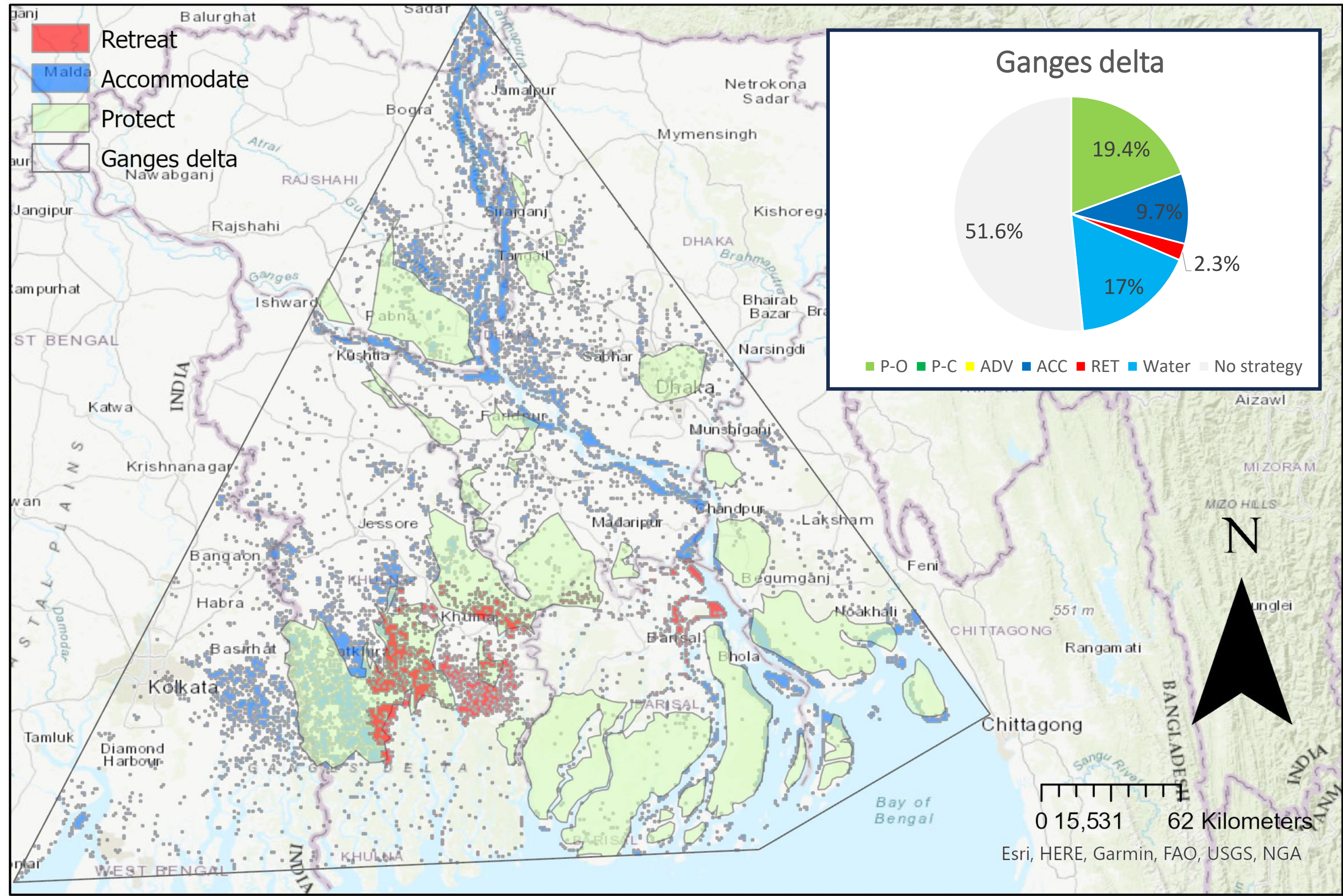
Global Distribution

Results

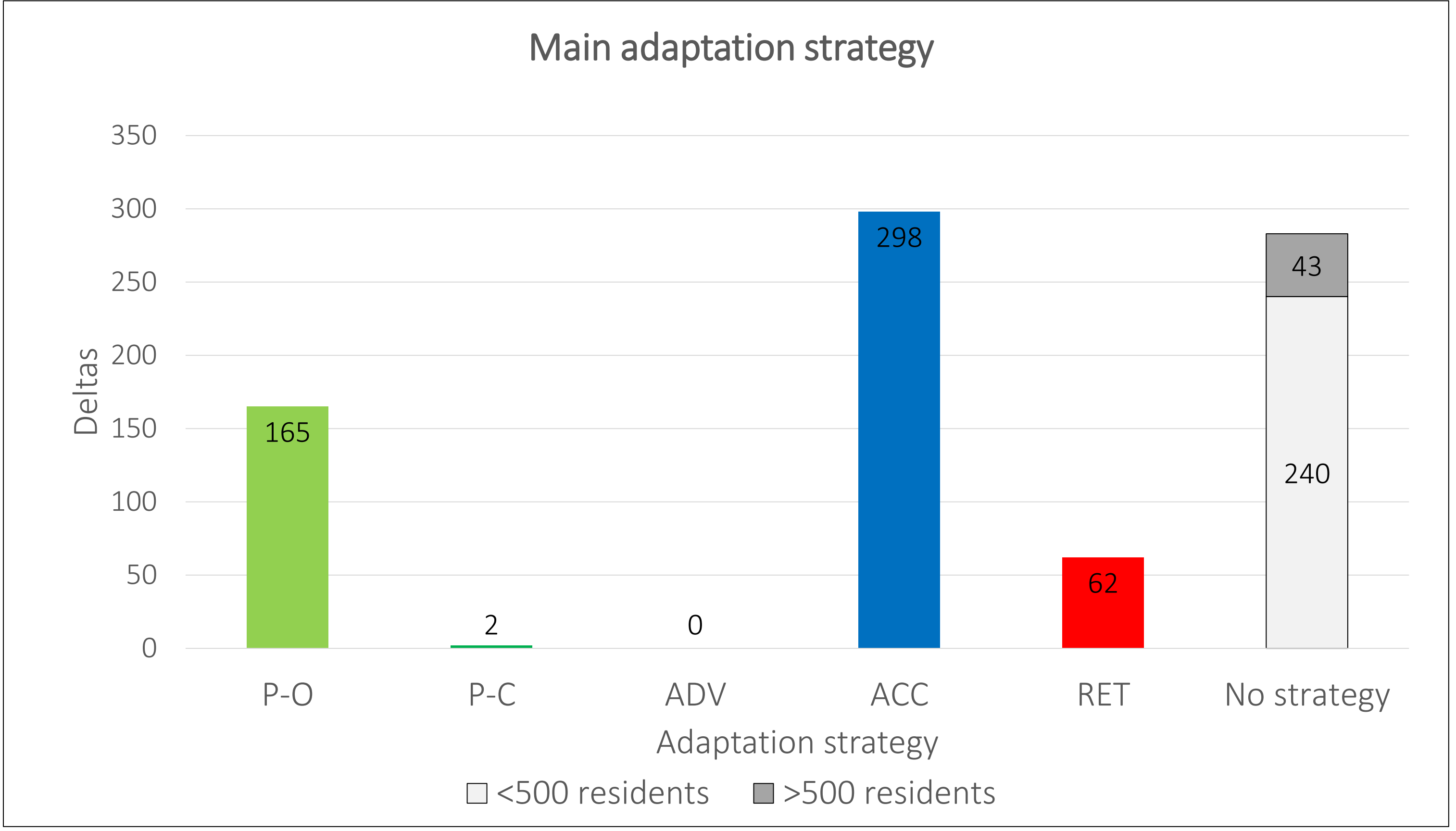
- Rhine-Meuse delta**: has a main flood-risk adaptation strategy of P-C and P-O



- Ganges-Brahmaputra-Meghna delta**: has a main flood-risk adaptation strategy of P-O



- 810 deltas**:



Conclusion

- Most deltas adopt **ACC** and **P-O**
- RET** and **P-C** are also used as main adaptation strategies in deltas, but their prevalence is lower
- ADV** has not yet emerged as the main adaptation strategy, but is implemented in conjunction with other strategies
- 34.9% of the deltas has **not adopted any strategy**, with 5.3% of them having a significant population
- Regional variations** in adaptation preferences are evident
- In **Europe & Central Asia**, the main adaptation strategy is P-O, whereas in the **Americas, Africa** and the **Asia-Pacific** region, there is a greater inclination towards the ACC strategy